

ENERGY CONSERVATION AND CONVERSION ACT OF 1975

HEARINGS BEFORE THE COMMITTEE ON FINANCE UNITED STATES SENATE NINETY-FOURTH CONGRESS FIRST SESSION

ON

H.R. 6860

AN ACT TO PROVIDE A COMPREHENSIVE NATIONAL
ENERGY CONSERVATION AND CONVERSION PROGRAM

JULY 10, 11, 14, 15, 16, 17, AND 18, 1975

PART 2 OF 2 PARTS
(July 15, 16, 17, and 18, 1975)



Printed for the use of the Committee on Finance

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1975

55-583

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price \$4.80

5341-137⁶

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ENERGY CONSERVATION AND CONVERSION ACT OF 1975

TUESDAY, JULY 15, 1975

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to notice, at 10 a.m., in room 2221, Dirksen Senate Office Building, Senator Russell B. Long (chairman) presiding.

Present: Senators Long, Talmadge, Gravel, Nelson, Hathaway, Haskell, Hansen, Packwood, and Roth, Jr.

The CHAIRMAN. At this moment the Senate is meeting and we do not have consent of the Senate to meet as a committee; so, we will meet on whatever basis we can meet, and we will seek consent to make it official in order to make the information available to the Senate thereafter.

We have been conducting these hearings this way throughout because of the prolonged debate over the New Hampshire Senatorial contest. We were scheduled to hear Mr. Leonard Woodcock this morning. I have asked that the Senators be informed that Mr. Woodcock is here and that he is testifying. I have urged that they come and hear Mr. Woodcock testify.

Mr. Woodcock, we are very pleased to have you here with us today, sir, and we would very much like to know what your views are with regard to this energy bill as proposed.

**STATEMENT OF LEONARD WOODCOCK, PRESIDENT, UNITED
AUTOMOBILE, AEROSPACE, AND AGRICULTURAL IMPLEMENT
WORKERS OF AMERICA (UAW), ACCOMPANIED BY JACK
BEIDLER, LEGISLATIVE DIRECTOR**

Mr. Woodcock. Thank you very much, Mr. Chairman. I appreciate this opportunity.

The bill under consideration by this committee has some desirable provisions, most notably the establishment of mandatory fuel economy standards for automobiles. However, we think it covers only a limited aspect of the energy problems of this country. The UAW firmly believes that the Nation needs a comprehensive program to deal with energy matters. We have on many occasions set forth our suggestions to achieve that.

The key mechanism required is a National Energy Production Board which would be charged with planning and executing a vigor-

ous program to develop our energy resources. I will not go into details now regarding the Board, but I do want to emphasize the need for establishing it and providing authority to make loans, contract with the private sector, enter into joint ventures, and undertake its own activities where necessary, in order to break bottlenecks and stalemates and to develop new initiatives. That would permit us to have a truly comprehensive national energy program, which would determine specific targets regarding all forms of energy and develop the procedures necessary to achieve those goals.

With regard to H.R. 6860, the most notable provision is part I of title II, regarding automobile fuel economy standards. On behalf of my union, I fully support the establishment of such mandatory standards and believe that the approach in this bill is a sound one. Unfortunately we can not rely upon mere assurances or voluntary commitments from the companies. I urge the Congress to enact such standards.

As you know, proposals were considered in the House for alternative mechanisms to implement such fuel economy requirements. The fundamental point to be considered is that the country's conservation effort is affected by total gas consumption of all cars in use, not by the fuel efficiency of individual cars or models. That is, gas consumption is a reflection of the average fuel efficiency of all cars. If, for example, the goal is to improve fuel efficiency by 40 percent, that result could be achieved by getting a 50 percent improvement on half of all cars, and a 30 percent improvement on the other half; it is not necessary to get a 40 percent improvement on each car.

I think we need to emphasize that production of small cars is not, in itself, the country's goal; the goal is better overall fuel efficiency. While greater emphasis on smaller cars is clearly a key move to achieve that goal, there are reasons to believe that overemphasizing small cars can produce disadvantages. For example, consumer response might be a slower replacement of the less efficient cars now in use. Many people have a real need for larger cars—for example, the family with several children, or salesmen who carry large amounts of goods. We need to have a wide range of models available.

An attempt to increase fuel efficiency by requiring all cars to achieve certain standards, by imposing excise taxes on cars which fail to achieve those standards, or otherwise, is likely to be more disruptive to our economy without producing greater conservation of fuel.

We most strongly emphasize that the fuel efficiency standards be related to the average production of each manufacturer, and not by penalizing individual models.

The fuel efficiency levels for 1978-80 models, as specified in section 212, that is, 18.5 to 20.5 miles per gallon, are consistent with goals which we have been advised are feasible. It must be emphasized, however, that the bill conditions those goals on the continuation of 1975 emission standards. Under present legislation, those standards will not apply to 1978-80 models. I recognize modification of that legislation is not under this committee's jurisdiction, but it is relevant to point out the need for prompt congressional action on those emission standards in order to permit the implementation of the fuel efficiency standards of this bill. Modification of those future auto emission standards will not create significant health hazards. The total environmental and conservation needs of the country will be better served by achiev-

ing the fuel efficiency goals of this bill, and applying consistent emission standards, than by permitting the reductions indicated in section 212(c) to occur.

The fact is that we need additional knowledge to determine appropriate emission and fuel efficiency goals for the 1980's. I have advocated Government actions regarding research and requirements for auto manufacturers to demonstrate improvements in their production capabilities, in order to provide the technological basis for setting such standards. In that regard, I question whether the establishment of a fuel efficiency standard for 1985 models is justifiable at this time; it seems more appropriate to leave it to future determination—based on additional data—just as the bill would do for 1981-84 models.

Another portion of the bill likely to produce desirable results is part II of title II—that would repeal certain excise taxes. Each of the products involved—intercity buses, radial tires, and rerefined lubricating oil—are associated with more efficient use of petroleum products, so there should not be any tax penalty on their use.

In view of the current state of the domestic and international market for oil, and stagflation in our national economy, I strongly urge this committee to delete title I: "Import Treatment of Oil." Its implementation at this time has potential for substantial harm to our already battered economy, by restricting imports and setting up a system of quotas, licenses and duties for petroleum imports. It would be a costly and inefficient way of trying to protect ourselves against unforeseen disruption in international oil markets. Further, it is extremely likely to fan the fires of inflation and to hinder any possible economic recovery, at a time when the possibilities of effective bargaining with the international oil cartel are quite encouraging.

The administration's policy is aimed at decontrol of domestic petroleum prices. I certainly hope Congress will prevent that. This committee would do well to remember that it was under the umbrella of our former oil import quotas that our current energy problems and their inflationary consequences matured.

On other occasions, we have pointed out that the very legitimate need for protecting our Nation from the kind of shortrun disruption caused by quasi-political actions, such as the oil boycott of 1973-74, can be adequately met by establishing adequate oil reserves and operating a kind of buffer-stock policy. Under such a system, reserves would be replenished or expanded when prices were relatively low; when dramatic and unforeseen changes in the oil market, both domestic and international, occur, reserves could be released. Congress is already moving toward this type of goal, and we certainly encourage those efforts.

Part III of title II, regarding residential insulation and solar energy equipment and individual purchases of electric motor vehicles, is an example of unsatisfactory tax legislation.

Even though we very much want to see support and encouragement of both solar energy and building insulation, we have consistently taken the position, most recently before the House Ways and Means Committee yesterday, that the tax code is not the appropriate nor necessarily most effective way of influencing resource allocation. If, as we have urged, the Government does want to encourage home insulation and residential solar energy, we prefer direct grants, loans, and subsidies.

With respect to electric motor vehicles, the evidence is extremely unclear as to whether such vehicles would in fact be energy-conserving given the great inefficiencies of converting fuel into electricity, as compared to burning the fuel directly in the vehicle. According to the Federal Energy Administration, 65 percent of the energy content of nuclear or fossil fuels used in electricity conversion is lost in the form of heat, and another 3 percent is lost in transmission and distribution. Thus, aside from our objections to using the tax code to promote energy efficiency, and our preference for direct subsidies, it is too early to decide whether electric vehicles should be given such special encouragement. Instead, they should be considered as one of many possible improvements in motor vehicles.

We suggest that Congress show its support for the programs outlined by appropriating adequate earmarked funds via ERDA.

Title IV of this bill contains a number of miscellaneous tax provisions aimed at business, some of which increase business taxes and some of which reduce them. Frankly, we find all of them objectionable.

While we are opposed to investment tax credits, the effect of section 431 (b) regarding air conditioning and space heating and section 432 regarding certain electric generating facilities would be to further distort an undesirable tax provision. Instead of these piecemeal adjustments, the entire investment tax credit should be discontinued.

In summary, the Congress should enact mandatory auto fuel efficiency standards, and this bill provides a good procedure to achieve that. The repeal of various excise taxes on fuel-efficient equipment is also desirable. The remaining portions of the bill are not desirable, and I urge that they be deleted. Finally, I emphasize that other congressional action is needed—particularly the establishment of a National Energy Production Board, and the modification of future auto emission standards—in order to move toward our energy goals.

The CHAIRMAN. Thank you very much, Mr. Woodcock.

I see we have Senator Percy here with us. Perhaps Senator Percy might want to just make his statement at this point.

If you care to, Senator, you can make your statement at this point, and if the Senators want to ask you some questions, you can come back later and answer them.

Senator PERCY. Mr. Chairman, I think it would be better for Senator Mathias, Senator Brooke, and me to make these statements together. We would appear as a panel to save the time of the committee, and I would certainly defer to Leonard Woodcock. I enjoyed his testimony.

The CHAIRMAN. Fine. We are going to be voting at about 10:30. If you come back after that 10:30 vote, we will hear the three of you.

Senator PERCY. All right. Fine.

The CHAIRMAN. Senator Talmadge.

Senator TALMADGE. Thank you very much, Mr. Woodcock, I listened and read your statement as you proceeded, and found much with which I am in agreement.

We had before us last week, I believe, the president of General Motors, the executive vice president of Ford, and the vice president for engineering of Chrysler. All of them were opposed to mandating certain fuel economies on this theory—they thought that the House bill would mean that the majority of automobiles in this country would have to weigh about 2,000 pounds, or approximately the size

of a Volkswagen, and they felt that a great many people desiring larger cars would keep their cars, their old ones, as long as they would run, and that it would create a good deal of unemployment in the automotive industry. I think their estimate was about a half million employees.

I notice you are testifying just the opposite. In other words, you think the automotive industry executives are wrong. You do not think it would create unemployment in the industry.

Mr. WOODCOCK. I think, Senator, that there are many provisions in various committees of the Congress on both sides dealing with this problem of mandatory requirements, emission standards, et cetera. There is one provision being discussed calling for relief on the emissions for cars that can exceed 20 miles per gallon on the urban cycle. If that should happen, I agree with the industry. It would cause substantial unemployment in the domestic automobile industry if it were required by 1978. General Motors might have 30 percent of its vehicles at that target level at that time. Ford said 25 percent, and our analysis agrees with that. Chrysler and American Motors would have difficulty getting to that point, so that there would be substantial displacement by continued increases in imports.

But with regard to the standards we are supporting here, 18.5, 19.5, 20.5, we did not just grab these out of the air. We have had substantial advice. Our principal consultant is David Ragone, who is dean of the engineering school at the University of Michigan, and one of the top experts in this field. He advises us that these are perfectly feasible standards on an average basis which would permit the continued production of larger cars which will have to be reduced in weight. We must remember that the family-sized car of the 1950's weighed about 3,500 pounds, but the family-sized car of the 1950's and 1960's grew in weight to 4,700 pounds. So they are now working on taking that weight out, which will also help fuel efficiency.

We are convinced that these are feasible standards, but some of the standards being talked about are feasible only for the very smallest cars.

Senator TALMADGE. Let me give you my personal horror story now. I have been driving an Oldsmobile 98 for a good many years, and following the OPEC embargo, my Oldsmobile 98 was then 6 years old. I wanted to be patriotic, so I bought the smallest Oldsmobile Cutlass I could get. Well, I took my 98 that had no trade-in value at that time—it was a large car, and people were apprehensive about large cars, particularly one 6 years old—I took it back to Georgia so I could use it on weekends when I go home. I have my Cutlass up here; it is now 18 months old. My 98 is 7½ years old. I get 15 miles to the gallon on my 98, and I get 12 miles to the gallon on my Cutlass. So, it looks like the more we tinker with these automobiles, the poorer our mileage gets. Now, has that been corrected?

Mr. WOODCOCK. The 1975 models have had a substantial step-up in fuel economy. Through the use of the catalytic converter, they are better able to fine-tune the engine, and I accept the fact that they are now working hard on this.

Senator TALMADGE. [presiding]. I recited that story to Mr. Estes, who I believe is the president of General Motors, and he said the 1975 models would be better. As you know, we use about 6 million barrels

a day of petroleum to propel automobiles. That is a little more than a third of the total used petroleum in the country. It sometimes is difficult to get Washington to see small things, to correct problems. It seems to me the best way to conserve at the present time would be first to vigorously enforce the 55-mile speed limit. You would get 15 to 20 percent more mileage in the car at 55 than you can at 70. And yet, you get on the highways today, driving 55, and they will pass you like you are backing up. It seems to me, also, that we ought to cancel credit cards. Then we will have a lot of these college students not using their automobiles needlessly. Likewise high school students, and maybe some housewives. It seems also that we ought to close our filling stations on weekends. That would create a sense of emergency, and I think transfer itself to more forms of conservation.

What would be your reaction to those three things? That would do nothing to cause people to be unemployed. It would cost the Government nothing, and could be implemented by sundown today.

Mr. WOODCOCK. I completely agree with the enforcement of the 55-mile per hour standard on the highways. When it was first posted, it was fairly well observed, but increasingly no one pays attention to it.

Senator TALMADGE. It was observed during the embargo, and then they forgot it.

Mr. WOODCOCK. Yes. Now, with regard to the use of credit cards, I have not given that any thought at all.

Senator TALMADGE. Have you been to college and high school campuses? You will see acres and acres of automobiles there. If credit cards were canceled, they would have to pay for it out of their allowance. I believe that would do much to conserve gasoline. What is your reaction on that?

Mr. WOODCOCK. Well, of course, the oil companies now send credit cards unsolicited to students on the campus, which I think is an objectionable practice. I would not object to it being on demand. But unsolicited—I would certainly object to that.

Closing gas stations on weekends—if you mean on Saturday and Sunday, I think you would hear loud screams from the recreation industry because normally when one begins a vacation period, it is on the weekend.

Senator TALMADGE. Maybe at midnight Saturday night to midnight Sunday night, and of course that would save some gasoline. Of course, you and I know the average fellow is going to make a weekend trip and fill up his tank on Saturday night. But I think that would conserve some gas. In addition to that, I think it would make the people of this country realize that we do have an energy crisis. They do not now. As long as they can go to a filling station and fill up, they do not think there is any energy problem. I think that would create a sense of emergency that would not only save gasoline, but I think it would reflect itself in turning off air-conditioning units and television sets, and lights and other things.

What is your reaction on that?

Mr. WOODCOCK. I absolutely agree in general that people in this country think there is no energy crisis. They believe the whole thing is a ripoff and a conspiracy. There has to be some way to convey the notion that this Nation and the world do have a basic energy problem. I try to tell that to our members. When I said during the oil embargo

that we would have an ongoing problem, they said look, when the oil companies get the price up, gasoline will run out of our ears. That is what happened. When I talk to our members now, they say not again—do not give us that fairy story again. It is a real problem.

Senator TALMADGE. Thank you, sir.

Senator HANSEN?

Senator HANSEN. Thank you, Mr. Chairman.

Mr. Woodcock, we are always pleased to hear from you and to get your ideas on what this country should do on a number of issues.

I notice on page 2 of your testimony, you call for mandatory standards with respect to fuel economy and on page 3, the last full paragraph on that page you said, production of small cars is not in itself the country's goal. You say further down that many people have a real need for larger cars, for example, the family with several children or salesmen who carry large amounts of goods. We need to have a wide range of models available.

Referring again to the testimony by the three major automobile manufacturers' representatives who were here earlier this week or last week, whenever it was—

Senator TALMADGE. Last week.

Senator HANSEN. There seemed to be a consensus among them that the American made car today has an engine that can be and is just as efficient as is the typical engine mounted in a foreign made car; that the real difference in gasoline mileage is a direct reflection of the weight of the car.

Now, it is a little hard for me to rationalize what you are really trying to say. On the one hand you call for mandatory legislation, for legislation by the Congress which would mandate what the automobile manufacturers are to try to achieve.

And then on the other, you recognize, as I do, the right to freedom of choice. Do you agree that weight makes a real difference in gasoline mileage?

Mr. WOODCOCK. Weight does make a difference in gasoline mileage.

Senator HANSEN. Is it the major factor or are there other factors?

Mr. WOODCOCK. Oh, yes, for example, Senator Talmadge's Cutlass weighs a lot less than his Olds 98 but it gets much less gas mileage. There are small sport cars that do not weigh very much that get 8 or 9 miles to the gallon.

Weight by itself is not the problem but it is a part of the problem. Wind drag is a part of the problem and the engine design is the biggest part.

Senator HANSEN. Do such things as air-conditioning make a difference?

Mr. WOODCOCK. Oh, of course.

Senator HANSEN. Electrical gadgets on the car?

Mr. WOODCOCK. All of the power units.

Senator HANSEN. Would it not be well to do away with all of them?

Mr. WOODCOCK. I never buy cars with air-conditioners—there are a few days when I am very unhappy about it—because most of my time is spent in the northern tier of States. I am not sure that I would want to say you cannot buy air-conditioners.

There are some parts of the country where people have to spend a lot of time in automobiles in the pursuit of their business and it can be

very uncomfortable. But, it has an impact on fuel efficiency, no question about it.

Senator HANSEN: Maybe there is evidence that I am not aware of, but from what the representatives of the manufacturers said, I gathered that if we wanted to strip down an American made engine and reduce the weight of the car it is probably going to be pretty competitive. As a matter of fact, I think Mr. Estes, the president of GM, said that on a weight basis the American made cars ranked at the top or near the top in about every test that had been conducted, as I recall.

I may have misunderstood him, but I think that is essentially what he said.

Mr. WOODCOCK. I am sure that is what he told the committee because we have seen those same charts and had those same explanations from Mr. Estes. The T-car General Motors is going to come out with this fall, if it meets expectations, will weigh about 2,500 pounds. It will get highway mileage up to 42 miles per gallon which will beat any import in that weight class.

Senator HANSEN. There have been a lot of suggestions made and Senator Talmadge, a person with whom I nearly always agree, and I do not in this particular instance. He talks about closing down filling stations on weekends. I happen to live in a tourist area in western Wyoming near Grand Teton and Yellowstone National Parks and I have seen a great number of families come through there, people who conserve.

Senator TALMADGE. Will the Senator yield?

Senator HANSEN. Yes; indeed.

Senator TALMADGE. Let them get there on Saturday and spend all day Sunday then.

Senator HANSEN. You know, Senator, I think that would be a great idea. But, I do not want them stopped in western Nebraska on their way there.

Now, these people who have big families and who bring their food along and cook every meal and have saved up for 50 weeks in order to take a 2 weeks' vacation I think have the right to freedom of choice and I am not going to say to them, we will impose weekend gasoline restrictions and you will not be able to get where you plan to go.

I think that cars are not the only things that use gasoline and if we want to look at the whole spectrum of energy consumption, I agree with what I think is implicit in your statement that I want to afford the American people the maximum opportunity to exercise their freedom of choice. And if a family is rather big and if they think a station wagon serves their purposes better, I am not going to say to them, they have got to buy a Volkswagen.

And I would hope that you would share that view. I gather from your testimony you may in part. Do you?

Mr. WOODCOCK. Well, I share that point of view. I do not want them to buy Volkswagens. [General laughter.]

Senator HANSEN. You will get an A for effort on that one.

Mr. WOODCOCK. May I say, Senator, that the family with, say, five kids needs a station wagon. The chances are if they are of moderate means they just have that one station wagon. The chances are further that they use less gasoline than the family with a couple of cars and certainly less than the family with three cars.

When you have two or three cars, there is always a car available. If you are going to go three blocks, you drive. But if the station wagon is not there you walk three blocks. That family cannot buy two four-passenger cars and hook them up together to get around.

Senator HANSEN. My time is up but I sure do agree with you in that one.

Senator TALMADGE. The Chair announces at this time that a record vote will start in 2 minutes to be followed immediately by a further record vote. The two of them will take a total of about 25 minutes.

Senator Packwood?

Senator PACKWOOD. Mr. Woodcock, I do not quite understand your answer on employment. When the executives from the three auto companies were here they scratched their heads and did not seem to have exact figures. But, they thought if the 28-mile-per-gallon standard were kept in the bill, by 1985, and they were producing cars and selling them in the volumes they would like, it would still take about 15 percent fewer employees than if they were producing cars that did not have to meet that standard.

But, they were not sure. They were grasping for a 15-percent figure. Can you give me any light on that?

Mr. WOODCOCK. We are advocating that the 28 miles per gallon for 1985 be stricken from the bill.

Senator PACKWOOD. I understand that.

Mr. WOODCOCK. That it be left at the discretion of the Secretary based upon feasible technology.

Senator PACKWOOD. Let me rephrase the question. The contention was being made, and I honestly do not know the answer, that it takes fewer people to make smaller cars than bigger cars, substantially fewer.

Mr. WOODCOCK. Yes.

Senator PACKWOOD. Can you give me any idea how many fewer, what percentage?

Mr. WOODCOCK. I would guess in the range of 10 to 15 percent.

Senator PACKWOOD. About the same figure they came up with then?

Mr. WOODCOCK. Yes.

Senator PACKWOOD. I am curious, if we do not have any quotas, import duties, tariffs, or whatnot; are you not troubled a bit by our tremendous dependence on our overseas oil?

Mr. WOODCOCK. We may be wrong, but we see a weakening of the OPEC cartel and I think to shield ourselves off from that is to lessen the pressures on them. We would like to see, as I have said, a national energy production board. We have not taken one step toward the development of alternative domestic sources of energy despite the fact that the crisis is now 2 years old.

I would also like to see further efforts towards building a domestic reserve to shield us against sudden international crisis.

Senator PACKWOOD. Let us put it this way. I have heard our domestic reserves are substantially close to a billion barrels which could tide us over for close to 4, 5, or 6 months. But we are, if we do nothing with reserves or an energy board, putting ourselves in the hands of foreign nations and hoping the cartel breaks up or hoping that they will not raise the price dramatically or hoping that they will continue supply.

In any event, they are circumstances beyond our control.

Mr. WOODCOCK. I think we should begin to take steps to get it under control. I do not think—

Senator PACKWOOD. Those are steps that we have to take domestically, internally.

Mr. WOODCOCK. Yes.

Senator PACKWOOD. We cannot brow beat Saudi Arabia over the head to make them do our bidding.

Senator PACKWOOD. I have no other questions, Mr. Chairman.

Senator TALMADGE. Senator Haskell, would you continue. Then I would suggest if any other Senator wants to interrogate Mr. Woodcock prior to the vote, according to the early bird rule, Senator Roth is next and I suggest that we then recess the hearing until the Senate completes their two votes.

Thank you, sir.

Senator HASKELL [presiding]. Thank you, Mr. Chairman.

Mr. Woodcock, I notice that you endorse the idea that we tax auto companies according to their fleet average on a miles-per-gallon basis. Now, some have suggested that if the companies did not meet the fleet average then there would be an excise tax on the fleet.

Now, there is a separate suggestion that to induce individuals to buy more fuel efficient cars, and that is to have an excise tax in the form of a sales tax on the more fuel consumptive cars. And, of course, the excise tax would be labeled as to why it was being imposed and that kind of thing.

What is your position on that

Mr. WOODCOCK. We are absolutely opposed to the excise tax approach. We vigorously fought against it when the measure was up in the House of Representatives. It would be, at the present stage, a tremendous boost in imports. It would create massive additional unemployment in the industry and those industries associated with it.

If the industry is compelled to produce more fuel efficient cars with the price of gasoline rising as it is, there will be a strong financial incentive to a domestic consumer to move to those cars. We therefore will have market forces working on our behalf. In the case of emission controls, you do not have market forces working there.

Senator HASKELL. I gather you do not feel that the excise tax only on the fuel inefficient would be a desirable nudge to the market forces to get people to buy more fuel efficient cars?

I gather it is your considered judgment that such a tax would be overkill? I do not quite understand. I knew what your answer was going to be because I read about it in the paper but I do not quite understand why you feel that way. Let us say a car gets 10 miles a gallon, and if you label it to say: Floyd Haskell if you are going to buy this car that gets 10 miles to the gallon you have got to pay an extra 10 percent in the form of excise tax.

Now, why is it again, you feel that is a bad idea?

Mr. WOODCOCK. Because it would strengthen the rising share of the American market which is going to non-North American imports.

Senator HASKELL. All right, now, let me switch subjects completely. We had an economist here the other day who had a pretty interesting idea. In effect his thesis was this—that the President was going to be successful on deregulating old oil. We have August 31 as the date of expiration of the authority to control old oil. We have not been

notably successful in overriding his vetoes and therefore, we might as well accept that it is going to be deregulated.

Now, this is going to result, obviously, in tremendous additional profits to the people who are fortunate enough to be in the oil business.

His thought was this—why not impose a windfall profits tax, obviously without a plowback and take that money into the U.S. Treasury and then give a refund or a payment to every man, woman, and child of 18 and over as a solution to prevent the people in the oil business from becoming rich as Croesus as a result of this windfall.

Now, I do not know whether you have heard that idea before. I thought it was not a bad idea. What is your reaction?

Mr. WOODCOCK. Obviously, I had heard about the windfall profits tax. I had not heard about making it rebatable to individuals over the age of 18. I am for the windfall profits tax, but I am against the first part.

Senator HASKELL. But, being realistic, there is a real possibility it would happen.

Mr. WOODCOCK. No question.

Senator HASKELL. When you allow the price of new oil to go up about \$7 or \$8 a barrel, you are taking a tremendous amount of money out of the economy and this is a way of getting it back into the economy.

I would appreciate it if you would give it a little thought and maybe let us know in writing what your reaction to that would be.*

Mr. WOODCOCK. We will do that, Senator.

Senator HASKELL. One last question—you mentioned that weight was one aspect of fuel efficiency and then I believe you said that engine design was the principal factor. Would you elaborate a little bit?

I have always heard that weight was the controlling factor in fuel efficiency and I gather that is not the case.

Mr. WOODCOCK. It is not the only factor. In the post-1970 period, the addition of the devices required to reduce pollutant emissions have a negative effect upon fuel efficiencies.

That began to be reversed with the current model with the introduction of the catalytic convertor. Wind drag also has an impact on fuel economy as does speed. If you are traveling at 20 miles per hour as against 60 miles per hour, the wind drag does not simply increase three times, it increases nine times.

Now, so far as engine powerplants are concerned, our advice is we are locked into the internal combustion engine for the predictable future. The diesel engine is an obvious possibility. Mercedes markets an acceptable diesel. The diesel engines have a problem with regard to oxides of nitrogen. The stratified charge engine also is a good possibility. Again there is a question as to what NO_x standard it can meet.

We do not believe they can meet the present statutory 0.4 grams per mile.

Senator HASKELL. Mr. Woodcock, I hate to interrupt you. I do not have too much time to get over for the vote on the Senate floor. I think we better stand adjourned until 10 o'clock.

Mr. WOODCOCK. Thank you very much, sir.

[A brief recess was taken.]

Senator GRAVEL [presiding]. The hearing will come back to order.

*See p. 898.

Senator Nelson had some questions.

Senator NELSON. Mr. Woodcock, I had gotten here after you completed your statement, so I have not had a chance to go through it in its entirety, and I think most of the questions I was interested in have already been asked.

However, there was a question asked the other day when the representatives from General Motors, Ford, and Chrysler were here and were questioned by Senator Ribicoff on the diesel engine. He raised the question, or pointed out that in the mileage tests the smaller four-cylinder diesel five-passenger car achieved a very high mileage. I do not have it in front of me, but up in the 30's some place, out on the road. Then he inquired why the auto industry did not make any diesels in this country, though they do make them in Europe.

The answer from whoever responded from the auto industry was: "Well, a diesel would not be able to meet the 1978 emissions standards," which did not sound like much of an answer to me, because they were making the diesels long before we even passed the law. Do you have any view on why the diesel was never introduced here?

Mr. Woodcock. General Motors does build a diesel at its Opel works in Germany. They did market that diesel some years ago in this country; and it did not go. It was built, however, under entirely different circumstances.

There is a problem on emissions with regard to the NO_x standards. Our information is that the present barrier to its introduction here is that problem as to what will be the ultimate standard with regard to NO_x.

Senator NELSON. Well, it is now meeting current statutory standards.

Mr. Woodcock. Yes.

Senator NELSON. And does it have a problem that is inherent in that kind of an engine, that it is more difficult than it is in the ICM?

Mr. Woodcock. So, I have been advised.

Senator NELSON. I did not hear this part of your testimony, so you may very well have covered it. I understood you to say, after I had arrived, that you endorsed the setting of mandatory standards for mileage achievement by the automobile, as done in the House bill, but that you opposed what, the 28 mile per gallon standard; is that it?

Mr. Woodcock. I suggest that we should not write into the law the 1985 standard. We should leave that to the discretionary authority based upon what is feasible technologically. I would assume that beyond 1980 the standards would continue to be increased under the discretionary authority that the House bill gives to the Secretary.

Senator NELSON. Is that on the assumption that some new technological breakthrough is somewhere near, on the horizon?

Obviously, as you know very well, they could achieve the 28 miles now, if they make their cars small enough and light enough.

Mr. Woodcock. Yes; they could meet it, given present technology, with almost the total concentration within small cars, which is a concept we do not find sensible for this country.

Senator NELSON. Of course, some fairly large automobiles right now are in the marketplace and achieving high mileage. The Volkswagen bus, which has a larger capacity than a large station wagon—I do not have the figures in front of me, but it is achieving 18 to 22 miles, in that range somewhere, now, and it is of good size. The industry in

testifying all the time says, oh, you cannot have an adequate sized car for a family with low gas mileage—you would have to have some pretty big cars. Well, there are lots of more efficient cars that have got the same amount of space inside as these much heavier ones on the highway, and they carry as many people, and they have got the same amount of space. So what they seem to be arguing against is low-powered cars, and smaller outside dimensions more than anything else.

Mr. Woodcock. Unfortunately, the industry comes down here and always in their public posture takes a very hard line, which, frankly, they do not pursue when we have conversations with them. I do not know what it gets them, because it puts them in a position where their word is, very frankly, doubted.

Let us take General Motors. General Motors has a massive program underway to take weight out of its automobiles, to substantially improve the fuel efficiency of those cars. Their basic position is that the forces of the marketplace are going to push us there anyway. Therefore, they say, leave us alone. We do not accept. We say there have to be mandatory standards.

Given the fleet mix concept we are supporting which would permit station wagons—not with their present mileage, but with substantial additional mileage and other family-sized cars, which would come in the range of 3,000 to 3,500 pounds 1,200 pounds less than the current so-called family-sized car—there will be substantial additions in fuel economy.

What the numbers should be beyond 1980 becomes very much a matter of guesswork.

Senator NELSON. And you would leave the 1985 standards then, to be in the discretion of an administrator?

Mr. Woodcock. That is our suggestion; yes, sir.

Senator NELSON. My 10 minutes are up. Thank you.

The CHAIRMAN (presiding). Senator Gravel.

Senator GRAVEL. Thank you, Mr. Chairman.

Mr. Woodcock, it is nice to have you here.

In reading over your statement, I find many areas that I agree with, particularly on quotas and other aspects of it.

You are aware that the Public Works Committee is dealing with the whole problem of mileage, particularly emissions. I appreciate your position in that regard.

Do you think it is necessary for us to legislate, or the Commerce Committee to legislate mileages? Do you not think the trend of efficiency increasing automatically as the result of market pressures would forgo any need for us to legislate mileage levels?

Mr. Woodcock. Well, this comes back to our total position. Based upon the advice of our outside consultants, the chief of whom is, as I have said, David Ragone, we do not think it could be accomplished in the immediate years ahead—to do the job both of meeting additional emissions standards and the fuel economy job that has to be done. These two policies must be handled together.

I have told the industry there is not a chance of getting relaxation on emissions standards unless there is some assurance of mandatory conformance on the fuel economy side of it. Beyond that, we would also like to see them required to build demonstration vehicles that

meet both the emissions and additional fuel economy standards. There is a big difference, of course, between a demonstration vehicle and a production vehicle.

Beyond that, we want beefed-up research governmentally, so there will be a measure of this constant charge that the industry is dragging its feet.

It is true that the market forces and customer pressure are a great incentive to the industry to achieve greater fuel efficiency. Those pressures are not there when you are dealing with the emissions requirements. But because of the linkage of all of these things together, we take the mandatory fuel economy position.

Senator GRAVEL. Thank you.

I noticed in your statement also that you do not agree with the trust fund concept as a vehicle to fund energy moneys. You would prefer to see the ERDA budget come through the normal appropriation process. I can only make note of the fact that last year through the normal process, OMB put the bridle on \$100 million solar energy moneys, and about \$100 million of end-use conservation. Also I know of \$400 million that could additionally be spent to accelerate hydro power.

The Highway Trust Fund, which comes under grant criticism, did, from 1946, 1947 period until, let us say, the early 1970's, provide a vehicle for successful development of highways in this country. Would you not see that as a possible vehicle for funding energy development, or is your position pretty hardened with respect to not using a trust fund?

Mr. WOODCOCK. With regard to the Highway Trust Fund, we have been up on the Hill on many occasions urging its tapping for the development of a total transportation system, of which the automobile would be an integral part. We usually have run into a stone wall. The sacred cow could only be used for highways.

It did do a great job of developing the interstate complex, no question about it. But it has also had some hazards with regard to its operation.

Senator GRAVEL. One of the proposals that I will be offering—and it ties in somewhat with your statement here about discriminatory taxes on gasoline—is a Btu tax. If we choose a tax that will tax all forms of energy equally, it could be used to fund the trust fund.

Another aspect of your statement—and I do not think that this committee will be able to deal with it, because it is not entirely within our purview—is the problem of deregulation of oil and, of course, of natural gas.

I wonder if you might enlarge upon this aspect of it, as to how we are going to secure the supplies that we need if we do not provide the necessary price incentives for people to go perform tasks. I think the best example is in natural gas, where we will be showing in the debate that, even if we do nothing and leave the controls on the way they are, the price of natural gas will be about the same as if we deregulate. That would mean about \$1.50 to \$2 an mcf by 1980. The only difference is, if we do not deregulate, we will have considerably less gas and fewer jobs available. But if we do deregulate, consumers will be paying a high price, but at least we will have gas for jobs. People can make money and then pay that higher price for gas.

I wonder if you might comment on that, since you do address yourself to that in your statement.

Mr. WOODCOCK. One of the problems in the natural gas areas is the fact that interstate is regulated and intrastate is left to State supervision. This has caused a two-priced system, to the disadvantage of the non-natural-gas-producing States. We have suggested that the whole system should be federalized so that at least we have it on a common basis. I think that is a necessary first step, before we begin to consider the impact of price on additional discovery.

Senator GRAVEL. Except that we have found that the intrastate system has brought more gas into being because of a higher price, and the interstate system has seen a diminished supply. So if we now turn around and regulate all of it at a lower price, then, of course, what you will do is take gas out of the intrastate market, and you will take jobs out of the intrastate market, too. It is unfortunate, but you will be compounding the error rather than going toward a solution.

Mr. WOODCOCK. If I were a gas producer, I suppose if I could sell it for \$1.53, I would not sell it for 51 cents.

Senator GRAVEL. Suppose it cost you more than \$1 to produce it. That means you would not go look for gas, if you cannot get a return.

Mr. WOODCOCK. I think you could get debate on the question of cost of production, and for once, we would win an argument.

Senator GRAVEL. We may not have that choice, because if there is no gas around 6 years from now, and people have to pay for conversion, then all we have done is set up a policy where consumers will have no gas and no jobs.

Mr. WOODCOCK. Of course, it is difficult to isolate these problems, because we really have one problem. That is we are not getting on with the job of developing alternative domestic sources of energy.

Senator GRAVEL. If I could just close with this one statement. You are right, Mr. Woodcock. And one of the reasons why you cannot develop an alternative is that you artificially keep the price of energy low. Then, the more expensive alternatives cannot come into being, because you have not permitted them the opportunity to bloom. But if you let energy rise to its economic price, then alternatives will come in.

I share your desires for alternatives. I first offered amendments 3 or 4 years ago on solar energy, unsuccessfully. I come from an oil State, and I have been pushing solar for quite a number of years.

I would love to meet with you privately and pursue this. I think my time is up.

Mr. WOODCOCK. Very good, Senator.

The CHAIRMAN. Senator Hathaway.

Senator HATHAWAY. Thank you, Mr. Chairman.

Thank you very much for your statement, Mr. Woodcock.

I agree with many of the points you made, but I would like to take issue with you on your opposition to tax credits, which you state on page 9 of your testimony.

First of all, you say, "There is a significant scope for fraud that would be extremely difficult and costly for the Federal Government to police." Is there any more scope for fraud than in any other credit or reduction that the taxpayer takes? You mean the taxpayer will say on

his return that he insulated his home, when he really did not insulate his home?

Mr. WOODCOCK. That sort of thing, yes.

Senator HATHAWAY. That is the same thing that occurs with any other deduction, is it not? It is the same problem. The taxpayer may say he had medical expenses that he did not really have, or any other expenses he deducts.

Mr. WOODCOCK. To that degree, yes, sir.

Senator HATHAWAY. So it is not any more open to fraud than any other deduction or credit.

Mr. WOODCOCK. I do not suppose I could assert that, no.

Senator HATHAWAY. I sort of agree with you philosophically, that maybe it is better to have direct assistance administered by the Federal Government in some way, rather than have tax incentives. But I think you will agree with me that it is much easier to get them by the Congress than if we try the direct route.

I know Stanley Seary has advocated that we abolish many deductions and credits and instead accomplish the same socioeconomic purposes through direct legislation. But the problem with that approach is that it is very difficult to get direct legislation through Congress. It is much easier to give a deduction or a credit. Would you not agree?

Mr. WOODCOCK. Well, I may agree. It is regrettable. The tax code for the United States is so tremendously complicated that every time we do this, it makes it more complicated.

Senator HATHAWAY. Of course, the tax incentive approach saves the administrative costs, too, though, of administering a direct program. If you give the taxpayer credit for insulation, that saves the Government administrative costs of setting up a grant or loan program that you would have to administer.

Is that not correct?

Mr. WOODCOCK. I think we have to take into account that there is a huge distrust in the American tax system, and it is a growing distrust. That was not true several years ago. But the average American has an attitude toward the tax system now which is damaging to the whole political system.

Senator HATHAWAY. That is true. But could we not modify the proposed credits so that they are more equitable? In other words, we could give the lower income bracket a bigger credit than we give the higher income bracket.

Mr. WOODCOCK. That would make it more desirable.

Senator HATHAWAY. That is really tantamount to the grant program anyway, is it not? Instead of the Government giving the lower bracket taxpayer some money, they would not have to pay that same money to the Government. So it is tantamount to a grant.

Mr. WOODCOCK. It would be closer to that point, yes, sir.

Senator HATHAWAY. And then, for those who are not paying any taxes at all, we should have some supplementary program, such as you suggest, a grant or a loan program.

Mr. WOODCOCK. Yes.

Senator HATHAWAY. So with such modifications of the tax credit proposals, would you go along with it?

Mr. WOODCOCK. That would depend upon the total context. It would depend upon the total package.

Senator HATHAWAY. We would welcome any suggestions you have regarding the proposed credits on insulation, solar energy, and recycling and any suggestions that you might have to make this legislation more equitable.

Mr. WOODCOCK. Very good, sir.*

Senator HATHAWAY. That is all I have. Thank you very much.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Senator Brock.

Senator BROCK. Mr. Woodcock, I am fascinated by the machinations we go through to reach a particular objective, such as insulation and so forth. I tend to agree with you. There is so much disgust with our tax system, that I do not care how you write, low income, high income, anything else, people are not going to believe it, I do not think. At least in my State, they are fed up with the whole tax system. They do not believe there is equity. Every time you write another credit or another exemption in, as far as they are concerned, that is a reform that costs them money. They do not ever see the benefit.

I do not see how—to my colleague from Maine—we can alter the fact that the average person pays a 14-percent rate, so we can give him a reduction; he saves 14 percent; where another person who earns \$100,000, he saves 50 percent. There is no equity in that. There is no way that you can write a bill that would sufficiently motivate the response we desire without increasing the level of frustration and the complications and complexity of the tax system.

I would personally agree with you, Mr. Woodcock, that that is not the best way to go about solving the particular problem.

Let me go to a specific question. I believe you were discussing with Senator Nelson the problem that occurs from 1980 on the mandated standards. I gather from the testimony of the executives that they simply were not able to project their technology that far ahead to give us a guarantee that we can meet all the safety standards and the emissions standards and the gas consumption standards in one fell swoop, no matter what the bill we write. They are in a position where they simply cannot guarantee that they can meet the standards.

Is that a fair statement on their part?

Mr. WOODCOCK. Yes; and it is one, with regard to the number of 28 miles per gallon for 1985, with which currently we agree. We do not say it is unachievable, but it is unachievable with what is presently in sight.

Senator BROCK. It is not achievable with current emissions standards that would take effect in 1977-78, for example?

Mr. WOODCOCK. Yes, sir.

Senator BROCK. That is a fair statement?

Mr. WOODCOCK. Yes, sir.

Senator BROCK. Your statement—I am not quite sure whether you said it explicitly or not. But I think you responded to a question, maybe from Mr. Nelson, that you would leave the standards post-1980 up to an administrative decision.

Would you prefer that, or would you prefer that we simply write a 5-year bill that, when it, in 1980, expires, we have to rewrite, based upon existing knowledge and technology at that time?

Mr. WOODCOCK. H.R. 6860 says that 1981 to 1985 is at the discretion of the Secretary, and then the 28 miles per gallon, which is in H.R.

*See p. 998.

6860, is hinged on a couple of safeguards. So it is really not a hard number. I have not given any thought to the 5-year bill.

Senator BROCK. I think there is some merit to a 10-year bill; that it gives the industry more assurance of what we are trying to reach for. But I do agree that if we write a 1985 bill, we are going to have to change it between now and then, which is destabilizing in and of itself.

Mr. WOODCOCK. That is correct.

Senator BROCK. I think we found that with the auto emissions standards. We have required the application of technology which was not there, and as a result, we suffered serious losses in gasoline economy. And now, we are beginning to come out of those woods. But we are still bumping up against this 1977-78 emissions standards, which, unless changes come—that is an administrative decision—we seriously are going to have to have legislation to modify that. It just seems to me that the premise you state—establish hard, mandatory standards, if you would, between now and 1980; and then go to administrative discretion so that we have constant motivation or application of pressure toward this end point, but not write in a fixed standard—I think that makes a great deal more sense.

Mr. WOODCOCK. Of course, I add to that our advocacy of governmentally contracting these things, both emissions and in fuel efficiency, so that there is a monitor in answer to this constant charge that they are dragging their feet.

Senator BROCK. Could I take you into one additional area? Going back to the tax question in a different context, we often use our tax system for “incentives” through the reduction route, tax credits. We do not use it very often, in my opinion at least, in a negative sense, to discourage those things which we think are antisociety. I would cite the instance of pollution itself. What is wrong with having a pollution tax, if that is within our technical competence to write, which would place the burden on the manufacturer to meet the standard by the use of the tax and profit motive, rather than some mandated system which DOT may arrive at, or which the Congress itself may describe? Would that not provide for more creativity, more opportunity for flexibility, and yet get us to the same end point with lower cost?

Mr. WOODCOCK. We have, with regard to the general question of pollution control, advocated the equivalent of a pollution tax.

Senator BROCK. I knew you had taken a general position on that. I personally feel very strongly that that is a better answer than what we are trying to do now. We simply lack the confidence to write hard and firm standards, because we do not know some of these answers. But we do know that the answers are there. If we can motivate the resolution of the problem through the tax system, I think we would reach the answer a lot faster. Thank you.

The CHAIRMAN. Senator Packwood?

Senator PACKWOOD. Do you know the economist Robert Nathan?

Mr. WOODCOCK. Do I know him?

Senator PACKWOOD. Yes.

Mr. WOODCOCK. Yes, sir.

Senator PACKWOOD. Did you happen to have a chance to see the testimony he presented here last week on this issue?

Mr. WOODCOCK. No; I did not.

Senator **PACKWOOD**. He presented some of the most extraordinary factual material on the cost of producing oil that I have seen anywhere. Admittedly, he was representing clients involved in the drilling business. He would freely admit that. I may be off a dime—I do not remember exactly—but he said it cost \$12.76 to produce a barrel of new oil, and he was assuming a 15-percent profit. One, do you find his factor of a 15-percent profit excessive?

Mr. **WOODCOCK**. A 15-percent profit?

Senator **PACKWOOD**. Yes; he factored that into his cost of the \$12.76.

Mr. **WOODCOCK**. Fifteen percent as measured against the capital investment?

Senator **PACKWOOD**. I cannot remember what his standard measurement was.

Senator **BROCK**. Yes; it was a capital investment.

Mr. **WOODCOCK**. Well, on average, all American manufacturing industry is in the range of 12 to 13 percent. So 15 percent would not be excessive in those terms.

Senator **PACKWOOD**. Now, if his figures are right, if it indeed does cost \$12.76 to produce a barrel of oil, should the producer not be allowed to sell it at that?

Mr. **WOODCOCK**. Well, obviously, if he was selling below what was in fact his cost, he could not do it over a long term unless there were some other advantages in other areas.

Senator **PACKWOOD**. So if, indeed, that is his cost, we should not for any length of time keep legislation on the books that prohibits selling it for at least that cost.

Mr. **WOODCOCK**. I have not seen Mr. Nathan's figures. I have high regard for him. But, you know, we are told that in Saudi Arabia, the wellhead real price is 20 cents per barrel.

Senator **PACKWOOD**. I am quoting here. I have got his testimony now. "We calculate the economic cost of finding and producing new U.S. oil at between \$12.50 and \$13 in 1974." All I am saying is, if his facts are right, would you object to a selling of the oil at that price? Would you then still favor Federal legislation that would prohibit the selling of oil at that price?

Mr. **WOODCOCK**. Well, I would like to know the process by which he arrived at \$12.50.

Senator **PACKWOOD**. I am not asking you to accept these facts. But I am saying, if they are correct, if—

Mr. **WOODCOCK**. If they were correct, obviously, over time, it would be an impossibility to market at less than that price.

Senator **PACKWOOD**. I have no other questions.

The **CHAIRMAN**. Thank you very much, Mr. Woodcock.

Mr. **WOODCOCK**. Thank you very much, sir.

[The prepared statement of Mr. Woodcock follows:]

STATEMENT OF LEONARD WOODCOCK, PRESIDENT, UNITED AUTOMOBILE, AEROSPACE AND AGRICULTURAL IMPLEMENT WORKERS OF AMERICA (UAW)

I welcome this opportunity to testify on the proposed "Energy Conservation and Conversion Act of 1975."

The bill under consideration by this Committee has some desirable provisions, most notably the establishment of mandatory fuel economy standards for automobiles. However, it has a fundamental defect because it covers only limited

aspects of a very broad problem. While the bill is entitled "An Act to provide a comprehensive national energy conservation and conversion program," it falls far short of setting out such a program. The UAW firmly believes that the nation needs a comprehensive program to deal with energy matters, and we have on many occasions (for example, during my testimony before the Joint Economic Committee in February) set forth our suggestions to achieve that. The key mechanism required is a National Energy Production Board which would be charged with planning and executing a vigorous program to develop our energy resources.

I will not go into details now regarding the Board,¹ but I do want to emphasize the need for establishing it and providing authority to make loans; contract with the private sector, enter into joint ventures, and undertake its own activities where necessary, in order to break bottlenecks and stalemates and to develop new initiatives. That would permit us to have a truly comprehensive national energy program, which would determine specific targets regarding all forms of energy and develop the procedures necessary to achieve those goals.

With regard to HR 6860, the most notable provision is Part I of Title II, regarding automobile fuel economy standards. I fully support the establishment of such mandatory standards and believe that the approach in this bill is a sound one.

It is true that the auto manufacturers are currently placing great emphasis on designing more fuel efficient cars. However, we have seen moves in that direction before and they have proved short-lived—the "small" cars get progressively bigger and heavier—so that we cannot rely upon mere assurances, or voluntary commitments, from the companies. The American consumer undoubtedly will want more fuel efficient cars, and Congress must make sure that the domestic auto manufacturers will make such cars available. For too many years, the UAW has pointed out that the Big Three auto companies have followed a marketing strategy based on cars that are too large, too expensive, and that use too much fuel.

We urged that policy be changed. However, these manufacturers preferred to pursue their own goals, and paid little attention to the real needs of the American public, including environmental and conservation considerations. Undoubtedly, in future years they will respond to realities of fuel availability, but the question is whether they will move fast enough and far enough. Their objections to the standards in this bill raise doubts about their intentions, and I urge the Congress to enact such standards.

As you know, proposals were considered in the House for alternative mechanisms to implement such fuel economy requirements. Since such proposals may come up in consideration of the bill by this Committee, or the full Senate, it is important to explain why we believe that the approach adopted by the House is the desired one.

A fundamental point is that the country's conservation effort is affected by total gas consumption of all cars in use, not by the fuel efficiency of individual cars or models. That is, gas consumption is a reflection of the average fuel efficiency of all cars. If, for example, the goal is to improve fuel efficiency by 40 percent, that result could be achieved by getting a 50 percent improvement on half of all cars, and a 30 percent improvement on the other half; it is not necessary to get a 40 percent improvement on each car.

Production of "small" cars is not, in itself, the country's goal; the goal is better overall fuel efficiency. While greater emphasis on smaller cars is clearly a key move to achieve that goal, there are reasons to believe that overemphasizing small cars can produce disadvantages. For example, consumer response might be a slower replacement of the less efficient cars now in use. Many people have a real need for larger cars: for example, the family with several children, or salesmen who carry large amounts of goods. We need to have a wide range of models available.

In addition, setting a standard for the average fuel efficiency of a manufacturer's production is less disruptive—and hence should cause less unemployment, and be less expensive to consumers—than a mechanism which aims at individual models. In order to improve the average fuel efficiency, a manufacturer can concentrate its efforts on those models which can most easily be improved; the individual model approach forces the manufacturers to work on certain models, even if better overall results could be achieved by working on other models.

¹ I have presented more detailed comments to the Congress, for example, in testifying on S. 740.

Thus, an attempt to increase fuel efficiency by requiring all cars to achieve certain standards, by imposing excise taxes on cars which fail to achieve those standards, or otherwise, is likely to be more disruptive to our economy without producing greater conservation of fuel.

Furthermore, because of the different mix of cars sold by domestic manufacturers, as compared with importers, establishing a standard for the average fuel efficiency (and assessing financial penalties on that basis) provides the most effective incentive for the domestic manufacturer to improve the efficiency of its smaller cars and thus respond to the competition of imports. That is, the fact that a model (e.g., a small car) which has fuel efficiency better than the required average can "offset" the potential financial penalty for a model (e.g., a large car) that has fuel efficiency below that average, provides a strong motivation for the domestic manufacturer to make improvements in those smaller high efficiency cars (and thus meet import competition) rather than concentrating its efforts on the larger lower efficiency cars.

For these reasons, we most strongly emphasize that the fuel efficiency standards be related to the average production of each manufacturer, and not by penalizing individual models.

The fuel efficiency levels for 1978-80 models, as specified in Section 212 (i.e., 18.5 to 20.5 miles per gallon) are consistent with goals which we have been advised are feasible. It must be emphasized, however, that the bill conditions those goals on the continuation of 1975 emission standards.² Under present legislation, those standards will not apply to 1978-80 models. I recognize modification of that legislation is not under this Committee's jurisdiction, but it is relevant to point out the need for prompt congressional action on those emission standards in order to permit the implementation of the fuel efficiency standards of this bill. Modification of those future auto emission standards will not create significant health hazards. The total environmental and conservation needs of the country will be better served by achieving the fuel efficiency goals of this bill, and applying consistent emission standards, than by permitting the reductions indicated in Section 212(c) to occur.

The fact is that we need additional knowledge to determine appropriate emission and fuel efficiency goals for the 1980s, and I have advocated government actions regarding research and requirements for auto manufacturers to demonstrate improvements in their production capabilities, in order to provide the technological basis for setting such standards. In that regard, I question whether the establishment of a fuel efficiency standard for 1985 models is justifiable at this time; it seems more appropriate to leave it to future determination—based on additional data—just as the bill would do for 1981-84 models.

Another portion, of the bill, unlikely to produce desirable results is Part II of Title II: that would repeal certain excise taxes. Each of the products involved—intercity buses, radial tires, and re-refined lubricating oil—are associated with more efficient use of petroleum products, so there should not be any tax penalty on their use.

The other portions of the bill are, in our opinion, undesirable.

In view of the current state of the domestic and international market for oil, and stagflation in our national economy, I strongly urge this Committee to delete Title I: "Import Treatment of Oil." Its implementation at this time has potential for substantial harm to our already battered economy, by restricting imports and setting up a system of quotas, licenses and duties for petroleum imports. It would be a costly and inefficient way of trying to protect ourselves against unforeseen disruption in international oil markets. Further, it is extremely likely to fan the fires of inflation and to hinder any possible economic recovery, at a time when the possibilities of effective bargaining with the international oil cartel are quite encouraging.

The Administration's policy is aimed at decontrol of domestic petroleum prices. I certainly hope Congress will prevent that, but the possibility of such decontrol emphasizes the danger of creating an enormous protective barrier behind which the domestic petroleum industry could effectively hold this country to ransom. If that occurred, oil prices and quantities could be manipulated on the insulated domestic market, without even the possibility of countervailing influences from foreign sources. This Committee would do well to remember that it was under the umbrella of our former oil import quotas that our current energy problems and their inflationary consequences matured.

² See Section 212(c). Those standards are 1.5 HC/15 CO/3.1 NO_x.

On other occasions,³ we have pointed out that the very legitimate need for protecting our nation from the kind of short-run disruption caused by quasi-political actions, such as the oil boycott of 1973-74, can be adequately met by establishing adequate oil reserves and operating a kind of "buffer-stock" policy. Under such a system, reserves would be replenished or expanded when prices were relatively low; when dramatic and unforeseen changes in the oil market, both domestic and international occur, reserves could be released. Congress is already moving toward this type of goal, and we certainly encourage those efforts.

In contrast to the flexibility offered by a buffer-stock scheme for oil, the legislation being considered here would lock us into a restrictive system likely to abort any hopes we may have for a near-term economic recovery.

The Congressional Budget Office (CBO) recently advised Congress that ". . . inflation rates (are) influenced heavily by projected energy developments. An increase in the price of oil both raises the rate of inflation and raises the unemployment rate by reducing purchasing power in the hands of the public." In its report, the CBO produced evidence supporting our contention made to the JEC that "forced drastic reductions of oil imports at this time are undesirable. No matter how accomplished, whether tariffs, prices or quotas, such reduction would cripple further an already badly damaged economy. Nor will it materially contribute to the long-run solutions—in fact, it may well retard them. The real solution lies in new investment—in new energy production, in purchases of alternative consumption goods (e.g., more efficient cars), and in energy-conserving buildings and industrial techniques. All of these will be retarded by measures that force the economy into recession or depression."

It would be tragically ironic if this were to happen at the very moment that strains in the OPEC "united front" are beginning to appear. Although some OPEC members have been publicizing their intentions to raise prices this fall, there are also increasing reports of "back door" deals and discounts. Indeed, just last week the Wall Street Journal carried such a report. In this article, dealing with oil income tax rate reductions by Ecuador, the reporter, James C. Tanner, states:

"The Ecuadorian move also is certain to add to the strain already developed among some OPEC members that are hard-pressed to sell their own oil because of the world's petroleum glut and because of price-cutting by some of the other producer nations. Algeria, for example, this week accused Libya, Iraq, and Nigeria of undercutting it in competition for oil sales through price reductions." [WSJ, 7/10/75, p. 3]

These sorts of developments provide opportunities which we as a nation will be able to use only if we succeed in establishing the kind of public sector agencies the UAW called for in our National Energy Program as far back as February 1974. At that time we called for "direct bargaining between the governments of consuming and producing nations with neither party subject to the exploitation of the monopolistic middlemen who have held the western world to ransom for so long." This bill moves in the opposite direction, in providing a structure that would potentially give U.S.-based multinational oil companies even greater control over the domestic market than they have at the moment.

Part III of Title II, regarding residential insulation and solar energy equipment and individual purchases of electric motor vehicles, is an example of unsatisfactory tax legislation.

Even though we very much want to see support and encouragement of both solar energy and building insulation, we have consistently taken the position (most recently before the House Ways and Means Committee yesterday) that the Tax Code is not the appropriate nor necessarily most effective way of influencing resource allocation. This is because such tax incentives accrue as windfall gains to persons who would have made energy-conserving investments even without the tax credit, and such measures introduce undesirable distortions into our tax structure. Moreover, in these two cases, we think there is significant scope for fraud that would be extremely difficult and costly for the Federal government to police. If, as we have urged, the government does want to encourage home insulation and residential solar energy, we prefer direct grants, loans and subsidies.

With respect to electric motor vehicles, the evidence is extremely unclear as to whether such vehicles would in fact be energy-conserving, given the great inef-

³Such as my testimony before the Joint Economic Committee on February 19 this year.

iciencies of converting fuel into electricity, as compared to burning the fuel directly in the vehicle. According to the Federal Energy Administration, 65 percent of the energy content of nuclear or fossil fuels used in electricity conversion is lost in the form of heat and another 3 percent is lost in transmission and distribution. Thus, aside from our objections to using the Tax Code to promote energy efficiency, and our preference for direct subsidies, it is too early to decide whether electric vehicles should be given such special encouragement. Instead, they should be considered as one of many possible improvements in motor vehicles.

With respect to the Energy Conservation and Conversion Trust Fund proposed as Title III, we urge this Committee, first to remember the abuses and distortions in the allocation of Federal funds that has developed with past trust funds, and also to consider that the particular manner in which this Trust Fund is set up is so loose (e.g., allocations out of the fund are not mandatory) as to negate whatever advantages a trust fund approach might provide for public energy development. Since we already have an Energy Research and Development Administration and since the research and development activities anticipated by this legislation could easily be funded and implemented through ERDA without a trust fund, we suggest that Congress show its support for the programs outlined by appropriating adequate earmarked funds via ERDA.

Title IV of this bill contains a number of miscellaneous tax provisions aimed at business, some of which increase business taxes and some which reduce them. We find all of them objectionable.

The first part puts an excise tax on business use of petroleum and petroleum products, with a few specified exceptions, and the possibility that the Federal Energy Administrator could add to the list of exceptions at some later date. (The latter type of legislative footnote is always objectionable in principle since it opens a Pandora's Box of special interest lobbying, etc.) One of the major effects of this provision is likely to be industrial conversion from petroleum-based boiler fuel to electricity. Conversion from oil to coal is less likely since businesses would prefer not to incur directly pollution control costs associated with the use of coal as boiler fuel, but instead leave it to utilities to incur the costs. (Society incurs the most anyway—but since converting fuel into electricity is often less efficient than burning it directly, society may incur greater costs.) Rapid conversion to electricity in this case could well mean an increase in total energy inefficiency in this country and would therefore have an inflationary impact on the economy as a whole.

The remaining provisions of this section modify the corporate income tax structure. I have already indicated, in discussing personal income tax incentives, why we oppose tax credits for insulation and solar energy. For analogous reasons we oppose the accelerated amortization provisions of Part II of this title. When it comes to energy-related investment decisions, we think it more appropriate for business to allocate its funds with reference to the constellation of real world costs and risks and not with reference to the Tax Code.

While we are opposed to investment tax credits, the effect of Section 431(b) regarding air conditioning and space heating and Section 432 regarding certain electric generating facilities would be to further distort an undesirable tax provision. Instead of these piecemeal adjustments, the entire investment tax credit should be discontinued.

In summary, the Congress should enact mandatory auto fuel efficiency standards and this bill provides a good procedure to achieve that. The repeal of various excise taxes on fuel efficient equipment is also desirable. The remaining portions of the bill are not desirable and I urge that they be deleted. Finally, I emphasize that other congressional action is needed—particularly the establishment of a National Energy Production Board, and the modification of future auto emission standards—in order to move toward our energy goals.

The CHAIRMAN. Next, I will call Senators Brooke, Mathias, and Percy to appear as a panel. Please permit me to apologize, gentlemen, for the fact that we have not been able to put this panel on prior to this time. Part of it has to do with the confusion of the Senate, and what is going on there. We never know when we can meet and when we cannot meet, so we have to do the best we can under the circumstances.

STATEMENTS OF HON. EDWARD BROOKE, A U.S. SENATOR FROM THE STATE OF MASSACHUSETTS; HON. CHARLES PERCY, A U.S. SENATOR FROM THE STATE OF ILLINOIS; AND HON. CHARLES MATHIAS, A U.S. SENATOR FROM THE STATE OF MARYLAND

Statement of Senator Edward Brooke

Senator BROOKE. Mr. Chairman, members of the committee, we are very grateful to you. We understand the pressures of the time, and the problems that you on this committee have. We are very grateful for your courtesy, and for this opportunity to address you on this very important subject.

Mr. Chairman, Senator Percy, Senator Mathias, and I are joining together today to make our case once again for the energy legislation we feel is fundamental and vital to an effective national energy program. Senators Mathias and Percy have asked that I speak for all three of us on the gasoline tax legislation we have written together. They will add to my remarks their comments on this and other legislation all three of us agree is vital. I realize, as I have said, the pressures on the committee to hear from a broad cross-section of public witnesses, and I am most grateful to have these few moments in which to tell you how urgent we feel the need is for prompt enactment of a gasoline tax.

Senators Percy and Mathias and I each introduced our own version of gasoline tax legislation this winter. Since then, we have heard from Congress that it is unnecessary, that the people do not like it, that no one wishes to engage in the unpalatable act of voting a gasoline tax. A number of our Senate colleagues have probably accepted such arguments. We are here today to urge the committee to take a new long, hard look at the merits of a gasoline tax. The legislation sent us by the House is no solution to the very real energy crisis this Nation faces. This abdication of congressional responsibility is really unfair to the American people.

The American people are tough, they are smart. We can count on them to bite the bullet on energy cost and on energy conservation—but only if and when they feel the program meets legitimate needs and offers the possibility of a genuine solution. The Senate bill must confront squarely the unpleasant reality of our dependence on oil imports and the weaknesses of our domestic energy markets. Senate decisions should be based not on political fears but on considered social and economic judgments. Where the House has failed the Senate must not.

We all know how our overall dependence on imported oil has increased this year. When I introduced my original legislation mandating a gasoline tax last December, I said I was deeply concerned that imports were running at 37 percent of our supply. Now, just a few months later, they have climbed to 38 percent. Although we saw some short-term reductions in that figure as the spring months came, we must realize the fearful impact of our generally increasing reliance on foreign sources.

Paralleling this increase in imports, in fact pushing it, is the rising demand for gasoline. There can be no solution to the problem of pe-

roleum costs which does not include a solution to the problem of gasoline use. The Nation is consuming 3 percent more gasoline this year than last. We are told to expect even greater increases in the summer vacation months. There cannot be much question that the drop in price in the winter and spring months contributed greatly to this increase in consumption. I would go so far as to suggest that the attitude of Congress has helped ease the public's sense that there is a fuel problem and that there is a need to conserve gasoline. Such relaxation is, needless to say, unwarranted.

We now see the major oil producers taking advantage of summer drivers by raising prices. We are not even sure whether or not there is about to be a shortage, and why. And just last week, we learned that refineries are so busy producing gasoline to sell at high summer prices that we may have a shortage of No. 2 home heating oil in the fall. Mr. Chairman, our priorities are wrong.

Let me summarize the reasons gasoline consumption is not only a major cause of our present problem, but can also be used for changing our entire energy use picture. I would also like to ask the Chairman's permission to insert in the record the remarks each of us made on the Senate floor at the time our initial bills were introduced.

The CHAIRMAN. Without objection, it is agreed.

[The material referred to follows. Oral testimony continues on p. 502.]

REMARKS OF SENATOR EDWARD W. BROOKE ON THE FLOOR OF THE UNITED STATES SENATE, JANUARY 15, 1975

MANDATORY ENERGY CONSERVATION INITIATIVES

Mr. BROOKE. Mr. President, today I reintroduce the mandatory energy conservation legislation which I first proposed in the last month of the 93d Congress. This legislation would raise by 20 cents a gallon the Federal tax on gasoline; provide for a tax credit of up to \$280 (1,400 gallons) for a household earning up to \$15,000; end the Highway Trust Fund; and levy a progressively stringent tax on the weight of all new automobiles beginning in 1976.

It is with no joy that I reintroduce these initiatives for they entail hardship, sacrifice, and dislocation. But there is no alternative to this kind of tough, mandatory action if we are to come to grips with the grave threat posed by our energy situation.

This situation is critical and it worsens with each passing day. Future energy supplies are plagued with long lead times, skyrocketing costs, and complex environmental and social obstacles, and therefore cannot be readily increased. Existing energy supplies continue to dwindle. The result is a frightening reliance on foreign nations for this country's life blood.

The situation clearly compels conservation. We must conserve our present energy sources until more bountiful supplies can be unlocked and—hopefully—brought into the marketplace at a reasonable price. And since we are a "country that runs on oil," it is primarily oil that must be conserved.

Presently we rely upon oil to meet 50 percent of our energy requirements. Each day we consume some 17 million barrels. But our weathered domestic oil industry can only deliver 63 percent of this amount; hence, we are forced to contract abroad for the remaining 37 percent.

As my colleagues well remember, there was a time when foreign oil was a boon to this country—particularly for those of us in New England. Cheaper than domestic oil, it offered our fledgling independent network of oilmen the ways and means to compete with the domestic giants. But what once was a bargain is now a burden. Foreign oil costs as much as twice the U.S. equivalent. And this is raising havoc with our consumers, with our balance of payments, and indeed with the entire economic structure of the developed nations.

The perils that beset continuing reliance on high-priced foreign oil are, I think, perfectly clear to all Americans. What we need now is a candid, forthright policy to relieve us from this reliance. The legislation I offer today is intended as an important first step toward such a policy. It offers what I believe to be the most sensible, equitable approach to curing our current paralysis and forging a rational, long-term energy policy.

Any such policy must focus on ways to immediately reduce our oil consumption. And we cannot reduce this consumption without dealing squarely with our enormous gasoline consumption. Gasoline is all but a national opiate. Of the 17 million barrels of oil we consume each day, nearly 7 million wind up as gasoline.

This enormous consumptive level is necessary to satiate the needs of our private automobile. In 1972 alone nearly 75 billion gallons were required to fulfill the needs of over 100 million cars traveling over 1.2 trillion miles. Even more astounding is the fact that most of this travel was done alone as a means to get either to work or retail outlets.

Left to itself, the situation will only worsen. Currently 8 of every 10 American households own a least one car; 3 in 10 own at least 2 cars, and 1 in 10 own 3 cars or more. Moreover, some 10,000 new drivers are licensed each day just as a net total of 10,000 cars are added to our environment.

We are hooked on the automobile and the habit spreads despite the many problems it now represents for our society.

It is nearly impossible to overstate America's love affair with the automobile. It has so dominated our society that, as the distinguished scholar and former Ambassador George Kennan pointed out, it has lent a "terrible element of fragility to our civilization, placing us in a situation where our life would break down completely if anything ever interfered with the oil supply."

But it may just be that the luxuries offered by the private automobile are something we can no longer afford. As our oil resources dwindle, a social question arises as to whether we should squander them on the extravagance of a private transportation system. Oil after all can be used to make anything from food to fertilizer. Do we want to waste such a precious resource on our huge armada of autos?

The brief against the auto is telling. Only the airplane is a less efficient user of energy. Yet the auto accounts for 85 percent of all intercity travel and a whopping 95 percent of all intracity transportation. Rail and bus service, while four times as efficient, represent a meager 4 percent of intercity transport, and we all know the state of intracity mass transit. Here in this city there are some 1.2 million vehicle trips each day across this District's boundaries. Such is our attachment to this mode of transport.

The time has come to face the music. The automobile is the prime manifestation of waste and neglect which has dragged this Nation into its present energy crisis. If we are to recover our energy balance, then we must take swift, mandatory action to curb the waste incurred through its use.

Increasing the Federal tax on gasoline is the necessary first step in this effort. It has several advantages. It would cut our oil demand in the short-run by 600,000 to 1,000,000 barrels a day. This would improve our balance of payments picture by as much as \$3.6 billion per year. It would reduce our long-run demand for gasoline by as much as 22 percent. And it would add some \$17 billion to the Treasury's General Fund, much of which could—and should—be returned to those of us less able to endure the necessary sacrifices.

In addition to these crucial energy and economic benefits, there will be attendant environmental and social benefits of less automobile driving. When one remembers that as many as 4,000 deaths and 4,000,000 illness-restricted days per year might be attributed to automobile emissions, these attendant benefits are by no means irrelevant.

But, as with any new direction in social policy, there are several specific difficulties. We already know that 81 percent of the American people would prefer that the gas tax be left untouched. This in-and-of itself poses a very great problem. But I am confident that the Congress can provide the leadership necessary to inform the public on the merits of this case and thus turn this large percentage completely around.

Second, the tax will inevitably cause the Consumer Price Index to rise, even if every penny of the increased revenues could be redistributed evenly. This then will put further pressures on future wage demands. But such pressure will pale when compared to similar pressures arising from the imposition of oil tariffs and crude oil taxes.

Third, there is the very grave problem of unemployment in the auto industry. There can be no doubt that a further increase in the price of gasoline would hit Detroit hard at a time when the industry is already reeling from its worst recession in 15 years. But I submit that the same difficulties will be visited upon the industry if alternative conservation plans are adopted or, conversely if nothing at all is adopted! I would also point out that the distinguished chairmen of the boards of Ford and General Motors have spoken favorably of a gas tax.

Finally, and most most troublesome, is the possible regressive tendency of the tax. This has caused me a great deal of anxiety, for I know only too well of the burden which both inflation and recession now place upon our citizenry. To add unnecessarily to this burden would be both cruel and unconscionable. But I feel secure in the knowledge that sufficient mechanisms exist to combat any latent regressiveness. I would not consider reintroducing this bill if I felt otherwise.

Careful review of the evidence suggests that the tax is far less regressive than many assume. I would ask my colleagues to consider, for example, the fact that gasoline purchases represent 2.4 percent of a family budget of \$10,941 whereas similar purchases are only 2 percent of a family budget of \$7,214. Or the fact that the poor in this country spend roughly \$101 per year on gasoline or 26 percent of their energy budget whereas wealthier families spend \$533 per year or 38 percent of their energy budget. Or the fact that miles driven to work increase as income increases. Or the fact that while 50 percent of the Nation's poor own no car at all, 79 percent of the Nation's well-to-do own 2 cars or more. Or the fact that the poor account for only 9 percent of all cars owned in this Nation and only 5 percent of all gasoline purchases despite the fact that they account for 17 percent of all households. Or the fact that only one-third of all driving is to and from work. The facts are clear: the more money one has, the more he or she is likely to drive.

The following charts should give my colleagues a rough idea of the effect of a 20-cent increase in the gasoline tax. Table I indicates the burden borne by each income group while table II indicates the estimated amount of tax paid by the average household.

TABLE I.

Adjusted gross income (\$ thousands)	20-cent tax increase (\$ billions)
0-3	0.5
3-5	.6
5-7	1.1
7-10	1.8
10-15	2.9
15-20	2.4
20-50	2.5
50-100	.2

TABLE II.

Money income:	crease (\$ billions)
\$5,000	\$126
7,500	194
10,000	231
15,000	253
25,000	293

Despite the empirical evidence to suggest that the tax may not be as regressive as some fear, there is no denying that it will cause sacrifice among all Americans. That is its design. But to help those less able to endure these sacrifices, I have coupled the tax increase with a mechanism to compensate, through tax credits, those individuals who earn up to \$12,000 per year, and those families who earn up to \$15,000 per year.

The way this system works is really quite simple. Each individual taxpayer who earns \$12,000 or less will be allowed a 20-cent per gallon credit on all gasoline purchases up to \$140. In the case of a married couple filing jointly, the figure would be \$280 and the income level would be raised to \$15,000. This exempts some 700 gallons per person, or using 13 miles-per-gallon as the average auto efficiency rate, 9,100 miles of driving.

At the \$15,000 level, the average American household is expected to balance increased expenditures with the credit. It is estimated that the increased expenditures will be \$280, which would be offset by the accompanying credit. Below that level, the credit will be more than adequate to compensate for increased gasoline

costs. The only requirement would be that a citizen itemize the gallonage consumed so that the appropriate amount can be credited to his tax.

Now, there are two problems. The first concerns the men and women who, like the traveling salesman, rely heavily on the automobile for a living. Under my proposal a choice will have to be made between utilizing available business deductions or filing for the tax credit. For those who do not qualify, the existing business deductions will have to suffice.

The second problem relates to those outside the reach of the income tax system. This is admittedly a terribly difficult problem. To deal with it I propose that the Treasury initiate a program to extend the credit to those who otherwise would not file an income tax form. Under this plan, people would go to the appropriate office and, with the help of Internal Revenue Service personnel, file an abbreviated 1040 Form which will have a provision for the tax credit. Upon filling out the form and producing proper proof of vehicle ownership, those entitled to credit will receive the appropriate amount in check form from the Treasury. Certainly much will depend on the success of the Treasury and the IRS in publicizing the availability of this credit to eligible citizens, but I believe that the system can and will work fairly and equitably.

Mr. President, I firmly believe that the relative merits as I have discussed them argue persuasively for an increased gasoline tax. And the case is further strengthened by the lack of suitable alternatives. Earlier this week the President unveiled one such alternative: his proposal to implement import tariffs and domestic excise taxes on all crude oil and oil products. The tariffs and taxes are designed to raise the price of all oil products to such a point that citizens would have no choice but to conserve. But the fallacy of this approach is best revealed by a quick glance at the facts concerning New England's oil situation. We in New England have already cut back our home heating oil consumption by 20 percent, a figure nearly three times above the national average. In addition, we have reduced residual oil consumption by nearly 13 percent which is nearly twice the national figure. That there is further room for conservation of these critical fuels is possible but not probable.

Yet it is precisely these fuels which will bear the brunt of the increased costs incurred through tariffs and taxes. That this will come to pass has been pointed out by several economists and our own Joint Economic Committee, all of whom have indicated that the increased costs to oil companies stemming from the tariffs will be attached to those products which have a more or less fixed demand. Residual and heating oils are just such fuels, and regions of the country like New England and the east coast will pay dearly for these products since they use them in far greater proportion than any other regions of the country. Hence the net effect of the President's proposal will not be to conserve oil but rather to inflate oil prices. And this will be particularly burdensome to those citizens with low and fixed incomes.

Interestingly enough, gasoline—the one oil product which is consumed in roughly proportional quantities throughout this Nation—is left relatively unscathed. Yet it is the one oil product whose use is significantly discretionary and it is the one oil product most in need of conservation, as I have indicated above. I understand that the President's program will raise the cost of gasoline by 7 cents per gallon, but this is clearly not enough to stimulate the kind of conservation that is so desperately required of this fuel.

We have got to face the fact that you cannot talk about oil conservation without talking about gasoline conservation. After all, half of every barrel of crude oil is made into this fuel. And I think the American public, if given the option of steep increases in gasoline prices or substantial price increases in all oil products, will opt for the former—especially since the former is equally proficient. If not more so, at reaching the needed goal of reduced oil imports.

Another proposal which has received attention in recent weeks is gasoline rationing. But it, too, suffers from a number of drawbacks. It will be difficult to establish and manage. It is easily susceptible to political pressures which in themselves could lead to gross inequities. It possesses some of the regressive tendencies of the gasoline tax in that it will cut into the leisure travel of low-income citizens and hurt those with large cars—and this without any of the attendant economic benefits supplied by the gas tax.

But most importantly rationing is nothing more than a short-term solution to what is definitely a long-term problem. It betrays its affinity to the kind of crisis/solution syndrome which has transfixed so much of our current politics. If ever we are to free ourselves from this debilitating, haphazard approach to

public policy, now is the time. The situation clearly dictates a long-term solution through a long-term energy policy. A permanent increase in the gasoline tax offers an appropriate first step in such a policy.

However, more is needed. And today I have included two additional initiatives which are necessary if we are to forge a meaningful conservation policy.

First, I advocate an end to the Highway Trust Fund. Not only is this desirable from a procedural standpoint since all revenues generated by gasoline taxes must now go directly into the Fund; but, from the even more important standpoint of social policy, the proliferation of highway construction is contrary to the needs manifested by our energy problems. Highway construction is simply no longer a high priority item for this country. If future moneys are needed for highway construction—and I assume they will be—then I say let the case be made before the Public Works and Appropriations Committees and let them compete actively with other social programs such as health care, defense, education, veterans' benefits, and mass transit to name but a few.

Second, I advocate a progressively stringent tax on automobile weight to be borne to that auto's manufacturer or importer. Such a step is necessary to insure that the growing trend toward producing smaller cars becomes the norm among all auto manufacturers. For it is time to see our large cars—the very symbols of our voracious energy appetite—for what they truly are: a cost too expensive for this Nation to bear.

In discussing the correlation between fuel economy and automobile weight, the Environmental Protection Agency has stated that "vehicle weight is the single most important factor affecting passenger car fuel economy." A 5,000-pound car, reports EPA, "demonstrates 50 percent lower fuel economy than a 2,500-pound vehicle." If energy conservation is our goal, then clearly production and purchase of the large auto must be discouraged. And here again, I believe the tax mechanism offers the best method of achieving this goal. The tax I propose should, when coupled with the gas tax, provide automakers with sufficient incentive to produce lighter, more effective automobiles. It would be administered in two phases. The first phase—from July 1, 1976 to June 30, 1980—would leave untaxed automobiles weighing less than 2,500 pounds while levying progressively stiffer taxes in all higher weight classes. The second phase—from July 1, 1980 onward—would again leave the smallest cars untaxed while increasing the severity of all other taxes. For instance, after 1980 any car weighing more than 5,000 pounds would be subject to a tax of \$1,200.

Mr. President, rhetoric is a politician's stock in trade. But no amount of rhetoric can bring home the need for tough, mandatory energy conservation steps. Our energy, economic, and environmental policies cry out for them.

The Congress, paralyzed by opinion polls, has steadfastly refused to act. But now, in the 11th hour, it must rise to the challenge. The President has stepped forward with his proposal for energy action. Yet I have serious doubts as to its adequacy and its impact upon inflation.

The legislation I propose today is offered as an alternative. It will jar; it will jolt; it will inconvenience.

It will not be popular. Nothing will that burdens an already burdened citizenry. But we simply cannot afford to wait any longer. We must act. And this legislation offers what I believe to be the most propitious action we can take.

REMARKS OF SENATOR CHARLES MATHIAS, JR., ON THE FLOOR OF THE UNITED STATES SENATE, MARCH 20, 1975

ENERGY CONSERVATION TAX ACT

Mr. MATHIAS. Mr. President, on February 28, 1975, I introduced S. 897, the Energy Conservation Tax Act of 1975. This act was designed to address in a comprehensive fashion a number of areas of energy consumption where meaningful conservation can take place. During the drafting of that particular bill, I had the advice and counsel of staff at the Johns-Hopkins University Applied Physics Lab. They were able to give me their expert judgment in a number of different fields, including automotive engineering, economics, and physics. Since the bill was introduced, they have prepared an analysis of its provisions and I ask unanimous consent that their analysis be printed in the Record.

There being no objection, the analysis was ordered to be printed in the Record, as follows:

NOTES ON THE PROPOSED "ENERGY CONSERVATION ACT OF 1975"¹

I. INTRODUCTION

The purpose of this memorandum is to document the analysis of the financial aspects of the bill introduced into the Senate by Senator Mathias and entitled "Energy Conservation Act of 1975." The version of the bill analyzed was received on March 3, 1975 from Mr. Stuart Janney, Jr. of Senator Mathias' staff.

The bill consists essentially of three parts:

- (1) Tax credits and deductions for energy-conserving home improvements.
- (2) Tax on gasoline purchases and a tax credit.
- (3) Tax and tax credit on new automobile purchases based upon the fuel consumption of the automobile.

The analysis presented in this memorandum is limited to items 2 and 3. These aspects of the bill are covered in Sections II and III, respectively. General comments on the bill are covered in Section IV.

II. GASOLINE CONSERVATION TAX INCENTIVE

This portion of the "Energy Conservation Act" consists of two parts: A gasoline conservation tax and a gasoline tax credit. The gasoline tax is to go into effect on Jan. 1, 1976 at an initial rate of 15¢/gallon and to increase by 5¢/gallon each quarter (3 months) until 30¢/gallon is reached. The gasoline tax credit entitles each taxpayer, regardless of whether he is a driver, to a tax credit of up to \$158.00 in 1976 and \$210.00 for each year thereafter.

The purpose of this section is to estimate the income and the money rebated from this portion of the bill.

A. Gasoline conservation tax

Based on data^{2,3,4} for 1969 to 1973, the annual growth rate of passenger fuel consumption has been slightly greater than 5% per year. In 1974, the year of the Arab oil embargo, the price of gasoline rose approximately 20¢/gal. and the fuel consumption dropped by 2.6% from 1973. These values imply a price elasticity of about 0.13,* i.e., the percentage decrease in fuel consumed for a 1% increase in price. This value of the elasticity is, however, confounded by the simultaneous effect of a fuel shortage and an energy conservation campaign.

The present analysis assumes a continued 5% growth rate prior to the imposition of a gasoline tax implying no other price increase in gasoline nor any significant fuel shortages or other changes that may reduce fuel consumption. In effect, the economy is assumed to continue in the same manner as in the late '60's and early '70's. The price elasticities used to estimate the decreased consumption due to the gasoline tax are taken to be between 0.1 and 0.4 in the near term and between 0.4 and 0.8 in the long term. These values are based upon a recent survey⁵ of the elasticities. These numbers reflect in the near term the relatively minor impact of the gas tax on the total vehicle miles driven by the vehicle fleet. However, in the long term, the gas tax can be expected to influence the consumer's decision on the kind of automobile to be purchased with the expectation that the trend will be toward autos having better fuel economy.

Table 1 shows the projected fuel consumption with and without the gas tax, the range of values in column 4 reflecting the range of elasticities. The final column estimates the tax revenue based upon the tax rate of Ref. 1. The base price of gasoline was taken as 50¢/gal.

*Assuming an unperturbed growth rate of 5%, the decrease in fuel consumption would be 7.6%. The gas price was assumed to increase by 20 cents from a base of 35¢/gal. Additional footnotes at end of article.

TABLE I.—GASOLINE CONSERVATION TAX REVENUE

Year	Gasoline consumption projections ¹ (billion gallons)	Gasoline demand elasticity	Gasoline consumption projections ² (billion gallons)	Tax revenue (billions of dollars)
1969	62.3			
1970	65.7			
1971	69.2			
1972	73.5			
1973	77.6			
1974	75.6			
1975	79.4			
1976	83.4	0.1-0.4	79.7-68.5	17.9-15.2
1977	87.5	.1-.4	82.3-66.5	24.7-20.0
1978	91.9	.2-.5	80.9-64.3	24.3-19.3
1979	96.5	.4-.8	73.3-50.2	22.0-15.1
1980	101.3	.4-.8	77.0-52.7	23.1-15.8

¹ The 1974 figure is preliminary based on information received from Mr. Page. Values beyond 1974 are based on an annual growth rate of 5 percent per year.

² This is the projected fuel use reflecting the consumer response to pricing as dictated by the assumed variations in elasticities.

The table indicates an effective decrease in annual gasoline consumption in 1980 from 101.3 billion gallons to some value between 53 and 77 billion gallons dependent upon the achievable elasticity. This implies a savings of from 1.6 to 3 million barrels of crude oil per day. Based upon 1975 fuel consumption, the saving could be as high as 1.7 million barrels of crude oil per day.

B. Gasoline tax credit

The Energy Conservation Act proposes that, in 1976, each taxpayer who files a return receive a tax credit computed from the formula:

$$\text{Tax credit} = \$150 \frac{\text{Adjusted Gross Income} - 10,000}{40,000}$$

The tax credit is given to each person that files an income tax return except a married individual filing a separate return for which case the tax credits will be reduced by ½. For years after 1976, the coefficient (\$158) is changed to \$210. In effect, the tax credit is rebating to the low income individual the tax imposed upon the first 700 gallons of gasoline purchased.

The total tax credit returned to the taxpayers can be estimated using the distribution by adjusted gross income of the number of returns filed in 1972* (Table II).

TABLE II.—1972 ADJUSTED GROSS INCOME DISTRIBUTION

1972 adjusted gross income	Number returns (1972) (thousands)	Average income
Less than \$1,000	18	
\$1,000 to \$1,999	153	
\$2,000 to \$2,999	3,036	
\$3,000 to \$4,999	8,014	\$4,000
\$5,000 to \$9,999	20,347	7,500
\$10,000 to \$14,999	15,311	12,500
\$15,000 to \$24,999	10,851	20,000
\$25,000 to \$49,999	2,596	37,500
\$50,000 to \$99,999	481	
\$100,000 to \$499,999	110	
\$500,000 to \$999,999	3	
More than \$1,000,000	1	
Taxable returns	60,921	
Non-taxable returns	16,754	
Total	77,675	

In that year, there were a total of 60.0 million taxable returns and 16.8 million non-taxable returns. Since all persons filing returns are eligible for the rebate we

*These are the most current data available as verified by a telephone conversation with the U.S. Internal Revenue Service, March 4, 1975.

have assumed that the non-taxable returns would be eligible for the full tax credit. It is possible that with the tax credit incentive there may be a substantial rise in the number of non-taxable returns. In projecting the total money rebated for 1976 and beyond we have assumed the same distribution as in 1972, but have increased the number of returns by 2% per annum** and have adjusted the average income level by a 5% inflation rise. The results of these projections, based on the data in Table II, are shown below. Also shown are the estimated range of tax revenues taken from Table I.

COMPARISONS OF GASOLINE TAX CREDITS AND REVENUES

Year	Gasoline tax revenue (billions)	Gasoline tax credits (billions)
1976.....	\$15.2-\$17.9	\$11.8
1977.....	20.0-24.7	15.8
1978.....	19.3-24.3	15.9
1979.....	15.1-22.0	16.0
1980.....	15.8-23.1	16.1

III. AUTOMOBILE ENERGY CONSERVATION

This section of the proposed "Energy Conservation Act" proposes that the Federal Government grant a payment to individuals who purchase a new automobile; the amount of the payment being based on the fuel economy of the car according to the schedule shown in Table III. For the first year, 1975, the payment begins at \$100.00 for automobiles that attain 17 to 18 mpg and increases by \$25.00 for each additional mpg to a maximum of \$675.000 for more than 40 mpg. In each subsequent year, 1976 and 1977, the schedule of payments is revised by a 2 mpg increment. In the fourth year, 1978, a combined tax and rebate schedule becomes effective.

Figure 1 shows the EPA measured "average" mpg for 1975 automobiles.⁶ An 'average' value is difficult to define; however, EPA is currently employing an average value that consists of weighing the city and highway mpg measurements by 55% and 45% respectively. Referring to Fig. 1, it is noted that there is a small proportion (42 out of 209 or about 20%) of the American models that attain over 17 mpg. For the imported cars, about 86% of the models (32 out of 37) attain over 17 mpg.

TABLE III.—NEW CAR REBATE AND TAX SCHEDULES IN BILL

Miles per gallon	1975	1976	1977	1978
Less than 10.....	0	0	0	-1,000
11 to 12.....	0	0	0	-900
13 to 14.....	0	0	0	-800
15 to 16.....	0	0	0	-700
17 to 18.....	100	0	0	-600
19 to 20.....	150	100	0	-500
21 to 22.....	200	150	100	-400
23 to 24.....	250	200	150	-300
25 to 26.....	300	250	200	-200
27 to 28.....	350	300	250	-100
29 to 30.....	400	350	300	0
31 to 32.....	450	400	350	25
33 to 34.....	500	450	400	75
35 to 36.....	550	500	450	125
37 to 38.....	600	550	500	175
39 to 40.....	650	600	550	225

Notes: (1) Negative sign is a tax; (2) only every other mile-per-gallon increment is listed.

In order to estimate the total dollars rebated we have used 1973 sales figures⁷ with 1974 fuel economies.⁸ Sales of "subcompacts" in 1973 accounted for 25% of the market.⁹ The fuel economy values for 1974 were based upon "city" cycle

**A telephone conversation with Mr. J. Backsin in the Statistical Branch of the IRS yielded the information that 79.0 million returns were filed in 1973, the latest year for which this figure is available.

values. To obtain "average" values, the "city" fuel economy was increased by 2 mpg. The rebates for American and imported cars are given in Tables IV and V, respectively. Based on the 1973 American car sales (9.66 million units produced) and imports (1.72 million units imported), about 12% of the American cars and about 62% of the imported cars would be rebated. This represents a total rebate of about 20% of the total sales. In absolute values, the total rebate amounts to about \$0.6 billion, equally divided between American and imported cars.

Comparing this new car rebate value, \$0.6 billion, to the gasoline tax and credit values in table below, it is concluded that for 1975 there is a comfortable reserve in the automobile-related portion of the "Energy Conservation Act." Arbitrarily doubling the new car rebate for the 1976 and 1977 years giving values of \$1.2 and \$2.4* billion, respectively still allows for a comfortable reserve. No attempt has been made to assess the effect of the tax-rebate schedule to be implemented in 1978.

COMPARISONS OF GASOLINE TAX CREDITS AND REVENUES

[In millions of dollars]

Year	Gasoline tax revenue	Gasoline tax credit	New car rebates	Surplus
1976.....	15.2-17.9	11.8	0.6	2.8-5.5
1977.....	20.0-24.7	15.8	1.2	3.0-7.7
1978.....	19.3-24.3	15.9	2.4	1.0-6.0
1979.....	15.1-22.0	16.0	.....	- .9-6.0
1980.....	15.8-23.1	16.1	.....	- .3-7.0

TABLE IV.—AMERICAN CAR REBATES (1973)

	Rebate per car	Miles per gallon	Units sold	Total rebates (millions)
Chevrolet Vega Hatchback.....	\$325	26-28	325,000	\$105.6
Ford Pinto.....	275	24-26	340,000	93.5
Dodge Colt.....	275	24-26	39,000	10.7
Ford Mustang.....	225	22-23	135,000	30.4
Chevrolet Vega Kammback.....	225	22-23	104,000	23.4
Lincoln-Mercury Comet.....	200	21-22	95,000	19.0
Lincoln-Mercury Capri.....	200	21-22	114,000	22.8
Total.....	.....	.....	1,152,000	305.4
Total production.....	.....	.....	9,660,000	.....

TABLE V.—IMPORTED CAR REBATES (1973)

Make	Rebate per car	Miles per gallon	Number units	Total rebate (millions)
Honda.....	\$450	31-32	39,000	\$17.6
VW 412.....	425	30-31	30,000	12.8
Toyota Corolla.....	400	29-30	117,000	46.8
Datsun B-210, VW Dasher.....	325	26-27	385,000	125.1
Triumph Spitfire.....	300	25-26	21,000	6.3
Sabaru, BMW, MG, Renault, Audi.....	275	24-25	99,500	27.4
Saab.....	200	23-24	2,400	.6
Datsun 610, Fiat 124, Mazda.....	225	22-23	109,000	24.5
Opel, VW, Saab, Toyota, Porsche.....	200	21-22	118,600	23.7
Toyota Corona, Volvo 145.....	175	20-21	78,000	13.7
Renault, Porsche, Volvo 142, Fiat 128, Peugeot, Volvo 144.....	150	19-20	71,200	10.7
Total.....	.....	.....	1,071,000	309.2
Total import.....	.....	.....	1,720,000	.....

IV. GENERAL COMMENTS

(1) The one mile per gallon increment may be too small. A DOT study in addressing the question of measuring mpg concluded that current test procedures

*A \$2.4 billion rebate for a sales fleet of 8 million automobiles would allow a \$300.00 rebate per car implying that the "average" car sold in 1977 attains 29-30 mpg (see Table IV).

are accurate to $\pm 2\%$ to $\pm 4\%$. At 20 mpg the uncertainty could be ± 0.8 mpg and at 40 mpg the uncertainty could be ± 1.6 mpg.

(2) The new car rebate scheme for the first 8 years results in a highly favorable situation for the import car market with a possible adverse impact on the balance of payments. Some thought should be given to lowering the rebate base in the first year to reduce criticisms on this point.

(3) The bill may have the effect of accelerating the scrappage rate of used cars. Consider the purchase of a new car in 1979. Given the choice of buying a used 1975 auto and a new 1979 auto with 40 mpg fuel economy we find:

	Assumed cost	Miles per gallon	Monthly—					
			Rebate	Financing ¹	Fuel costs	Gas rebate ²	Total cost	Down payment
Used.....	\$1,500	15	0	\$42	\$44	\$17.50	69	\$375
New.....	3,600	40	\$250	77	17	17.50	76	540

¹ Used car financing; 25 percent down, 30 months at 9 percent; new car financing; 15 percent down, 42 months at 8 percent with rebate subtracted from amount financed.

² Assumes 10,000 miles per year driving.

The total monthly costs to the purchaser are almost identical. The situation may result in accelerating the scrappage rates of used cars that get poor fuel economy.

(4) Some consideration should be given to revising the tax and rebate schedules shown in Table IV for the following reasons:

(a) For cars obtaining between 20 and 30 mpg, there is about a \$400 shift in the price between 1977 and 1978 due to the replacement of the rebate with a tax. Perhaps the tax schedule should be revised to reduce the tax level on autos obtaining more than 20 mpg and increase the tax on cars having fuel economies of less than 15 mpg.

(b) Due to uncertainty regarding pollution and safety legislation, it is difficult to predict the limits on the attainable fuel economy in the late '70's. This factor, as well as the ones discussed above, suggest that there should be a range of fuel economies, say from 25 to 30 mpg, in which there are no taxes or rebates. Such a procedure could provide a target for auto manufacturers and not penalize the consumer because of safety and pollution requirements.

(5) A definitive decision concerning safety and emission standards should be made so that manufacturers are not faced with legislative uncertainties in areas that strongly affect fuel economy.

(6) The automobile related portions of the bill appear to be self-supporting for the first two or three years. Should the bill be even more effective than our estimates, e.g., the elasticities are greater, the self-supporting feature may still be accomplished by reducing the gasoline tax credit.

FOOTNOTES

¹ *Energy Conservation, Oct. of 1975*, Draft Copy received from S. S. Janney, Jr. on March 3, 1975.

² U.S. Bureau of Census, *Statistical Abstract of the United States: 1974*, 95th ed., Washington, D.C., 1974.

³ *Highway Selected Statistics, 1973*, U.S. Department of Transportation, Federal Highway Administration, 1974.

⁴ Personal communication with Mr. Walton Johnson Page, U.S. Department of Transportation and Federal Highway Administration, Program Management Division, Planning Service Branch, March 5, 1975.

⁵ APL/JHU report in publication, 1974.

⁶ *1975 Gas Mileage Guide for New Car Buyers*, U.S. Environmental Protection Agency, Washington, D.C., 1975.

⁷ *Wards Automotive Yearbook, 1974*, 36th ed., Wards Communication, Inc., Detroit, Mich., 1974.

⁸ *Potential for Motor Vehicle Fuel Economy Improvement*, Report to the Congress, U.S. Department of Transportation and the U.S. Environmental Protection Agency, Oct. 24, 1974.

REMARKS OF SENATOR CHARLES H. PERCY ON THE FLOOR OF THE UNITED STATES
SENATE, JUNE 27, 1975

Mr. PERCY. Mr. President, the latest figures indicate that consumption of gasoline in this country is up to preembargo 1973 levels and rising fast. In the first 4 months of this year, Americans consumed an average of 6.4 million barrels of gasoline per day, the same average as in the first 4 months of 1973.

By contrast, consumption of other petroleum products, such as heating oil, residual oil, diesel fuel, and jet fuel, remains well below preembargo levels. For one reason or another—the recession, higher prices, or voluntary conservation—Americans are using less of these petroleum products. This takes the pressure off oil imports and slows temporarily our Nation's headlong rush toward greater and greater dependence on expensive foreign oil.

But Americans are not saving gasoline. This summer motorists are packing the kids and the dog in the station wagon and heading for the beaches and mountains. It is almost as if a neon sign was flashing across the Nation's highways saying: "The Energy Crisis Is Over!"

This reaction is understandable. During the 2 years since gasoline shortages first occurred, Many Americans have stayed home or curtailed their pleasure driving. They were worried that they might not be able to buy enough gasoline to get home from vacation, that gasoline prices might be too high, or long lines might form at the gas pumps. Moreover, they were exhorted by the President and the Congress to conserve energy in the national interest, and they tried to respond.

But this summer there is no apparent shortage of gasoline. The price of gasoline is high, but not high enough to reduce driving. One House of Congress has voted down a 23 cents-a-gallon gasoline tax. The people have stopped worrying and they are hitting the road again.

For 2 years Congress has been faced with the energy crisis, but we have failed to adopt a policy to cope with it. By failing to pass any meaningful energy conservation measures, Congress is telling the people that there is no serious energy problem. Congress is, in effect, plugging in that neon sign on the highways, encouraging motorists to return to their old driving, and buying habits.

Unfortunately, the energy crisis is not over, and every monthly increase in gasoline consumption only worsens our situation with respect to the oil-producing countries. As long as Congress refuses to enact a rebatable gasoline tax to reduce consumption and raise revenues, foreign oil producers will continue collecting their own nonrebatable "tax" on all petroleum products. Further, the oil producers plan to raise their own revenues by another \$2 a barrel or more on October 1.

Mr. President, for 9 months I have been advocating the unpopular gasoline tax, because I believe it is a necessary part of an effective energy conservation program. We cannot continue indefinitely without a sound energy policy. If we do, we will surrender our destiny to the oil producers.

We need a gasoline tax, even though we do not like it. Gasoline is the only petroleum product which is not now being conserved. Discretionary use of gasoline, above and beyond the amount required by the average person for getting to and from work and for conducting personal business should be taxed. It is a luxury in today's world, and it should be taxed as a luxury.

The 10 cents-a-gallon gasoline tax I am introducing today would be rebated through the income tax withholding system for up to 500 gallons of gasoline per year for each individual taxpayer who drives a car. Under this proposal, a husband and wife filing a joint income tax return would receive a total refund for the tax paid on the first 1,000 gallons of gasoline used each year. This is equivalent to 15,000 miles of driving in a car that averages 15 miles per gallon.

The refund would be added to individual paychecks by reducing the Federal withholding rate. At income tax time, individuals would reconcile their actual gasoline consumption with the amount of tax that had already been rebated to them. The process of computing personal gasoline consumption each year would be a strong psychological stimulus for conservation.

This rebatable gasoline tax would begin immediately to reduce consumption of gasoline—by about 300,000 barrels per day in the first year and 500,000 barrels per day by 1980—without having a detrimental effect on personal income. Only discretionary driving would be taxed, not essential driving.

In addition, a 10-cents-a-gallon rebatable gasoline tax would raise net reve-

nue after the rebate of about \$4 billion annually. This revenue, unlike the present 4-cents-a-gallon Federal tax receipts, would go into the general fund of the Treasury. The funds would then be free for use in improving mass transit, developing alternate forms of energy, and for other national priorities.

I urge the Congress to enact a meaningful energy conservation program that includes a rebatable gasoline tax. Unfortunately, the price of gasoline will continue to rise. One question is clear. Will the price increase mean even more dollars flowing into the oil-producing countries, or will those dollars be returned to American pocketbooks?

[S. 636, 94th Cong., 1st sess.]

A BILL To terminate the Highway Trust Fund

Be it enacted by the Senate and House of Representative of the United States of America in Congress assembled, That effective on and after July 1, 1975—

(1) the Highway Trust Fund is terminated and the amount in such fund, including any obligations held in such fund, shall be covered into the general fund of the Treasury;

(2) any outstanding appropriations from, or obligations of, such trust fund shall be made from such general fund;

(3) any authorizations for appropriations to be made from such trust fund shall be considered to be authorizations for appropriations from such general fund; and

(4) section 209 of the Highway Revenue Act of 1956 is repealed.

[S. 2046, 94th Cong., 1st sess.]

A BILL To amend the Internal Revenue Code of 1954 to provide tax incentives for the manufacture, importation, and purchase of automobiles which use fuel efficiently, and for other purposes

Be it enacted by the Senate and House of Representative of the United States of America in Congress assembled, That (a) part I of subchapter A of chapter 32 of the Internal Revenue Code of 1954 (relating to motor vehicle excise taxes) is amended by adding at the end thereof the following new section:

"SEC. 4084. AUTOMOBILE FUEL EFFICIENCY TAX

"(a) IMPOSITION OF TAX.—There is imposed on the sale of an automobile by the manufacturer or importer thereof a tax determined in accordance with the following table:

If the fuel consumption rate (miles per gallon) is—	The tax is—For model year—					
	1978	1979	1980	1981	1982	1983 or later
Over 23.....	0	0	0	0	0	0
Over 22, but not over 23.....	0	0	0	0	0	\$200
Over 21, but not over 22.....	0	0	0	0	\$200	200
Over 20, but not over 21.....	0	0	0	\$200	200	420
Over 19, but not over 20.....	0	0	\$200	200	420	420
Over 18, but not over 19.....	0	\$200	200	420	420	680
Over 17, but not over 18.....	\$200	200	420	420	680	680
Over 16, but not over 17.....	200	420	420	680	680	1,000
Over 15, but not over 16.....	420	420	680	680	1,000	1,000
Over 14, but not over 15.....	420	680	680	1,000	1,000	1,000
Over 13, but not over 14.....	680	680	1,000	1,000	1,000	1,000
Over 12, but not over 13.....	680	1,000	1,000	1,000	1,000	1,000
Not over 12.....	1,000	1,000	1,000	1,000	1,000	1,000

"(b) DETERMINATION OF FUEL CONSUMPTION RATE.—

"(1) DETERMINATION OF RATE.—

"(A) IN GENERAL.—The fuel consumption rate of every automobile which may be subject to tax under this section is the fuel consumption rate determined by the Secretary or his delegate for the class of automobiles of which such automobile is a member. The determination of the fuel consumption rate for any class of automobiles shall be based on a composite mileage resulting from the testing of such class of automobiles, conducted in accordance with procedures established under paragraph (4). The determination shall be published in the Federal Register.

"(B) REVIEW OF DETERMINATION.—Within 30 days after the fuel consumption rate of any class of automobiles has been published under subparagraph (A), the manufacturer or importer of such class of automobiles may file a petition in the United States Court of Appeals for the

District of Columbia for judicial review of such determination. Upon the filing of such petition, the court shall have jurisdiction to review the determination in accordance with the provisions of chapter 7 of title 5, and to grant such relief as may be appropriate under such chapter.

"(2) INTERAGENCY COOPERATION.—In order to avoid unnecessary expense and duplication of effort, the Secretary or his delegate shall make such arrangements or agreements for cooperation or mutual assistance in the performance of his functions under this subsection and the functions of any department, agency, or establishment of the United States, as he may find practicable and consistent with law. The Secretary or his delegate may have access to and utilize, on a reimbursable or other basis, information, facilities, or services of any department, agency, or establishment of the United States. Each such department, agency, or establishment shall cooperate with the Secretary or his delegate and, to the extent permitted by law, provide such information, facilities, or services as he may request.

"(3) FUEL CONSUMPTION RATE.—The term 'fuel consumption rate' means, with respect to any class of automobiles, the number of miles which an automobile in such class can reasonably be expected to travel for each gallon of fuel which it consumes under ordinary driving conditions.

"(4) PROCEDURE FOR DETERMINING FUEL CONSUMPTION RATE.—The Secretary or his delegate shall, by regulation, establish procedures for conducting tests to determine the fuel consumption rate of automobiles which may be subject to tax under this section. Under such regulations the Secretary or his delegate shall establish separate classes of automobiles which may be based upon—

"(A) the manufacturer (or division of the manufacturer) of automobiles;

"(B) the engine family of automobiles (which takes into account the type of engine, fuel induction system, and emission control system);

"(C) the type of transmission of such automobiles;

"(D) whether or not the automobiles have air conditioners;

"(E) whether or not the automobiles are station wagons; and

"(F) the inertia weight of the automobiles.

For purposes of subparagraph (F), the inertia weight shall be taken into account in categories of 250-pound increments for automobiles which have inertia weights under 3,000 pounds, and in categories of 500-pound increments for automobiles which have inertia weights of 3,000 pounds or more.

"(c) DETERMINATION OF FUEL CONSUMPTION RATE FOR EACH MANUFACTURER OR IMPORTER.—

"(1) MANUFACTURER.—The fuel consumption rate of any manufacturer for any model year shall be based on all automobiles produced by such manufacturer in the United States or Canada during the model year.

"(2) IMPORTER.—The fuel consumption rate of any importer for any model year shall be based on all new automobiles imported into the United States during such model year which were produced (outside the United States and Canada) by the manufacturer who produced the automobiles imported by such importer. If there is more than one such manufacturer, the importer shall have a separate fuel mileage rating with respect to the automobiles of each such manufacturer.

"(3) SPECIAL RULES.—For purposes of this subsection—

"(A) PERSONS WHO MANUFACTURE AND IMPORT.—A person who is both a manufacturer and an importer shall be treated—

"(i) as a manufacturer with respect to automobiles described in paragraph (1), and

"(ii) as an importer with respect to automobiles described in paragraph (2).

"(B) CERTAIN IMPORTS FROM CANADA.—A person who is not a manufacturer with respect to automobiles described in paragraph (1), but who imports automobiles from Canada, shall be treated as an importer with respect to such automobiles.

"(C) PRODUCTION IN UNITED STATES OR CANADA.—An automobile is produced in the United States or Canada if at least 50 percent of the cost to the manufacturer of such automobile is attributable to value added in the United States or Canada.

"(D) TREATMENT OF CERTAIN EXPORTS AND IMPORTS AND SALES FOR FURTHER MANUFACTURE.—An automobile otherwise taken into account under paragraph (1) shall not be taken into account under paragraph (1)—

"(i) if it is sold to any person before the close of the model year in which it is produced for use in further manufacture,

"(ii) if it is exported from the United States before the close of the model year in which it is produced, or

"(iii) in the case of an automobile the production of which is completed outside the United States, unless it is imported into the United States before the close of the model year in which it is produced.

"(d) DEFINITIONS AND SPECIAL RULES.—For purposes of this section—

"(1) AUTOMOBILE.—The term 'automobile' means—

"(A) any passenger automobile (within the meaning of such term as used in section 4061(b)(2)), or

"(B) any automobile, truck, or bus which has a gross vehicle weight of 6,000 pounds or less (as determined under regulations prescribed by the Secretary or his delegate),

which uses gasoline or diesel fuel as a fuel for propulsion.

"(2) MODEL YEAR.—The term 'model year' means, with reference to any calendar year, the manufacturer's annual production period (as determined by the Secretary or his delegate) which includes January 1 of such calendar year. If the manufacturer has no annual production period, the term 'model year' means the calendar year.

"(3) MANUFACTURER.—The term 'manufacturer' includes a producer.

"(4) CHANGES IN EMISSION STANDARDS.—If there is any change (whether by law or by administrative action) from the Federal emissions standards which apply to automobiles produced on May 1, 1975, the Secretary or his delegate shall determine by rule (in accordance with section 553 of title 5) and publish in the Federal Register the extent (if any) to which such change increases fuel consumption rates for classes of automobiles.

"(e) EXEMPTIONS.—Under regulations prescribed by the Secretary or his delegate, for purposes of this section the term 'automobile' does not include—

"(1) an ambulance, hearse, or combination ambulance-hearse,

"(2) any bus which is to be used predominantly by the purchaser in mass transportation services in urban areas, or

"(3) any bus sold to any person for use exclusively in transporting students and employees of schools operated by State or local governments or by nonprofit educational organizations (within the meaning of section 4221 (d)(5)).

For purposes of paragraph (3), incidental use of a bus in providing transportation for State or local government or a nonprofit organization described in section 501(c) which is exempt from tax under section 501(a) shall be disregarded.

"(f) APPLICATION OF CERTAIN SECTIONS.—Sections 4221 and 4293 do not apply to the tax imposed by this section."

(b) TECHNICAL AND CLERICAL AMENDMENTS.—

(1) The table of sections for part I of subchapter A of chapter 32 is amended by adding at the end thereof the following new item:

"Sec. 4064. Excessive fuel consumption tax."

(2) Section 6161(b)(1) (relating to extensions of time for paying tax) is amended by inserting after "or 43," the following: "or by section 4064." The second sentence of such section 6161(b) is amended by inserting after "chapter 43," the following: "or by section 4064 of chapter 32."

(3) Section 6201(d) (cross reference) is amended by striking out "and chapter 43 taxes" and inserting in lieu thereof the following "chapter 43, and section 4064 taxes".

(4) Section 6211 (defining deficiency) is amended—

(A) by striking out so much of subsection (a) as precedes paragraph (1) and inserting in lieu thereof the following:

"(a) IN GENERAL.—For purposes of this title in the case of income, estate, and gift taxes imposed by subtitles A and B and excise taxes imposed by section 4064 or by chapters 42 and 43, the term 'deficiency' means the amount by which the tax imposed by subtitle A or B, by section 4064, or by chapter 42 or 43, exceeds the excess of—"; and

(B) by inserting after "or B" in subsection (b)(2) the following: "section 4064."

(5) Section 6212 (relating to notice of deficiency) is amended—

(A) by inserting after "or B" in subsection (a) the following: ", section 4064,";

(B) by inserting after "chapter 12" each place it appears in subsection (b) (1) the following: ", section 4064,";

(C) by striking out "TAXES IMPOSED BY CHAPTER 42" in the heading of subsection (b) (1) and inserting in lieu thereof "CERTAIN EXCISE TAXES";

(D) by striking out "or of chapter 42 tax" in subsection (c) (1) and inserting in lieu thereof "of chapter 42 tax"; and

(E) by inserting after "to which such petition relates" the following: ", or of section 4064 tax with respect to the calendar year to which such petition relates".

(6) Section 6213 (relating to restrictions applicable to deficiencies and petition to Tax Court) is amended by inserting after "or B" in subsection (a) the following: ", section 4064,".

(7) Section 6214(d) (relating to final decisions of Tax Court) is amended by inserting after "this chapter," the following: "section 4064,".

(8) Section 6344(a)(1) (relating to cross references) is amended by inserting before "chapter 42" the following: "section 4064 or".

(9) Section 6512 (relating to limitations in case of petition to Tax Court) is amended—

(A) by striking out "or 43" each place it appears therein and inserting in lieu thereof ", 43", and

(B) by inserting after "to which such petition relates" the following: ", or of section 4064 tax with respect to the calendar year to which such petition relates".

(10) Section 6601(d) (relating to interest on underpayment, nonpayment, or extensions of time for payment of tax) is amended by striking out in the heading thereof "CHAPTER 42 or 43" and inserting in lieu thereof "CERTAIN EXCISE".

(11) Section 7422(e) (relating to civil actions for refund) is amended by inserting before "chapter 42" the following: "section 4064 or".

SEC. 2. (a) Subpart A of part IV of subchapter A of chapter 1 of the Internal Revenue Code of 1954 (relating to credits allowed) is amended by redesignating section 45 as 45A and by inserting after section 44 the following new section:

"SEC. 45 AUTOMOBILES

"(a) GENERAL RULE.—In the case of an individual who purchases an automobile during the taxable year, there is allowed as a credit against the tax imposed by this chapter an amount determined under the table set forth in subsection (b).

"(b) DETERMINATION OF AMOUNT.—The amount of the credit allowable under subsection (a) for the taxable year shall be determined in accordance with the following table:

If the fuel consumption rate (miles per gallon) is—	The tax is—For model year—					
	1978	1979	1980	1981	1982	1983 or later
Over 31.....	\$300	\$300	\$300	\$300	\$300	\$300
Over 30, but not over 31.....	300	300	300	300	300	225
Over 29, but not over 30.....	300	300	300	300	225	225
Over 28, but not over 29.....	300	300	300	225	225	150
Over 27, but not over 28.....	300	300	225	225	150	150
Over 26, but not over 27.....	300	225	225	150	150	75
Over 25, but not over 26.....	225	225	150	150	75	75
Over 24, but not over 25.....	225	150	150	75	75	0
Over 23, but not over 24.....	150	150	75	75	0	0
Over 22, but not over 23.....	150	75	75	0	0	0
Over 21, but not over 22.....	75	75	0	0	0	0
Over 20, but not over 21.....	75	0	0	0	0	0

"(c) LIMITATIONS.—

"(1) DOMESTIC AND CANADIAN AUTOMOBILES.—No credit is allowed under subsection (a) for the purchase of any automobile which is not produced in the United States or Canada (as determined under section 4064).

"(2) **TAXABLE YEAR.**—No credit is allowed under subsection (a) for the taxable year to any taxpayer for the purchase of more than 1 car (more than 2 cars in the case of a joint return under section 6013).

"(d) **DEFINITION OF AUTOMOBILE; DETERMINATION OF FUEL CONSUMPTION RATE.**—For purposes of this section, the term 'automobile' is defined in section 4064, and the fuel consumption rate for any automobile shall be determined in accordance with the provisions of such section."

(b) (1) Section 56(a) (2) of such Code (relating to imposition of minimum tax) is amended by striking out "and" at the end of clause (vi), by striking out the semicolon and "and" at the end of clause (vii) and inserting in lieu thereof a comma and the word "and", and by inserting after clause (vii) the following new clause:

"(viii) section 45 (relating to credit for automobiles); and".

(2) Section 56(c) (1) of such Code (relating to tax carryovers) is amended by striking out "and" at the end of subparagraph (F), by striking out "exceed" at the end of subparagraph (G) and inserting in lieu thereof "and", and by inserting after subparagraph (G) the following new subparagraph:

"(H) section 45 (relating to credit for automobiles), exceed".

(3) Section 6096(b) of such Code (relating to designation of income tax payments to Presidential Election Campaign Fund) is amended by striking out "and 44" and inserting in lieu thereof a comma and "44 and 45".

(c) (1) The table of sections for such subpart is amended by striking out the last item and inserting in lieu thereof the following:

"Sec. 45. Automobiles.

"Sec. 45A. Overpayments of tax."

SEC. 3. Section 3 of the Automobile Information Disclosure Act (15 U.S.C. 1232) is amended by inserting "(a)" after "Sec. 3." and by adding at the end thereof the following:

"(b) Every label required to be affixed under subsection (a) shall include, in the case of any automobile on which a tax is imposed by section 4004 of the Internal Revenue Code of 1954 (relating to excessive fuel consumption tax) or on which a credit is allowed by section 45 of such Code (relating to automobiles)—

"(1) the fuel consumption rate determined to be applicable for such automobile, and

"(2) the tax paid or credit allowed under such section."

[S. 2047, 94th Cong., 1st sess.]

A BILL To amend the Internal Revenue Code of 1954 to increase the Federal excise tax on gasoline, to make such tax, as increased, a permanent tax, to provide that revenues derived from the increase in and extension of, such tax are credited to the general fund rather than to the Highway Trust Fund, and to provide a credit for the increased tax paid with respect to not more than five hundred gallons of gasoline purchased each year by the taxpayer

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) subpart A of part III of subchapter A of chapter 32 of the Internal Revenue Code of 1954 (relating to gasoline) is amended by redesignating section 4084 as 4085 and by inserting after section 4083 the following new section:

"SEC. 4084. ADDITIONAL TAX

"There is imposed on gasoline sold by the producer or importer thereof, or by any producer of gasoline, a tax of—

"(1) 10 cents a gallon with respect to sales occurring before October 1, 1977, and

"(2) 12.5 cents a gallon with respect to sales occurring after September 30, 1977."

(b) (1) Section 4082(d) of such Code (relating to definition of wholesale distributor) is amended by inserting "or section 4084" after "section 4081" where it appears in paragraph (2).

(2) Section 4083 of such Code (relating to exemption of sales to producer) is amended by inserting "or section 4084" after "section 4081".

(3) Section 4101 of such Code (relating to registration) is amended by striking out "section 4081 or section 4091" and inserting in lieu thereof "section 4081, section 4084, or section 4091".

(4) Section 4221(d)(6)(C) is amended by inserting "or section 4084" after "section 4081".

(5) Section 4226(a) of such Code (relating to floor stocks taxes) is amended by adding at the end thereof the following new paragraph:

"(8) ADDITIONAL TAXES ON GASOLINE.—

"(A) 1975 TAX.—On gasoline subject to tax under section 4084 which, on the first day of the first calendar month beginning more than 29 days after the effective date of such section, is held by a dealer for sale, there is hereby imposed a floor stocks tax at the rate of 10 cents a gallon. The tax imposed by this subparagraph does not apply to gasoline in retail stocks held at the place where intended to be sold at retail, nor does it apply to gasoline held for sale by a producer or importer of gasoline.

"(B) 1977 TAX ON GASOLINE.—On gasoline subject to tax under section 4084 which, on October 1, 1977, is held by a dealer for sale, there is hereby imposed a floor stocks tax at the rate of 12.5 cents a gallon. The tax imposed by this subparagraph does not apply to gasoline and retail stocks held at the place where intended to be sold at retail, nor does it apply to gasoline held for sale by a producer or importer of gasoline."

(6) Section 6421(b)(1)(A) of such Code (relating to allowance for local transit systems) is amended to read as follows:

"(A) 7 cents for each gallon of gasoline so used, by".

(c) The table of sections for such subpart A is amended by striking out the item relating to section 4084 and inserting in lieu thereof the following:

"Sec. 4084. Additional tax.

"Sec. 4085. Cross references."

(d) The amendments made by this section apply to gasoline sold on and after the first day of the first calendar month beginning more than 29 days after the date of enactment of this Act.

SEC. 2. (a) Subpart A of part IV of subchapter A of chapter 1 of the Internal Revenue Code of 1954 (relating to credits allowable) is amended by redesignating section 45 as 45A, and by inserting after section 44 the following new section:

"SEC. 45. EXCISE TAX ON GASOLINE

"(a) IN GENERAL.—In the case of an individual there is allowed as a credit against the tax imposed by this chapter for the taxable year an amount equal to 10 cents multiplied by the number of gallons of gasoline purchased by the taxpayer during the taxable year for the use of the taxpayer, his spouse, and his dependents.

"(b) LIMITATIONS.—

"(1) AMOUNT.—The credit allowed by subsection (a) for any taxable year shall not exceed \$50 (\$100 in the case of a joint return under section 6013).

"(2) APPLICATION WITH OTHER CREDITS AND DEDUCTIONS.—In determining the number of gallons of gasoline purchased by the taxpayer during the taxable year, any gasoline purchased with respect to which a credit or deduction is claimed under this chapter (other than under this section) for the taxable year shall be disregarded."

(b) Section 6401(b) of such Code (relating to excessive credits) is amended by—

(1) inserting after "43 (relating to earned income credit)," the following: "45 (relating to excise tax on gasoline)," and

(2) striking out "sections 31, 39, and 43" and inserting in lieu thereof the following: "sections 31, 39, 43, and 45".

(c) Section 6201(a)(4) of such Code (relating to assessment authority) is amended by—

(1) striking out "or 43" in the caption thereof and inserting in lieu thereof "43, or 45", and

(2) striking out "or section 43 (relating to earned income)," and inserting in lieu thereof the following: "section 43 (relating to earned income), or section 45 (relating to excise tax on gasoline)."

(d) The table of sections for subpart A of part IV of subchapter A of chapter 1 of such Code is amended by striking out the item relating to section 45 and inserting in lieu thereof the following:

"Sec. 45. Excise tax on gasoline.

"Sec. 45A. Overpayments of tax."

(e) The amendments made by this section apply to taxable years ending after the date of enactment of this Act but only with respect to gasoline purchased by the taxpayer on which the tax imposed by section 4084 of the Internal Revenue Code of 1954 (as added by the first section of this Act) is imposed.

SEC. 3. (a) Section 3402(a) of such Code (relating to requirement of withholding) is amended to read as follows:

"(a) REQUIREMENT OF WITHHOLDING.—Except as otherwise provided in this section, every employer making payment of wages shall deduct and withhold upon such wages a tax determined in accordance with tables prescribed by the Secretary or his delegate. Such tables shall reflect the liability for tax of employees under chapter 1 to be computed by taking into account the amount of wages and affording the employee an opportunity to have the credit allowed by section 45 taken into account for withholding purposes. For purposes of applying such tables, the term 'amount of wages' means the amount by which the wages exceed the number of withholding exemptions claimed, multiplied by the amount of one such exemption as shown in the table in subsection (b) (1)."

(b) (1) The amendment made by subsection (a) applies to wages paid after the last day of the calendar month ending more than 60 days after the date of enactment of this Act.

(2) Section 209(c) of the Tax Reduction Act of 1975 is amended by adding at the end thereof the following: "The amendment made by section 205(b) shall also apply to wages paid after December 31, 1975."

— Senator BROOKE. Those speeches analyze the issues more fully than we could possibly cover today. And later this week, we would like to present a full economic analysis of this new bill for the committee's use.*

First of all, gasoline demand is elastic, and gasoline consumption patterns can be changed without inflicting severe hardship. Gasoline is the fuel we are still wasting by the barrel. Every year, our 100 million cars guzzle nearly 100 billion gallons of this fuel as we drive well over 1 trillion miles. To be sure, a good deal of this driving is essential. But not nearly so essential as some politicians would have us believe. Only one-third of our driving gets us to and from work, often alone in our car. Another third goes to shopping and medical visits. And the remaining third is for recreation. Clearly, there is a great deal of room for conservation in all three of these segments.

There is no such room in our use of heating and boiler fuel. Households and businesses have already cut their fuel use substantially. New England households, for example, answered the call to conservation by cutting back nearly 20 percent on home heating oil. For this reason, general taxes and tariffs on all fuels only retard our economic recovery and cause needless suffering.

In addition, changes in patterns of using gasoline would affect the whole petroleum demand equation. This is because, of the less than 17 million barrels of oil the Nation uses daily, 7 million of those barrels are gasoline.

The legislation we will file this afternoon would impose a 15-cent gas tax gradually, 5 cents every 6 months for the next year. This represents a step away from the 20-cent and 30-cent taxes each of us proposed last fall; we are, quite frankly, compromising with what are said to be political realities by doing this. There is a tax credit scheme attached which gives everyone credit for 700 gallons of gasoline. Lower income persons get a larger credit than higher income persons. People paying no taxes are rewarded with a credit. Nondrivers are re-

*The information referred to was not available at presstime. In order to expedite the the printing of these hearings, the information requested will appear in appendix B of these hearings.

warded for the part they play in saving fuel. We feel this system will be both simple and a contribution to the national priorities we must establish.

Mr. Chairman, the Nation has already waited too long for a rational, effective energy policy. The Senate must enact legislation that is tougher and more responsible than that sent us by the House of Representatives. We believe this gasoline tax is absolutely vital to ultimately ending the emergency we face, and we respectfully urge the committee to give it fresh and serious consideration.

The CHAIRMAN. Senator Percy?

Statement of Senator Charles H. Percy

Senator PERCY. Mr. Chairman, members of the committee, we do appreciate this opportunity to be with you to testify, and I want to express appreciation to my colleagues, Senator Brooke and Senator Mathias for the important work that they and their staffs have done in this field.

As Senator Brooke has indicated, we are here as three Senators speaking essentially with one voice on the vital energy issues that face our Nation. By presenting our common position on these issues, we hope to impress upon the members of the Senate Finance Committee just how determined we are to see the Senate pass a tough, meaningful energy conservation bill for the sake of our Nation's future. We are united on the need for a gasoline tax, as Senator Brooke has demonstrated. We are agreed on the need for an auto efficiency tax incentive program, as I will explain; and we have a common policy toward imports, as Senator Mathias will point out.

Mr. Chairman, one of the most important provisions of H.R. 6860, as passed by the House, is the section on auto efficiency, but I believe it must be strengthened. In the House-passed bill, fuel economy standards would be measured against the average gas mileage of a manufacturer's entire output of new cars. The incentive for achieving this average simply would be to produce a greater number of small cars, rather than an incentive for improving the efficiency of all cars.

Further, the sanction in the House bill against a manufacturer for failing to achieve the fuel economy standard in a model year is a civil penalty of \$50 per car for each mile per gallon by which the manufacturer's average fell below the standard. This relatively small assessment is not a significant penalty for production of gas guzzlers.

Finally, the House bill offers no positive incentive for individuals to purchase more fuel-efficient cars. Fuel economy standards for the auto industry, such as those in the House-passed bill, are helpful. The Senate has a bill on the calendar to achieve similar standards, and I support that bill. But standards alone are not enough, even when they are accompanied by a civil penalty for noncompliance. What is needed as a supplement to the fuel-economy standards is an auto-efficiency tax incentive program; and I say this, Mr. Chairman, taking into account the long history of this committee in providing incentives or disincentives to motivate people to do things in the national interest. We have created a powerful incentive for private philanthropy to support charitable organizations, via tax deduction. During the war, we promoted a powerful disincentive for the purchase of many types of products in this country by putting a stiff excise tax on them.

What we now have to do dramatically, and in a relatively few years, is change the buying habits of Americans conditioned by powerful advertising to an entire attitude of life; that gas-guzzling dinosaurs are status symbols. Somehow, we have to get across the idea that they are not in the national interest; that a person driving those cars is imperiling the national policy by making us more and more dependent upon expensive imported oil. We have to take this into account in a country where, according to the U.S. Geological Survey, the bottle is only about a third full. Their recent report indicates that undiscovered reserves of oil are only about one-third the amount reported just a year ago. If we were to depend on domestic production only, at present rates of consumption our undiscovered reserves would be exhausted in 8 to 21 years. Though it appears that a gasoline tax and an auto efficiency tax are politically unpopular at present it is our conviction that the right thing to do will, in the end, be the politically wise thing to do.

The American people are smart enough to realize that we have to face up to this invisible crisis. We cannot have a lack of resolve on energy policy cause us to be dependent upon, or beholden to, foreign governments and subjected to possible oil blackmail.

Therefore, we urge the Committee to adopt our auto efficiency plan as a means of moving people away from gas-guzzlers, and moving them with a powerful incentive. We have seen how the automobile industry, on its own, has provided bonuses for the encouragement of purchasing cars. What we are proposing is a powerful penalty for the gas-guzzlers and a Government bonus for those who, in the national interest, will buy a car with greater fuel efficiency. If we adopt that program, I think we can move people powerfully in a relatively short period of time into more fuel-efficient cars, and overcome the effect of industry advertising that for years has emphasized power and speed on the highway.

This consumption habit must be overcome, and the best way to do it—as this Committee knows, which through the years has found financial incentives to motivate people—is to place a penalty on one side and an incentive on the other.

The beauty of it is, the plan is self-liquidating. We have calculated this plan so that the tax collected from the gas-guzzlers, up to \$1,000 for cars that consume too much energy, will pay the bonus up to \$300 to those who, in the national interest, buy a more fuel-efficient car.

Mr. Chairman, I ask that the remainder of my testimony be inserted in the hearing record. The details of the legislation are available for your study. In essence, what we have tried to do is provide a maximum bonus of \$300 and a maximum penalty of \$1,000, depending on the mileage obtained by each car. Over a period of years, the entire scale would increase to provide a continual stimulus for the production and purchase of energy-efficient automobiles.

Thank you, Mr. Chairman.

[The prepared statement of Senator Charles Percy follows:]

TESTIMONY OF SENATOR CHARLES H. PERCY

Mr. Chairman and Members of the Committee, I very much appreciate this opportunity to testify with my two colleagues, Senators Brooke and Mathias, on H.R. 8860, the most important energy bill to come before the Senate this year.

As Senator Brooke has indicated, we are here as three Senators speaking with essentially one voice on the vital energy issues that face our nation. By presenting our common positions on the issues, we hope to impress upon you, the members of the Finance Committee, just how determined we are to see the Senate pass a tough, meaningful energy conservation bill for the sake of our nation's future. We are united on the need for a gasoline tax, as Senator Brooke has demonstrated; we are agreed on the need for an auto efficiency tax incentive program, as I will explain; and we have a common policy toward imports, as Senator Mathias will point out.

Mr. Chairman, one of the most important provisions of H.R. 6860, as passed by the House, is the section on auto efficiency, but I believe it must be strengthened.

In the House-passed bill, fuel economy standards would be measured against the average gas mileage of a manufacturer's entire output of new cars. The incentive for achieving this average simply would be to produce a greater number of small cars, rather than an incentive for improving the efficiency of all cars.

Further, the sanction in the House bill against a manufacturer for failing to achieve the fuel economy standard in a model year is a civil penalty of \$50 per car for each mile per gallon by which the manufacturer's average fell below the standard. This relatively small assessment is not a significant penalty for production of gas guzzlers.

Finally, the House bill offers no positive incentive for individuals to purchase more fuel-efficient cars. Fuel economy standards for the auto industry, such as those in the House-passed bill, are helpful. The Senate has a bill on the calendar to achieve similar standards and I support that bill. But standards alone are not enough, even when they are accomplished by a civil penalty for non-compliance. What is needed as a supplement to the fuel-economy standards is an auto-efficiency tax incentive program.

The proposal we are offering to the Committee today differs from the auto efficiency provision passed by the House in three important respects.

First, the fuel economy standards would apply to each new car sold in the United States, not merely to the average of a manufacturer's entire line of new cars.

Second, the tax on automobiles that waste fuel is large enough to be a real deterrent against purchase of gas guzzlers.

Third, the tax-incentive program is an inducement for the industry to continually produce more efficient automobiles.

In our proposal, there would be a penalty for purchasing a new car which delivers less than the standard fuel efficiency for each model year, as determined by the Federal Government tests for combined city and highway driving. The penalty in the form of an excise tax, would be paid only once, at the time of original purchase. The tax would increase in four steps from \$200 to \$1,000, depending on the fuel efficiency of the car.

The *standard* fuel efficiency on which the tax is based would be 18 miles per gallon in 1978, and would increase by 1 mile per gallon each year until 1983. For the model year 1983 and thereafter, the standard fuel efficiency would be 23 miles per gallon.

In 1978, a maximum *penalty* of \$1,000 would apply to a new car that averages less than 12 miles per gallon. In 1983, the \$1,000 tax would apply to a new car delivering less than 17 miles per gallon.

Individuals who purchase new cars that deliver higher than the fuel efficiency standard would be rewarded with a bonus payment paid by the Federal Government. The purchase of fuel-efficient automobiles is both in the national interest to save energy and in the personal interest of the consumer to save money. The bonus payment would be a strong inducement to make such a purchase, and thereby help to reduce our Nation's dangerous dependence on high-priced foreign oil.

The bonus would be paid from the Treasury directly to the consumer upon certification of purchase. The bonus would increase in four steps from \$75 to \$300, depending on the fuel efficiency of the new car. No bonus would be paid on the purchase of a car not produced in the United States or Canada, and no more than one bonus payment could be made each year to any one purchaser.

The maximum *bonus* payment of \$300 would apply in the 1978 model year to any new domestic car that achieves more than 26 miles per gallon in fuel effi-

ciency. Beginning in 1983, the maximum \$300 bonus would be paid on a car delivering over 31 miles per gallon.

The bonus payments on high-efficiency cars would be financed out of the excise tax on low-efficiency cars, so that the net cost to the Federal Government in any year would be zero. If the auto industry fails to keep pace with the schedule of fuel-efficiency improvements which it has set for itself, then more new cars than expected will be subject to the tax and the penalty-bonus plan will yield net revenues.

The Committee may wish to consider beginning the bonus payments with the 1976 model year, as an immediate stimulus to energy-consuming cars. If a gasoline tax is adopted, the bonus payments could be financed from gas tax revenues in the first two years.

Mr. Chairman, the gas-guzzling dinosaur has long been a cherished symbol of affluence in America. But the days of cheap energy and wasteful driving are over. We need a new national policy based on conservation of our energy resources.

The auto efficiency tax incentive program is an important step toward that policy. We strongly urge the Committee to adopt this program as part of H.R. 6860. I would like to submit for the record the text of the proposal I have outlined, which is embodied in S. 2046.

Mr Chairman, permit me to submit for the hearing record a more complete statement of policy on the energy crisis that will continue to confront us for the remainder of this century, and on what I believe our response must be in the 94th—the so-called "Energy Congress." My statement concludes with this warning:

"If we do not recognize the possibility of catastrophe and see that we are simply sound asleep in the eye of a storm, then someday we are going to look back on the inaction of this Congress and ask why we failed to act."

SUPPLEMENTARY STATEMENT OF SENATOR CHARLES H. PERCY

Mr. Chairman, the Nation's dependence on foreign oil is now so severe that failure to enact mandatory conservation measures could mean eventual disaster for our economy.

We are familiar with the effects of the energy crisis. Our dependence on expensive foreign oil has fueled inflation and created the worst recession and unemployment since the Great Depression. But this evidence of the severity of the energy crisis has failed to move Congress. In fact, Congress has behaved as if there was no problem at all. The current effects of the energy crisis are bad enough, but the consequences of inaction in the face of growing energy demands in the next decade and the next generation are frightening.

Our energy demand is outstripping our energy supply at an alarming rate. The gap between demand and supply promises to widen until we will simply run out of energy. Unless we immediately begin to conserve, and this means cutting down on such energy wastes as excess driving, then our energy supply will eventually be overwhelmed by the energy demands of a growing economy.

We have two sources of energy—what we produce ourselves and what we buy from other nations. Our domestic production of oil and gas has actually been declining in recent years, and total domestic energy production has nearly leveled off. Crude oil production has dropped every year since 1970. New discoveries of natural gas have been fewer each year since 1968. Coal production is at about the same as in the Forties.

Because of this slowdown in the production of domestic energy, we have turned to foreign nations for more and more energy every year. Our prime source is the nations of OPEC—Organization of Petroleum Exporting Countries—with their vast supplies of untapped oil reserves located in the Middle East.

OPEC and other foreign suppliers now furnish 36 percent of the oil consumed in the United States, triple the percentage in 1970. The cost of this oil has escalated at a startling rate. Last year, because of OPEC price increases, we paid \$25 billion for foreign oil, 10 times as much as in 1970. OPEC leaders talk of raising the price again later this year to an unprecedented \$15 a barrel or more.

This energy supply crunch—a leveling off of domestic energy production and a growing dependence on foreign energy sources—has occurred during a period when our energy demand has grown enormously. We experienced a brief inter-

ruption in this rapid demand growth during and immediately after the Arab oil embargo of late 1973 and early 1974, but now the demand curve is climbing again. The most alarming rise in post-embargo energy demand has been in increased consumption of automobile gasoline, which is now back up to pre-embargo levels and rising fast. Americans seem willing to pay any price and risk any financial disaster to avoid a change in their driving habits. Even the Arab oil embargo, which forced millions of American motorists to wait in endless gas lines, failed to cool our national love affair with the automobile.

The growing gap between our energy supply and our energy demand represents either increased dependence on foreign energy sources or severe energy shortages. We cannot afford to tolerate the expense and the vulnerability of greater dependence on foreign oil sources, but we must have additional energy supplies to meet the needs of a growing economy.

These facts and trends leave us with few choices in charting a national energy policy. Conservation is clearly the key to future energy security for America. Even a modest increase in our energy demand, say 3 to 4 percent a year, eventually will outstrip our energy supplies and leave us even more dependent on expensive foreign oil. There is no doubt that we will need to develop new sources of domestic energy. But conservation can help narrow the supply and demand gap now.

The Nation's mandate is clear: we must conserve energy now and at the same time make a commitment to the development of all forms of energy—oil, coal, natural gas, nuclear, solar, geothermal, and hydroelectric power. If we fail in making and meeting this commitment, then our dependence on expensive foreign oil will increase. The size of the commitment is awesome. It will be expensive to develop new energy sources, and it will take time. But the alternatives are crippling energy shortages or intolerable dependence on foreign oil sources.

To underscore the need for mandatory conservation, consider the kinds of resource development that would be required by 1985—only 10 years from now—just to keep pace with our projected demand: develop one billion tons of coal a year, almost twice the amount now produced; lease 15 to 20 million acres of offshore oil lands in the Santa Barbara Channel, the Baltimore Canyon, and other areas in the Pacific, Atlantic, and Gulf of Mexico; complete another pipeline through Canada, in addition to the Alaskan pipeline now under construction, and develop the vast Naval Petroleum Reserve No. 4 in Alaska; and build nuclear powerplants at the rate of one every three weeks.

If this seems like an awesome task full of environmental hazards, consider the type of domestic energy development we would need to meet our supply needs by the year 2000—only 25 years from now—if we do not begin to conserve fuel immediately: mine three times as much coal as we do today, mostly by strip mining; develop oil share reserves at a rate equivalent to digging the Panama Canal every day in Colorado, Utah, or Wyoming; build nuclear powerplants at the rate of one every week between 1985 and 2000, or develop an equivalent solar power system; and produce geothermal energy equal to the power produced by 100 Hoover Dams.

We cannot estimate precisely the scope of the commitment to development of new energy sources that will be needed. However, projections show that if energy demand grows at historical rates and we fail to conserve, we will need to produce energy at the rate of a new Alaska pipeline every year by 1985 and, by the year 2000, at a yearly rate equivalent to the present annual crude oil production of the State of Texas. To reduce both the long and short range pressure on our energy supply, we urgently need to make energy conservation a national policy.

Development of new energy sources will require a sizeable economic investment and changes in our lifestyles. Our environment will be affected adversely. In order to lessen the negative impact of this development, both the Congress and the American people need to make a commitment to conserve.

This commitment will require sacrifice, but I believe the American people will make the necessary sacrifice when they realize what is at stake. They will respond if their elected leaders call upon them to respond in the national interest.

But so far Congress has failed to ask the American people to respond. To date, Congressional consideration of mandatory energy conservation measures has been an exercise in futility motivated by political cowardice. Congress has

stuck its collective head in the sand and rejected all mandatory conservation measures with the apparent hope that if it ignores the energy crisis long enough it will disappear. It will not disappear. In fact, it will get worse and promises to plague the Nation for decades.

That should be our greatest concern today. The fact that Congress has failed to adopt an equitable gasoline tax, an effective auto-efficiency plan, or some combination of energy-saving measures is not the real problem.

The real problem is that Congress has done *nothing* to mandate energy conservation. Congress has behaved like a reckless band of irresponsible politicians who cannot see beyond the next election.

Some claim that Congress has reflected the will of the people by rejecting mandatory energy conservation measures. Congress should not lead, they say, it should react, and its reaction in this case has been a reflection of popular opinion. I reject that notion. The American people are not children. They are smart enough to spot it when their elected leaders take the path of least political resistance.

I believe Members of Congress who fail to support mandatory energy conservation measures will pay dearly for their inaction. If Congress fails to take decisive action on energy this year, the voters will register their displeasure in the November, 1976 election. Who will be the targets of public outrage if Americans again face long lines at gas stations and even experience brownouts and blackouts? The answer is obvious—Congress.

Congress should immediately consider a number of tough mandatory energy conservation measures and pledge to the American people that action on an equitable and meaningful energy bill will be completed this summer. If Congress passed a program now that included a rebatable gas tax (see S. 2047), a home insulation tax credit (see H.R. 6860), and repeal of the deduction for State gas taxes (see S. 637), we could immediately begin saving more than half a million barrels of oil a day.

Congress should act now to begin phasing out price controls on domestic oil and gas over the next three to five years and tilt the price effects toward gasoline. This would both conserve fuel and stimulate production of new supplies. Congress should also act now to pass an auto-efficiency bonus and tax plan to take effect on 1978 model cars (see S. 2046).

We should abolish the Highway Trust Fund (see S. 636), or at least cut it down as the President has proposed to free some of those funds for use in mass transit and other vital national needs.

We have completed or have under construction virtually 99 percent of the interstate highway system of this country, yet we continue to accrue billions of dollars a year in the trust fund. At the same time, we have railroads and mass transit systems in bankruptcy. I think this indicates a lack of will in Congress to adapt to change and to face the realities of the seventies.

We should insist that the states fully enforce the 55 mile-per-hour speed limit or face the loss of Federal highway funds. The 55 mph speed limit, which was largely responsible for saving about 11,000 lives and over 50 million barrels of oil last year, should be regarded as the national law instead of a national joke.

Our long-term energy needs require incentives for coal production and for the development of new energy sources. Building codes need to be improved and utility rates restructured to make it more economical to save energy at home. Only if Congress enacts a conservation-oriented program like this now can we narrow the dangerous energy gap in the future.

Such a program would mean a considerable financial saving for the country. If the price of oil is \$15 a barrel in 1980, and there is no guarantee that the price will be that low, we would be paying OPEC and other foreign suppliers \$49 billion that year if we fail to conserve. By saving fuel we can reduce that financial burden substantially, and we can hopefully exert a downward influence on OPEC prices.

The consequences of inaction to combat the energy crisis are indeed disturbing. Even with mandatory conservation measures, the national effort to develop new energy sources will be incredibly demanding. I believe we owe it to the American people to tell them the truth about the severity of the energy crisis and the challenge we face in the future to meet our projected energy needs. If we fail

to level with the American people and we avoid making tough choices, then we will be guilty of a breach of public confidence and an abdication of responsibility that will make us unfit to hold public office.

Mr. Chairman, I feel we can draw a comparison of the situation.

For some 30 or 40 years we had huge food surpluses in this country. But then there was a world food shortage. Our food reserves were virtually wiped out because of large shipments to needy nations and poor harvests in this country because of bad weather.

Now we are living off our current food production with no surplus, as is the rest of the world. The same thing, literally, is happening in energy, except much worse.

We have been consuming more energy than we produce for about eight years. We have been living off the shelf and recently we learned that the bottle is only about one-third full, that all those reserves we thought we had do not exist.

If we had to depend entirely upon our own domestic production of oil, and continued consuming at our present rate with no growth at all, our *known* reserves would last only 10 years. Even worse, it is now estimated that our *undiscovered* reserves of oil would only last another 8 to 21 years.

If we do not recognize the possibility of catastrophe and see that we are simply sound asleep in the eye of a storm, then someday we are going to look back on the inaction of this Congress and ask why we failed to act.

Statement of Senator Charles McC. Mathias, Jr.

The CHAIRMAN. Senator Mathias.

Senator MATHIAS. Thank you, Mr. Chairman. To conserve the time of the committee, I would like unanimous consent to submit my statement in full and to brief it for the committee at this time.

The CHAIRMAN. Without objection, agreed.

Senator MATHIAS. Thank you, Mr. Chairman. Senator Brooke has described a common philosophy with regard to motor gasoline. Senator Percy has outlined the kind of legislation that this Nation needs to encourage the manufacture and purchase of efficient automobiles. Without repeating what they have so well stated, I would like to just note that both of these programs could exist alone, but I think they would perform better in combination with each other, and I think the same is true for the proposal I now make to the committee. I think it will work in harmony with the gas tax and with the automobile efficiency tax.

On June 16, I introduced S. 1950, which was designed to amend the Tariff Schedules to impose higher rates of duty on products derived from petroleum and to distribute the revenue from these duties to the States that consume the products. At the outset, I would like to state that S. 1950 bears very little or practically no similarity to the proposals of the President vis-a-vis the Tariff Schedules. It is also a different approach from H.R. 6860 where a mix of oil tariffs and import quotas is established.

The President's program fails, in my judgment, because it raises tariffs immediately and by so doing it sends shock waves throughout the entire economy. S. 1950 works in a more gradual, and I believe, a more sensitive fashion by establishing a system of tariffs on imports of residual fuel, middle distillates, jet fuel, and motor gasoline. The tariffs on residual fuel will be \$2 per barrel; on middle distillates and jet fuel, \$3 per barrel; and on motor gasoline, \$4 per barrel. This will be a sufficient incentive to refine at home rather than abroad. Ini-

tially licenses for the tariff-free importation of middle distillates and residual fuels will be issued. For middle distillates in 1976, licenses will be issued for up to 90 percent of 1972 volumes to importers. In succeeding years, the number of licenses will be reduced so that by 1981, no licenses will be issued and the tariff will apply to all imports of middle distillates.

For residual fuels, the concept is the same but the schedule would be somewhat changed. I think, Mr. Chairman, members of the committee, that, by and large, America has failed to comprehend the nature and the severity of the energy problem, and it has been only recently that public attention has been at all focused and that any real attempt to construct a national energy policy has taken place. Years of inattention, I think, have ill-prepared the Nation to instantly convert from oil to coal, or to bring on new exotic sources of energy supply. Since it is impossible to accomplish instant conversion, I think it is also fruitless and, in fact, harmful to place immediate burdens and penalties on the American public for not making a conversion.

I think the proper course is not a sudden, radical shift, but constant, steady progress. One of the questions that arises in fashioning a program is, of course, encouragement of domestic refinery expansion, and the further question arises, how do we insure regional equity? I think most members of the Senate have had some acquaintance with that problem. S. 1950 addresses it in a simple, straightforward fashion. Imports of products over and above volumes covered by tariff-free licenses are taxed. But revenues, with the exception of motor gasoline, which is a small part of the picture, will be returned to the States where the first sale of the product occurred.

My proposal is different from the quota and tariff system that is outlined in H.R. 6860. Briefly stated, I object to relying so heavily on a quota mechanism because I believe this puts the Government where it cannot efficiently function, which is squarely in the business of allocating a scarce resource.

I would like to note that at the present time we do not have a long-range policy for encouraging refinery expansion and discouraging the import of petroleum product. In the absence of this kind of a policy, I think we are doubly vulnerable to supply interruptions and price increases. Not only is there difficulty and expense of obtaining the raw material, but there is also the question of where energy will be refined. Processing can be just as subject to politically motivated stoppages and cartel prices as extraction of the raw product.

We all share a very important responsibility to try and get the economy moving again, and this committee is particularly involved and concerned, and for this reason I would like to detail very briefly what America sacrifices by not constructing refineries at home, and that is, of course, over and above the drainage on monetary reserves.

If we are thinking of an oil refinery with a capacity between 300,000 and 400,000 barrels a day, that class of refinery requires 150,000 tons of steel, 65,000 yards of concrete, 20,000 gallons of paint, \$15 million worth of cables and equipment, 10 million man-hours of construction. Going beyond what is actually taking place on the refinery site to the steel mill where 150,000 tons of steel will be produced, we find that it

takes six man-hours for each ton and that each man works approximately 2,000 man-hours per year, which means that a refinery employs at least 450 men in a steel mill alone, contributing to the construction of the refinery, and that, of course, does not count all of the people who will be employed at other stages in the processing of the construction materials.

Mr. Chairman, I hope that this committee will report S. 1950 or similar measures as a part of any comprehensive energy tax legislation. If this committee amends H.R. 6860 to include a program along the lines represented by S. 1950, I think America will have taken a great step forward in providing an energy policy which will serve both the consumer and the industry in the years ahead.

I know that I speak on behalf of Senator Brooke and Senator Percy in thanking the committee for the consideration of the proposals that we have jointly and severally made to the committee this morning.

Mr. Chairman, I would further ask unanimous consent to include as a part of my statement the excerpt from the record of June 16, at which time I introduced S. 1950, and a statement on behalf of Crown Central Petroleum Co.

The CHAIRMAN. Without objection, agreed. —

[The materials referred to follow:]

[From the Congressional Record, Monday, June 16, 1975]

By Mr. MATHIAS:

S. 1950. A bill to amend the Tariff Schedules of the United States to impose higher rates of duty on products derived from petroleum, to distribute the revenue from such increased rates of duty to States which consume such products, and for other purposes. Referred to the Committee on Finance.

PETROLEUM PRODUCTS IMPORT ACT

Mr. MATHIAS. Mr. President—

While the tax plan—referring to floor action in the House of Representatives—was soundly rejected, there was no indication that there was strong support for any alternative means of conservation that might cause consumers to change their habits of consuming fuel. (This quote is from the New York Times of June 12.)

The final session of the National Governor's Conference found the State Executives still badly divided on their approach to the energy question. They achieved common ground only in calling for a vaguely worded "special energy project" and expanded conservation efforts. (This quote is from the Washington Post of June 12).

The people of America know there is an energy problem and I suspect even Congress knows it, otherwise there would be no reason for the hours of acrimonious and fruitless debate which have taken place. Our constituents are looking for leadership. If energy can be likened to fire in a house, then our constituents are ready just as members of a community to put their neighbors' fire out. But leadership is needed. To put out a fire, buckets are required; water must be found, and most importantly in equating a fire with our energy problem, a line to pass the water from the well to the fire must be formed.

Congress is on its way to earning the scorn of the American people for its total failure to come to grips with energy. In the months of debate, little positive has been accomplished and if the future is like the past we will have earned the contempt of the public.

Congress misses the point in equating energy conservation with a decrease in the American standard of living. Conservation need not be realized by decreasing our standard of living, but rather by changing our way of living. With this thought as a guide for our efforts and a candid approach to national problems,

the future need not be worse than the past as so many Americans now believe.

On February 28, 1975, I introduced S. 897, the Energy Conservation Tax Act of 1975. This legislation was designed to influence consumer demand for energy. Specifically, my bill concentrated on reducing America's consumption of gasoline. It would accomplish this goal by levying a gas tax at the pump and a tax on automobiles which are inefficient. It would also provide for income tax credits and deductions for energy-saving devices, and loans for those nontaxpayers who purchase energy-saving devices. I stated at that time that this was only a partial answer and I restate that today. I now introduce further legislation to complement the approach taken in S. 897.

The need for this country to reduce energy consumption cannot be seriously questioned. In this regard, the need for a comprehensive national program cannot be overstated. The President has done all in his power to force Congress to enact such comprehensive legislation. I share his frustration with congressional inaction to date and sympathize with his decision to use the one power he has to force Congress to Act. Raising import fees for imported petroleum is a blunt instrument and can only be justified in the short term if nothing else is available.

As we look at the energy problem, it is evident that there are basically two ways of achieving meaningful conservation. Federal policy can either influence demand or supply. Demand for petroleum products is comprised of the individual choices that end-users make every day of their lives. End-users are constituents. We are all end-users of energy and if the Government seeks to influence demand, it seeks to influence each and every one of us; to create pressures that will channel demand in ways that will serve in the national interest.

Done properly, the results can be beneficial. It is, however, a high risk political strategy. The Federal Government can, on the other hand, focus on supply. By doing so the political risks are diminished in the short term as the direct interface between Government and its citizens is lessened. But it is very difficult to serve the long-term energy needs of this country by concentrating on reducing supply. This is because the public interest can only be served by a viable and competitive petroleum industry. While government pressure on consumer demand can be easily accommodated in a free market, Government pressure on business to reduce supply cannot be so easily accommodated. Private industry must be left free to compete in the market and allowed through efficiency of operation to capture larger and larger shares of the reduced market.

If Federal policy focuses on supply, energy conservation can be accomplished in many ways. The Government could tighten the allocation fraction pursuant to the Emergency Petroleum Allocation Act, or reduce by quota the amount of oil that can be imported into this country. Sunday closings or odd/even fill-up days can be mandated. All of these actions conserve, but in a somewhat arbitrary matter. They all require, particularly if price controls are maintained, regulations to set priorities and to allocate a resource among competing users.

The end result is to make the already complex oil business even more so and to create a need for layers of regulations to solve problems created by other regulations. This added complexity serves no good purpose. It does not reward efficiency of operation or punish inefficiency as the free market has historically, but only creates hurdles that a lucky few surmount. The greatest loser is the American consumer who pays the final bill.

In a strictly political sense, concentrating on supply may seem attractive. Reducing demand brings Government into direct conflict with the wishes of individual consumers, while reducing supply focuses on large companies, who are few in number. But I submit that this country is waking up to hidden costs; that Americans are tired of paying tomorrow for last night's binge. They would rather pay the bill now.

In speaking of S. 897, some months ago, I stated, "It is unlikely that any one Senator can address in a comprehensive fashion every facet of this vast, complex field, but I do intend to introduce further legislation on these and related subjects. By way of putting this legislation in context, it would be fair to say that it represents my view that stringent conservation is required and that much of this conservation must take place in the home. None of these programs—here referring to S. 897—deal with priorities we must set as between domestic and foreign sources. I recognize that a comprehensive program must be enacted in

this area as well. I intend to introduce legislation shortly which will establish a system of priorities so that when the gas tax, the residential energy conserving credit, and the automobile efficiency tax create less of a demand in this country for petroleum, we can reduce oil imports with a particular emphasis on refined, imported products."

I have now prepared the further legislation to which I alluded earlier. The bill I introduce today will establish a system of tariffs on imports of residual fuel, middle distillates, jet fuel, and motor gasoline. The tariff on residual fuel will be \$2; on middle distillates and jet fuel \$3, and on motor gasoline \$4. Initially, licenses for the tariff-free importation of middle distillates and residual fuels shall be issued. For middle distillates, in 1976, licenses will be issued for up to 90 percent of 1972 volumes to importers. In succeeding years, the number of licenses will be reduced so that by 1981, no licenses will be issued and the tariff will apply to all imports of middle distillates. For residual fuel, the concept is the same but the schedule is changed so the licenses will be issued for only 80 percent of 1972 volumes. The schedule mandates that licenses be scaled down to 20 percent of 1972 volumes by 1981 and remain at that level thereafter.

For both residual fuels and middle distillates, 10 percent of 1972 volumes is reserved for discretionary use by the President in consultation with the Federal Energy Administration. These remaining licenses can be issued on the basis of extreme hardship and will be issued to importers with unusually low volumes in 1972 or who have only been in the petroleum importing business since 1972. This 10 percent figure will not vary as the years go by.

As to motor gasoline and jet fuel, which are also subject to a tariff increase by my legislation, there will be no duty-free licenses issued. These products constitute only a small amount of the total imports of product and can easily be replaced by substitutes available domestically.

In the past, attempts to deal with an over-reliance on energy imports has met with stiff regional opposition. Those regions of the country which are heavily dependent on imports are reluctant to see national taxes fall heavily on their geographic area. They realize that only a small fraction of the revenue generated by such taxes is returned to the region from whence it was derived. My legislation seeks to remedy this situation in an administratively simple fashion by mandating that tariffs collected on residual fuel and middle distillates be returned to the State treasuries where the first sale occurred. This would not be true for motor gasoline and jet fuel, which, as I have stated, constitute only a small portion of total product imports. The net effect of this provision is to ensure regional equity through the creation of a system for moving those funds derived from the tariff back to the locality that had to pay them in the first instance. These funds would be available to the States for whatever purposes seem appropriate.

I might note that a number of States, including Maryland, are currently distressed over declining gas tax revenues as a result of energy conservation. Many future State projects are dependent on raising or at least maintaining revenues from the gas tax.

My proposal is clearly different from what the President has available to him and has seized upon as his energy program. The President's program raises tariffs immediately and will send shock waves throughout the economy. There are no duty-free licenses to be phased out over a period of years. The full \$1, \$2, or \$3 is felt immediately by all, regardless of their ability to switch from foreign to domestic sources. There is no regional equity. His program demands instant conversion to other sources of energy supply. Such conversion is difficult, if not impossible over such a limited period of time and with domestic energy resources in short supply. This Nation does not need a shock treatment, but rather a clear and long-term program. Such a program must recognize the difficulty of instant conversion but decree conversion over the next 4 or 5 years. It must encourage refinery construction at home, rather than in Europe, the Middle East, or elsewhere.

According to the monthly Energy Review for April 1975, published by the Federal Energy Administration, imports of refined product have ranged over the last few months from a low of 2 million to a high of 2.5 million barrels per day. Crude oil imports have stayed relatively constant at approximately 4 million barrels per day. While it would be very nice to be totally self-reliant in energy,

there is no possible way the United States could achieve such a goal. In that sense, Project Independence is misleading. What must be achieved is not total self-reliance, but rather the ability to get by in an emergency by relying on domestic sources, and a favorable balance of trade over the long-term.

The most practical way of accomplishing these two objectives is to concentrate on cutting back on foreign, refined product. From a national security standpoint, foreign, refined product renders the United States doubly vulnerable. First, the resource is produced in an area where the United States has little influence, and where the host government may be hostile to our national interest. Second, the energy is refined beyond our control and is thus subject to export restrictions if the host country is also short of energy.

In addition to being subject to discriminatory export taxes and restrictions, there is a further factor to consider. In the event of a serious shortage in this country, the Federal Energy Administration can utilize the Emergency Petroleum Allocation Act to alter refinery runs so that production of refined product of critical importance to national security is given a priority over other products derived from a barrel of oil. This program was implemented with considerable success during the days of the Arab oil embargo and may be needed in the future. Needless to say, it is an alternative that is unavailable in the case of a foreign refinery.

Our balance of payments is also of concern. The United States is a strong exporter. Our balance of payments would be continually favorable were it not for the heavy deficit that is caused by petroleum imports. It is one thing to be forced to purchase a raw material abroad because it is needed, but unavailable domestically, but it is quite another to pay also for refining that product overseas because of an unwillingness to encourage refinery construction at home. Importing product means exporting dollars not only for the purchase of the raw material, but also for labor, petroleum additives and other supplies, depreciation, and capital costs associated with the foreign refinery. That is a steep and unnecessary price to pay for energy consumption in this country.

The Washington Post editorial of May 28, 1975, entitled "The President and Oil Tariffs" focused on just this problem while discussing President Ford's recent decision to raise the tax on imported oil to \$2. I quote a portion of that editorial:

"The peculiar structure of these tariffs (referring to the President's \$2 import fee) is also widening the gap between the cost of importing crude oil and the cost of the refined product. While the tax on the foreign crude is now \$2 per barrel, the tax on product, like fuel oil, is—in deference to the sensibilities of New England—only 60 cents per barrel. Although part of our present trouble arises from a shortage capacity in this country, the present tariff levels offer a strong incentive to refine the oil abroad before bringing it here."

I share this concern and was consequently heartened by the Washington Post calling attention to it.

The Federal Energy Administration took issue with this paragraph of the Post editorial in a letter from Frank G. Zarb, Administrator of the Federal Energy Administration, to the Editor of the Washington Post which appeared in the "Letters to the Editor" section of the Post. The letter entitled "Domestic vs. Imported Oil" reads:

In your very perceptive editorial of May 28 entitled "The President and Oil Tariffs," you said that the President's imposition of higher fee for imported crude oil than for imported refined product creates a "strong incentive to refine the oil abroad before bringing it here." Actually, the opposite is true. Under the President's program, it will be \$1.62 per barrel, or almost 4 cents per gallon cheaper to import crude oil and refine it in the U.S. than to import.

The equalizing factor is the Federal Energy Administration's Old Crude Oil Entitlements Program, designed to spread the burden of the higher-priced imported and uncontrolled domestic crude oil equally among all refiners and therefore among all consumers.

Under the Entitlements Program, an importer of crude oil receives an entitlement which reduces his cost of buying the crude by about \$2.60 per barrel. Even after he pays the total of \$2.21 in fees (the first \$1 imposed in February, the second \$1 imposed as of June 1 and a previously existing 21 cents fee), the net cost reduction from the Entitlements Program is still 39 cents a barrel.

The importer of refined product, however, pays \$1.23 in fees (the 60 cents imposed June 1, plus a previously existing 63 cents fee). Moreover, refined product

importers do not receive any benefit from the Entitlements Program. The \$1.23 payment by the refined product importer, added to the 39 cents net benefit to the crude oil importer, favors the importation of crude oil over refined product by the \$1.62 per barrel, or 4 cents per gallon.

This favorable differential is considered sufficient to provide increased incentive to expand domestic refinery capacity, while at the same time the overall import fee schedule decreases our dependence on imports to the maximum extent possible in the short term.

On its face, the letter makes a strong argument, but closer examination hardly provides assurance that America has a long-term program for encouraging domestic refinery expansion and discouraging the import of refined product as the letter's author contends.

There are a number of important factors which Administrator Zarb neglects in citing the current differential of \$1.62 in favor of imported crude over finished product as a result of entitlements as being a sufficient incentive to encourage domestic refinery expansion. First and foremost, the entitlements program is self-liquidating since it is tied to old oil production and refinery runs and is not related to refined product imports. Just to look at FEA figures shows the self-liquidating nature of the entitlements program. Old oil production in November 1974 when entitlements started, was in excess of 60 percent of domestic production, but has since been reduced to 55 percent by March of 1975. Likewise and as a result, entitlements distribution for the first month of the program was 41 percent of refinery runs, but for March of 1975, just 4 months later, it was 36 percent of runs. Consequently, during the life of the entitlements program, both old oil production and entitlement distribution has decreased by 5 percent or 1.25 percent per month. I would note in that regard that each 1 percent redistribution of old oil reduces the entitlements value by about 7 cents per barrel if the old oil is replaced by foreign crude and 8 cents per barrel if it is replaced by new, released or stripper domestic production. Just taking the lower figure of 7 cents per barrel, the \$1.62 per barrel advantage which Administrator Zarb cites in his letter would be eliminated in 23 months. The question I pose is how does a 23-month self-liquidating program encourage refinery expansion? Refineries require 2 to 3 years of construction and have a useful life of over 20 years. The simple answer is that a short-term program such as entitlements does little or nothing to encourage refinery construction.

Another point that Mr. Zarb's letter failed to discuss is what happens when the President adds additional dollars to import fees on refined product and imported crude. In March of 1975, an entitlement for imported crude was worth \$2.43. From that you must subtract a 21 cents tariff which predates the President's recent decision to add \$1, \$2, and \$3 import fees. This gives you a credit on crude of \$2.22. For product, an importer was initially required to pay an import fee of 63 cents, so in the absence of the President's recent actions, there was a \$2.85 spread or differential between crude oil and imported product. As the successive dollars are added equally to product and crude, the spread diminishes. For the \$1 tariff increase, the spread is reduced to \$2.04; for \$2 it becomes \$1.83; and for \$3 the spread amounts to only \$1.62. I would note, however, that by increasing the cost of foreign oil, uncontrolled domestic oil will rise and this may maintain the spread at slightly higher levels than I have forecasted.

The point I am making here is that not only is the entitlements program shrinking away to where it will be nonexistent in 23 months, but its present effect is greatly diminished by the President's additional across-the-board increases in the tariff.

Finally, we must consider what happens if old oil is decontrolled immediately. Such action would, of course, promptly end all meaningful incentives to refine at home rather than abroad.

It is also worth while to discuss the relative economic position of foreign versus domestic refineries. Currently, foreign refineries are running at 55 percent to 60 percent of capacity while our own refineries have been operating at 85 percent of capacity. Since refinery operations are characterized by high fixed costs, foreign refineries now have a strong incentive to cut prices and increase refinery runs to cut their losses. There are also other reasons to cut prices. The very fact that refinery runs are low can have a devastating effect on competition between foreign and domestic refineries. If a refinery run is low, then all product output will be fairly evenly reduced. This is not true, however, of demand for the various products. This means that the selling prices of the products in short supply, and thus

in heavy demand, can and will increase. Refiners can then cut the selling price on the balance of products produced. Thus, a European refinery is then able to dump its products on U.S. markets and in large measure overcome even the present differentials between foreign and domestic production.

The administration, by means of Mr. Zarb's letter, has asserted the adequacy of present programs to encourage domestic refinery expansion. I could not disagree more and, in fact, would cite those same programs as the strongest possible evidence that such encouragement does not exist. The administration and Congress share the blame for this shortcoming and must seek in the days ahead to enact the necessary laws.

Finally, I would like to detail what this country gives up by not constructing refineries. I have previously touched upon the balance of payments and national security arguments for refining at home. I would not like to discuss what our economy loses when refineries are constructed abroad. Refinery construction can help put America back to work.

A typical modern refinery with the capacity of refining between 300,000 and 400,000 barrels a day requires 150,000 tons of steel, 65,000 yards of concrete, 2,000 gallons of paint, \$15 million worth of electric cables and equipment, and 10 million man-hours of construction. Going beyond what is actually taking place on the refinery site to just the steel mill where the 150,000 tons of steel will be produced, we find that it takes 6 man-hours to produce a ton of steel and that each man works approximately 2,000 man-hours per year. This means that a refinery employs at least 450 men in the steel mill alone for a year. Not counted are all the people who will be employed converting that raw steel to usable forms or the ripple effect on local economies of having this sort of construction take place, the permanent employment that will be provided in the refinery, and the increased tax base that will accrue to local communities.

There are many places in the United States which are unsuitable for refinery construction. A program to expand America's refinery capacity must be mindful of the valuable natural and social resources that could be endangered by putting a refinery in an inappropriate location, but just as there are inappropriate locations, there are appropriate ones where refineries are needed to remedy regional refinery shortages and to provide employment and a strong tax base. Congress must set about the task of encouraging such refineries. The only interest that will be adversely affected by such program are those who control idle refinery capacity in foreign countries but those are hardly interests that the Congress or the administration is charged with protecting. There is no mystery as to why refineries are not being constructed in this country and if Senators will take the trouble to analyze the economics of refinery construction, they will see the great need for new policies. No businessman would be well advised to gamble on current economic conditions. I believe they would if the Congress would enact the legislation I propose today.

PETROLEUM PRODUCTS IMPORT ACT

S. 1050

Be it enacted by the Senate and House of Representatives of the United States of Representatives of the United States of America in Congress assembled, That (a) the headnotes for schedule 4, part 10, of the Tariff Schedules of the United States are amended by adding at the end thereof the following new headnote:

"4(a) (1) The President shall establish a program to allocate among importers the amount of residual fuel oils and middle distillates classifiable under items 475.05 and 475.10 respectively which may be entered, or withdrawn from warehouses, for consumption free of duty during any calendar year.

"(2) To carry out the provisions of paragraph (1), the President shall issue a license to each eligible importer for each calendar year which will permit such importer to enter, or withdraw from warehouse, for consumption, free of duty, such amounts, by volume, of residual fuel oils and middle distillates classified under items 475.05 and 475.10 respectively as are determined by the table in subpart 4(b) (1) of the headnotes.

"(3) After consulting the Administrator of the Federal Energy Administration, the President shall issue licenses for the duty free entry, or withdrawal from warehouse, for consumption of residual fuel oils and middle distillates, classified under items 457.05 and 475.10 respectively, during any calendar year to any person who, in the determination of such Administrator, is enduring severe hard-

ship. The total amounts, by volume, of such products entered, or withdrawn from warehouse, for consumption free of duty pursuant to licenses issued under this paragraph for any calendar year may not exceed 10 per cent of the amount, by volume, of such products which were entered, or withdrawn from warehouse, during calendar year 1972.

"(4) For purposes of this subsection, the term 'eligible importer' means a person who imported such products during calendar year 1972."

(b) (1) The amount, by volume, of middle distillates and residual fuel oils which may be entered or withdrawn from warehouse, for consumption free of duty shall be a percentage of the total amount, by volume, of such products entered, or withdrawn from warehouse, for consumption during the calendar year 1972. The applicable percentage for any calendar year shall be determined in accordance with the following table:

(In percent)

Year:	Middle distillates	Residual fuel oils
1976.....	80	80
1977.....	80	70
1978.....	80	60
1979.....	40	50
1980.....	20	35
1981 and thereafter.....	0	20

(2) For purpose of paragraph (1)—

(A) the term "Middle Distillates" includes products classifiable under items 475.05 and 475.06, and

(B) the term "Residual Fuel Oils" includes products classifiable under items 475.10 and 475.11.

(b) Schedule 4, part 10 of such schedules is amended—

(1) by striking out all of that portion of the schedule on page 144 beginning with the words "Crude petroleum * * *" and ending with the words "* * * without additives."

(2) by adding new item 475.00 to read as follows:

475.00: Reconstituted crude petroleum and topped crude petroleum, 4.77¢ per gallon—4.77¢ per gallon.

(3) by striking all of item 475.05 and inserting in lieu thereof the following:
475.05: Middle distillate fuel oils (including kerosene) derived from petroleum, shale, or both, with or without additives, and certified by importer not to be further refined, in any calendar year prior to entry, or withdrawal from warehouse, for consumption of an amount equal to the applicable percentage for that year, as determined under headnote 4(b) to this subpart, free—free.

475.06: Other middle distillate fuel oils, 7.14¢ per gallon—7.14¢ per gallon.

(4) by striking all of item 475.10 and inserting in lieu thereof the following:
475.10: Residual fuel oils derived from petroleum, shale, or both, with or without additives, and certified by importer not to be further refined, in any calendar year prior to entry, or withdrawal from warehouse, for consumption of an amount equal to the applicable percentage for that year, as determined under headnote 4(b) to this subpart, free—free.

475.11: Other residual fuel oils, 4.77¢ per gallon—4.77¢ per gallon.

(5) by striking all of item 475.25 and inserting in lieu thereof the following:

475.25: Motor fuel, jet fuel, 7.14¢ per gallon—7.14¢ per gallon.

475.26: Others, 9.52¢ per gallon—9.52¢ per gallon.

(6) by striking all of item 475.30.

(7) by striking out "0.25¢ per gal." and "0.5¢ per gal." in rate columns numbered 1 and 2 of item 475.35 and inserting in lieu thereof "7.14¢ per gal.", respectively,

(8) by striking out "0.2¢ per gal." and "0.5¢ per gal." in rate columns numbered 1 and 2 of item 475.40 and inserting in lieu thereof "7.14¢ per gal.", respectively,

(9) by striking out "2¢ per gal." and "4¢ per gal." in rate columns numbered 1 and 2 of item 475.45 and inserting in lieu thereof "7.14¢ per gal.", respectively, and

(10) by striking out "0.25¢ per gal." and "0.5¢ per gal." in rate columns numbered 1 and 2 of item 475.85 and inserting in lieu thereof "7.14¢ per gal.", respectively.

Sec. 2 (a) The Secretary of the Treasury shall pay to the Government of each State an amount equal to the total amount of duties collected on products classifiable under items 475.06, and 475.11 of the Tariff Schedules of the United States which are first sold in such State, as determined under subsection (b).

(b) for Purposes of subsection (a), a product shall be considered to be first sold in a State if the domicile of the first person who purchases such product from the importer thereof is in such State or, in the case of an importer who is the final consumer of such product, the domicile of such importer. Each importer of such products shall report to the Administrator of the Federal Energy Administration, in such form, manner, and at such time as the Administrator prescribes by regulations, the identity of each person to whom such importer sells such products. The Administrator of the Federal Energy Administration shall report the amount of such products sold in each State to the Secretary of the Treasury from time to time.

(c) There are authorized to be appropriated to the Secretary of the Treasury an amount equal to the amount of duties collected on such products during each calendar year for the purpose of carrying out the provisions of this section.

(d) For purposes of this section, the term 'State' includes each State of the United States, the District of Columbia, and the Commonwealth of Puerto Rico.

Sec. 3. (1) The amendments made by the first section of this Act shall apply with respect to articles entered, or withdrawn from warehouse, for consumption after December 31, 1975.

(2) The rates of duty prescribed in rate columns numbered 1 of the Tariff Schedules of the United States, as amended by this Act, shall be considered to have been proclaimed by the President as being required or appropriate to carry out trade agreements to which the United States is a party, not as statutory provisions enacted by Congress.

STATEMENT OF CROWN CENTRAL PETROLEUM CORPORATION

Crown Central Petroleum Corporation is a Maryland corporation with its executive and principal offices in Baltimore. In terms usually used in the petroleum industry, Crown is described as an independent refiner-marketer: Crown presently has one refinery located just outside of Houston, Texas, with a current certified rated crude charge capacity of 100,000 barrels per day; it markets petroleum products in thirteen states along the coast from Connecticut to Texas.

Crown is pleased to have this opportunity to present its view with respect to the reasons why it urges the passage of the Petroleum Products Import Act, which was introduced as S. 1950 on June 16 by Maryland's senior Senator Charles McC. Mathias.

The need for this nation to develop a comprehensive and workable national energy policy is something with which the Congress and this Committee are intimately familiar. The present direction of the national energy policies of the United States tends to prolong a whole litany of potentially disastrous consequences. All of these problems were eloquently spelled out by Senator Mathias in the remarks which accompanied his introduction of S. 1950 on June 16: the threat to national security posed by our reliance on foreign nations for the supply of an inordinately large percentage of our energy needs; the prospect of a national economy which is dependent to any degree on the whims of foreign governments; the need to develop ecologically compatible alternative sources of new domestic energy, including coal reserves, nuclear energy and geothermal energy, as well as traditional petroleum-based sources; and, not least, the need to maintain and to improve our nation's standard of living while insuring adequate energy resources to meet the demands of both individual and industrial users.

Crown believes that S. 1950 is an obvious and intelligent solution to the problem of how to foster and encourage the construction of new domestic refining facilities located in appropriate areas of the nation.

At the present time the total United States demand for petroleum products is estimated at 8 million barrels per day in excess of existing refining capacity. A substantial part of this shortfall consists of residual fuel imported into Northeastern and Mid-Atlantic states. While some part of this shortfall can be elimi-

nated by encouraging facilities which use residual fuel to convert to coal burning operations, it is almost certain that there will be an increase in demand for other more sophisticated products. This demand for additional petroleum-based products will substantially escalate as the economy continues to move out of the current recession and into a period of controlled expansion; as this happens, it will become even more imperative that we possess the domestic refining capacity to enable us to end the threat to national security and national economy which foreign domination presently poses.

In Crown's opinion, domestic refining capacity should be able to produce at least 90% of the demand for products. Crude processing equipment in this country should therefore be increased 2 to 3 million barrels per day. The need for additional refinery capacity was recognized in President Ford's State of the Union speech when he told the Congress and the Nation of our need for the construction of 30 major new oil refineries in the United States by 1985.

Since 1971 Crown has been actively planning for the location and construction of a \$400 million to \$500 million refinery in Baltimore City. As now planned, the Crown project would be located on 500 acres of land adjacent to the Baltimore Harbor, and would be capable of refining up to 200,000 barrels of crude petroleum each day. By directing its output primarily toward providing substitute natural gas for regional domestic and industrial users and providing low sulfur fuel for consumption by area utilities, our plant will go a very long way toward insuring an adequate supply of energy for this area. Parenthetically, it should be noted that this emphasis on substitute natural gas and low sulfur fuels to serve Maryland and the region is somewhat less economical than a plant whose major thrust would be the production of gasoline, but this is a choice which we have knowingly made.

Construction of the refinery will last an estimated two to three years and will employ up to 2,000 construction workers at peak construction periods; when completed, the refinery will employ some 300 full-time employees. The Crown project will also increase the taxable base of the City and strengthen the entire Middle Atlantic area by virtue of the filtering down economic effects which a plant of this magnitude will have. This filtering effect is comprised of two elements. First, the construction of a new energy source complex will guarantee the availability of energy, and this will spur the development of other industries that can not now be built because of the current shortage of industrial energy and the uncertainty of future supply of industrial energy. Secondly, the construction of refineries itself will act as a tremendous immediate boost to the economy of the region where the plant is built: construction of a 200,000 barrel per day refinery will require steel for structures, tanks, valves and other equipment requiring 900,000 man-hours for production at the mill. An even greater number of man-hours are required for the conversion of this raw steel into compressors, reactors, valves and other equipment. In addition equally large quantities of concrete, paint, electric cable and equipment must be manufactured and delivered to the construction site. Obvious immediate and long term economic benefits will flow from even a few refinery projects of this size.

We would be less than candid, however, if we did not report that our enthusiasm for the new Crown refinery is tempered by our very real concern over the complete absence of any national policy to create a favorable economic climate for new refineries. Decisions with respect to the construction of additional domestic refining capacity are primarily dependent upon the existence of a reasoned national energy policy which will continue in effect for a sufficient length of time to make these refineries economically viable. Both the total quantity of capacity to be provided for and the particular types of equipment to be constructed are entirely dependent on the establishment of a consistent long term policy.

If anything, however, the present national policy, or lack thereof, actively discourages new domestic refinery construction. By allowing finished petroleum products to be imported from foreign sources at a lower tariff and supplemental fee rate than is imposed on the importation of crude oil, the United States is subsidizing foreign refineries at the expense of domestic refineries. Crown and other potential new refiners must question the wisdom of investing billions of dollars in domestic refineries, when the cost to import the necessary crude oil is higher than the cost to import readily marketable products which have already been refined abroad.

Unless there is a change in the present tariff structure, coupled with a concurrent elimination of the system of supplemental fees now imposed on crude.

crude oil which should be processed by domestic refineries will be processed in existing foreign refineries currently having excess capacity and in new or planned foreign refineries. As refineries are expanded and constructed in foreign countries, their export emphasis will of necessity be on finished products rather than crude oil. This nation will then by default subject itself to artificially created shortages and exorbitant prices. These higher prices that we pay to import finished products will even more substantially contribute to unfavorable balance of payments than would the importation of foreign crude oil. The only way to counter this result is to make foreign finished products non-competitive with American products. Access to the American energy market by foreign producers and/or processors would be structured in a manner to encourage sales of crude oil into and capital participation in processing facilities within Continental United States.

Additionally, the higher prices will become even more so when one considers the loss of domestic investment in capital construction, operating expenses and employment benefits which we will be exporting abroad.

Domestic refining capacity clearly and undeniably must be expanded. Such expansion, however, will occur only if it is encouraged by the adoption of governmental actions which affirmatively support this expansion. S. 1950, along with a complete removal of the crude supplemental fee schedule, would provide an absolutely essential element of such governmental support. This would completely remove all tariffs on the importation of crude oil and result in an increase in the tariffs on finished products. With a long term commitment to this program, it would be much more economically feasible for a company like Crown to make the huge investment required for a new refinery. Additional refinery construction by other companies would likewise be encouraged and this country would be on the road to enjoying adequate domestic refinery capacity. With adequate domestic refining capacity, the United States will be in a position to resist the high prices which OPEC nations are currently charging for crude oil and will, in fact, be able to exert a downward pressure on these prices. We will be able to do this because we will have the refining capacity to allow us to import and refine crude oil from all areas of the world.

It is also important to note that our national security is better protected by the existence of domestic refineries capable of changing to alternate crude supplies if an existing crude supply is curtailed by embargo or by other means.

One has to start with the cost of the raw product. Senator Mathias' Petroleum Products Import Act does just that. Without this kind of basic legislation, America will continue in a no-growth posture toward refining capacity. If we do continue this posture, all of the other proposed solutions and ideas will eventually reveal themselves to have been built on sand. We need the refining capacity, but we also need the incentive and encouragement to make new refinery construction economically feasible.

S. 1950, as an amendment to H.R. 6860 which is presently before you, is the first essential step. Combined with the immediate elimination of the present crude supplemental fee schedule, the passage of this Bill will enable the United States to move forward to a position of strength. Future legislation must also consider a national policy directed toward providing the financial incentives which will encourage construction of domestic refineries with a specific output capacity which is in the best interests of the United States—refineries designed to produce maximum quantities of products in short supply such as substitute natural gas, residual fuel and middle distillates rather than maximizing gasoline production. Such a national policy of financial incentives could include the granting of investment tax credits for certain kinds of refinery construction; the provision of accelerated depreciation on certain refinery equipment; and the guaranteed availability of refinery construction and operation money. These are all proper areas of future concern for this committee. S. 1950, however, is now under your immediate consideration as an amendment to H.R. 6860. It is vitally necessary to the well-being of this country that the Petroleum Products Import Act be adopted. Crown Central Petroleum Corporation urges your consideration and passage of this bill. Thank you.

The CHAIRMAN. Senator Packwood.

Senator PACKWOOD. Mac, if we lean so heavily on gasoline tax, where is the incentive to conserve oil in industrial use, in home heating, and other uses of petroleum?

Senator MATHIAS. You are referring now primarily to Senator Brooke's proposal?

Senator PACKWOOD. Except, as I read it, you are all in favor of a relatively high gasoline tax.

Senator MATHIAS. Yes; we all, each one of us, is supportive of the whole package that we presented here today. Of course, we feel that the primary target for conservation lies in the gasoline area, and you are going to have economic incentives which would be helpful to conservation in the industrial and home heating areas regardless of what anybody does. One incentive which will be very important is simply the fact that it is going to cost so much more.

Senator PACKWOOD. Let me ask you what you think of this proposal, because I will go along with your gas-guzzling tax, but I think you ought to combine an import duty of some kind—I would much prefer that to the quotas—with a gasoline tax.

Senator MATHIAS. That is just what I have proposed.

Senator PACKWOOD. OK.

Senator MATHIAS. A higher import on any refined product than on crude.

Senator PACKWOOD. As I read your statement you are phasing out the differences in what year?

Senator MATHIAS. Well, it is a scaled-down program, and the statement, I think, sets forth the schedule, but what we do is increase the tax on any refined product so as to favor crude oil, which can be imported at a lower cost. Tariff-free licenses are phased out over a period of years.

Senator PACKWOOD. So, you do not have any philosophical objection to taxing incoming crude and incoming gasoline? You are not making the argument we should not tax heating oil any more because people cannot turn their thermostats down?

Senator MATHIAS. This committee accomplishes national policies by using economic levers as it has done for the last 200 years, and we perceive it to be a national policy that we ought to encourage conservation, which we can do by a gasoline tax and by the gas-guzzling tax, and that we can encourage a degree of national self-sufficiency as far as refinery capacity is concerned by having a lower import tax on crude than on refined products, and that would be the purpose of the legislation.

Senator PACKWOOD. I have no further questions.

The CHAIRMAN. Senator Haskell.

Senator HASKELL. Thank you, Mr. Chairman. I think that certainly your proposal deserves very serious consideration—that we put import duties on processed products that come in—but it occurs to me that if this happens it raises the price of that product and then what is to prevent the domestic product from raising to the same level?

Senator MATHIAS. Well, it raises the price of the imported product. It gives a competitive advantage to your domestic producer, and, in fact, that, of course, is the purpose of it, to strengthen the capacity of your domestic industry to produce the refined product and to compete so that you can have a stable economy. For many reasons, national security among them, the concept of a strong industry here is attractive—and I think economically then they are prepared to compete with products from the world market.

Senator HASKELL. I guess maybe it is just a difference of viewpoint. But historically, historically in the last 18 months, if that can be history, the domestic product has come up to the OPEC level. I am just concerned, Senator, that if we put a tariff on refined products coming in which may well be worthy, I assume that the whole thing raises to that level. I could be very, very wrong.

Senator MATHIAS. Let me suggest that, of course, we are providing that the crude comes in at a lower import quota which gives a lower raw material base on which the domestic refineries can operate. As you know, the President has proposed a cap on domestic. Perhaps, this is an area where this committee, in particular, and the Congress, in general, should enter into some negotiation with the Executive and find out what would be a reasonable area of operating. It could be solution to the problem you see.

Senator HASKELL. Thank you very much, Mr. Chairman.

The CHAIRMAN. I notice the following in Senator Brooke's statement: "The New England households have answered the call of conservation by cutting back nearly 20 percent on home heating oil." Now, if everybody cut back that much on their use of energy for home heating, that would almost solve the energy crisis in and of itself. That would be a far greater achievement than we have the prospect of doing anytime soon. I do not have the figures. If Senator Brooke were here, I think that I will ask that he provide this answer. How much has the price of home heating oil gone up for New England since this energy crisis hit? Does anyone have any estimate of that?

[Senator Brooke subsequently submitted the following letter for the record:]

U.S. SENATE,
Washington, D.C., July 25, 1975.

Hon. RUSSELL B. LONG,
Chairman, Senate Finance Committee,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: In response to your question following my testimony before your Committee on Tuesday, July 15, I would like to submit the following findings about New England fuel consumption for use in your hearings records.

The New England Fuel Institute, which represents independent oil distributors, conducted a survey under Federal Energy Administration auspices during the 1973-1974 heating season. They statistically sampled their customers in order to get a sample population of residential users representing a little more than 10% of all their customers. These households were then studied to monitor their heating fuel consumption patterns. During that first winter when the oil embargo was in effect, these customers' heating fuel use averaged 14.2% lower than over the previous three years. (I understand a base period figure was computed using some weighted average of the previous three years' consumption.) In the 1974-1975 heating season, the NEFI conducted a similar but smaller survey on its own, that is, without FEA funding. They found that in that year, consumption of No. 2 home heating oil averaged 20.4% less than in the base period previously defined.

NEFI also surveyed industrial oil customers in a more informal way. They sampled their largest customers by telephone regularly during both the 1973-1974 and the 1974-1975 heating seasons. On the basis of the information thus obtained, they estimate industrial customers on the whole cut their consumption by 16% over those two years. However, almost all these savings were made by commercial establishments, multi-family apartments, and public buildings like schools. Unfortunately, very little of it can be attributed to industrial conservation programs.

The prices of No. 2 heating oil and No. 6 heating oil in Boston in each of those seasons were, respectively, as follows:

	March 1973	March 1974	March 1975
No. 2 (per gallon).....	\$0. 21	\$0. 34	\$0. 39
No. 6 (per barrel).....	5. 75	13. 90	14. 20

I think it is important not to attribute all of the conservation effort to the effect of high price. Quite honestly, the 1974-1975 season was relatively mild in New England, which might account for the continuing increase in conservation. Nevertheless, this pattern seems to indicate three things to me that I hope the Committee will consider. First of all, the price does have some effect on consumption. Second, once the public is informed and convinced of the existence of a serious fuel crisis, citizens will respond responsibly. This should encourage the Congress to be forthright with the public about the seriousness of our dependence on imported oils. Finally, although no doubt, households in our region were wasting some heating oil before the embargo made it clear to everyone how dangerous it is to do so, they have made substantial sacrifices. I submit that families in other parts of the country can and will do as well, but that the difficulties New Englanders are facing should not, through Congressional action, be multiplied until they become genuine hardships.

Once more, I appreciate the opportunity I had to appear before your Committee and to submit these additional views as well.

Sincerely,

EDWARD W. BROOKE.

The CHAIRMAN. That information is important for many reasons, and one of the reasons it is important is in my part of the country I do not think people have cut back very much. In some areas the cost of natural gas has gone up. On new contracts it has gone up, but that is averaged in with these old contracts, and it has been only relatively modest increase in heating their homes with gas and the cost has not gone up. Furthermore, gas, I believe, is priced like electricity—the first units come high, the last units come cheap, so that if you save by turning down the thermostat, what you save is the cheap gas.

Senator MATHIAS. I would suggest to the chairman we are near the end of that road.

The CHAIRMAN. It seems to me that we will have to terminate at some point. Now here we are with a program where we have a rate policy that encourages people to waste energy, waste electricity, and waste natural gas, and there has been no change in our policy at all. Practically every State regulatory body in America are pursuing policies which encourage people to waste energy, and that does not make a lot of sense at a time when we are trying to get the genie back in the bottle. It seems to me we ought to require them to restructure those rates so that it encourages economy, rather than encouraging waste. The way you do that is simply to say that instead of the first units coming very high and the last units coming very cheaply, you do it just the other way around.

Senator MATHIAS. I have suggested exactly that same thing.

The CHAIRMAN. Well, the president of a pipeline company was the one that suggested that to me. To him, if you want to economize, the first thing you ought to do is to change your rate structure so that you are no longer encouraging people to waste the product. If you reversed

it, then instead of someone advertising that if you put insulation in the attic you would save \$150 a year, he would advertise they would save \$300 a year. If we would then couple that with a feasible way, a very simple, easy way that somebody could finance the insulation, storm windows, things of that sort, we would make some real progress. I regret to say this, but in my part of the country, there are people still just going right ahead building homes without any insulation at all, with air-conditioning running 24 hours a day—the thing just never quite gets cool enough to where the air-conditioner never shuts off. So, without any insulation, they are just wasting energy left and right. The energy is being wasted that should be saved.

We ought to try to change that around so they could not afford to waste it; it would cost too much to waste it.

Senator MATHIAS. Mr. Chairman, I do not think there is anything unique about the great State you represent because, that is why I said it in my statement, that I think America by and large has failed to comprehend the nature and severity of the energy problem. I do not think that we, perhaps all of us have failed, and by all of us I do not just mean people in the Congress, I mean people in the Federal Government who are charged with an oversight of this problem. We have not gotten it across to the American people, that this is a persistent, long-range problem. It is going to be with us for a long, long time. It is going to affect the fiber of America, and we keep telling them we are going to have Project Independence, we are going to have this, we are going to have that, and this kind of pap. Or else, they read in the newspapers that somebody has found oil in the Bay of Naples or under the walls of Jerusalem—you see, they say we do not have to worry any more. They do not understand that is only a finite supply of oil, whatever it is, whether it is large or small, there is an end to it someday, and that the end is within sight.

But, more than that, there is a worldwide competition for energy of a sort that has never been before and that should not be an occasion for us to just give up and fold up. But, I think this should activate people to really hustle, and whether that hustling involves putting insulation in your attic, or whether it involves more efficient operation of your factory; but people are not going to hustle unless the need to do it is really spelled out. I would say that we have failed miserably in spelling that need out.

The CHAIRMAN. Well, Senator, the way the Federal Government has handled this problem up until now, and I am talking about between the Executive and the Congress, and I think that we must bear our share of the blame. I suspect maybe that Congress might be even more to blame than the Executive, but somebody is to blame.

Senator MATHIAS. There is plenty of blame to go around.

The CHAIRMAN. That is right. There is plenty of blame for everybody to share. It reminds me very much of a story my father used to tell about the deficit in the Winfield Baptist Church. The preacher called an emergency meeting of the board of deacons and the meeting was such a failure that he called a followup emergency meeting for the following night. He appointed the member who was the druggist from across the street to prepare the lemonade for the meeting; and the druggist, working away at his business, was so distracted he got the bottles confused, and some how he got his distilled water mixed up

with the grain alcohol, so that when the board of deacons met, it was all very dismal at first; but after a while, one fellow went back to the punch bowl, and came back and said the situation was not as desperate as the other people thought. In fact, the more he thought about it, the more optimistic he was. He could see a possibility of paying the deficit. Some other fellow went out and came back and he said fellows, not only can we pay the deficit, we can pay it off within a year. Meanwhile, the fellow who was chairman of the board of deacons went out and visited the punch bowl for a few minutes, and he said, hell, fellows, there ain't no deficit at all.

Now, that is the impression the American people are getting from the performance of their representatives up here in Washington. First we start out with President Nixon in there. A great emergency—he said we were going to have a Project Independence with a 7-year target; in 7 years we would have Project Independence. Now, we have had 2 years to work at it. Now President Ford has his Project Independence, which means that we will be independent 10 years from now. So, it has taken us 2 years to lose 3 years' ground.

Senator MATHIAS. I think the phrase Project Independence is a slur on American history. It is ridiculous. It is not going to happen.

The CHAIRMAN. We have taken 2 years to lose 3 years' ground. And now, everything that President Ford is proposing, which he thinks would move us toward independence is being turned down by the Congress. With the Congress sending out bills, it would try to suggest that there is some easy way out, that we do not have to do anything, that there is plenty of energy around here.

Now, when those Arabs hit us with another boycott, we are going to be in worse shape than we were the time before, and at that time people are going to want to know what have these fellows up here been doing to earn their pay.

Senator MATHIAS. You do not even have to wait for that, Mr. Chairman. Just look at what has happened in the world. You have millions and millions of people in the world for whom the only energy available in years gone by was a cup of olive oil with a wick in it. Those people now have one light bulb in their houses, or they have got a motor scooter, or they have some kind of petroleum-consuming device that represents about a 10,000-percent increase in their family consumption of energy over that cup of olive oil with a wick in it.

Now, this makes energy a much more competitive product than it has ever been in the history of the world. I am not talking about something which is different from 10 years ago, or 20 years ago. This is different from the beginning of time, and this is the kind of concept that I think the American people need to get as to what is the nature of this problem.

Mr. Chairman, we have here—are you going to call your other witnesses this morning?

The CHAIRMAN. We will, but it will have to be later on this afternoon.

Senator MATHIAS. I would like, if I could, at this time, just to say a word about the mayor of Baltimore who is on your witness list, the very distinguished mayor of Baltimore, William Donald Shaefer, and I think he will be helpful to the committee in some of the areas the chairman has just brought up.

The city of Baltimore, which depended industrially on natural gas, now finds that it is threatened with a very serious deficiency of natural gas. The mayor has involved himself very deeply in this problem, in the social and economic consequences of it to the city, and I recommend him to the committee because he is a very thoughtful and valuable public servant, and I know his testimony will add to your considerations.

[The prepared statement of Senator Mathias follows:]

TESTIMONY OF SENATOR CHARLES McC. MATHIAS

Mr. Chairman, and members of the Committee, I want to thank you for the opportunity to appear this morning as this Committee considers H.R. 6860, passed by the House of Representatives on June 24, 1975. It is also a great privilege and a pleasure to join with my colleagues, Senators Brooke and Percy, to discuss some common principles we share on energy matters.

Senator Brooke has described a common philosophy with regard to motor gasoline. Senator Percy has outlined the kind of legislation that this nation needs to encourage the manufacture and purchase of efficient automobiles. Without repeating what my colleagues have so well stated, I would like to just note that both of these programs could exist alone, but that they will surely perform more efficiently in combination. The same is true for the proposal that I now make to this Committee. It will work in harmony with the gas tax and the auto efficiency tax.

I introduced on June 16, 1975, S. 1950, which was designed to amend the Tariff Schedules to impose higher rates of duty on products derived from petroleum and to distribute the revenue from such duties to states which consume these products. At the outset, I would like to state to this Committee that S. 1950 bears little or no similarity to what the President has proposed vis a vis the Tariff Schedules. It is also a different approach than that taken in H.R. 6860 where a mix of oil tariffs and import quotas is established.

The President's program fails because it raises tariffs immediately and by so doing it sends shock waves throughout the economy. S. 1950 works in a more gradual and sensitive fashion; it will establish a system of tariffs on imports of residual fuel, middle distillates, jet fuel, and motor gasolines. The tariff on residual fuel will be \$2 per barrel; on middle distillates and jet fuel, \$3 per barrel; and on motor gasoline, \$4 per barrel. This will be a sufficient incentive to refine at home rather than abroad. Initially licenses for the tariff-free importation of middle distillates and residual fuels will be issued. For middle distillates, in 1976, licenses will be issued for up to 90% of 1972 volumes to importers. In succeeding years, the number of licenses will be reduced so that by 1981, no licenses will be issued and the tariff will apply to all imports of middle distillates.

For residual fuel, the concept is the same but the schedule is changed so that the licenses will be issued for only 80% of 1972 volumes. The schedule mandates that licenses be scaled down to 20% of 1972 volumes by 1981 and remain at that level thereafter.

America, by and large, has failed to comprehend the nature and severity of our energy problem. It has only been recently that public attention has been at all focused and that any real attempt to construct a national energy policy has taken place. Years of inattention and inaction have ill prepared this nation to instantly convert from oil to coal or to bring on new exotic sources of energy supply. Since it is impossible to accomplish instant conversion, it is also fruitless and in fact harmful to place immediate burdens and penalties on the American public for not making a conversion.

The proper course for this country to follow should not be marked by sudden, radical shifts of policy, but rather by constant and steady progress. What we need is a program that carefully gauges the time and capital that will be needed to change from a major reliance on foreign energy sources to an economy that can sustain itself for considerable periods of time on domestic supplies; to an economy that will once again have an acceptable balance of trade. S.1950 charts this course. The sudden impact of raising tariffs is virtually eliminated by issuing tariff-free licenses but at the same time, the long-term policy is clear. I would expect domestic refinery expansion to go forward as the licenses are phased out.

By the time the tariff applies to all products, there should be sufficient refinery capacity in this country to replace foreign product with domestic product. Put another way, we will have encouraged the conversion we want in the shortest possible time without causing unnecessary and unavoidable hardship to individuals or to regions of the country.

The next question that arises in fashioning a program to encourage domestic refinery expansion by discouraging imported products through a taxing system is how do we ensure regional equity. All Senators are familiar with the regional problems that have been fostered by price controls, the Allocation Act and particularly the Entitlements Program. As government interferes in the market place in one way or another, there is the distinct possibility that such interference will exacerbate regional disparities of cost or supply or both. S. 1950 addresses this problem in a relatively simple, straightforward fashion. Imports of product over and beyond volumes covered by tariff-free licenses are, of course, taxed. But the revenues, with the exception of motor gasoline, which is a very small part of the picture, will be returned to the states where the first sale of the product occurred. I understand and sympathize with the regional opposition that has occurred in the past. Regions of the country which are heavily dependent upon imports are reluctant to see national taxes directed at their dependency. They realize that only a small fraction of the revenue generated by such taxes is returned to the region from whence it was derived. S. 1950 solves that problem by simply directing the revenue to the State treasury where the first sale occurred. This will mean a new and important financial resource for hard-pressed state and local governments.

My proposal is different from the quota and tariff system that is outlined in H.R. 6860. I do not want to extend my remarks unnecessarily on this subject because I am certain that many well-qualified individuals will testify to the merits and demerits of this provision in H.R. 6860. Briefly stated, I object to relying so heavily on a quota mechanism to bring America's energy picture into proper balance. Reduction by quota means concentration on the supply side of the equation and doing nothing to reduce demand for various petroleum products. Such a policy dictates that some sort of allocation and price control program will be necessary to spread the shortfall and prevent windfall profits. This will put the government where it cannot efficiently function; squarely in the business of allocating a scarce resource.

I also raise the question with this Committee whether the House version contains a meaningful quota system. The base volumes for each year are quite high and the President will be given authority to increase volumes substantially. Such a quota system is more shadow than substance. We are convinced that there are more responsive ways to limit our reliance on foreign energy sources. A tariff system, if it is structured properly and includes a rebate, will do the job.

The House bill also establishes in place of existing license fees a new ad valorem tariff of 2% for crude oil (about 21¢) and 5% for petroleum product (about 60¢). The President is given power to raise these tariffs to 10% or \$1.00, whichever is higher. I believe we have enough data at this point to conclude that this program is insufficient. These tariffs are very close to those that were enacted in 1973 to discourage the import of \$2 and \$3 oil. We are living in a different world now and I hope that the Senate will show some sensitivity to our changed condition.

There is a further aspect to the House provision that is even more troubling. Residual and home heating oil are subject to a 5% cap for two years. In other words, the House provisions favor product over crude. There surely are better ways to deal with the regional dependency problem, and I happen to think that I have proposed a better way to this Committee this morning.

I know that the Committee's time is short and that the burden is great in trying to report comprehensive energy tax legislation to the full Senate in an expeditious fashion, and so I would like at this point to include in the Committee Record my full statement upon the introduction of S. 1950.

I would like to conclude this morning by emphasizing that we do not at the present time have a long-term policy for encouraging refinery expansion in this country and discouraging the import of petroleum product. In the absence of this long-term policy, we are doubly vulnerable to supply interruptions and price increases. Not only is there the difficulty and expense of obtaining the raw material, but there is also the question of where energy will be refined. Processing can be just as subject to politically motivated stoppages and cartel price as extraction.

We all share a very important responsibility to try and get our economy moving

again. This Committee is particularly involved and concerned and for this reason I would like to detail what America sacrifices by not constructing refineries at home. First, we drain our monetary reserves, not only for the raw material, but also for facilities and labor abroad. It is one thing to have to import a raw material when it is unavailable at home, but in great demand. It is quite another to forego processing facilities and opt for their construction in Europe, the Middle East, or the Caribbean, simply for lack of a national policy to encourage domestic construction.

I am sure that members of this Committee would also be interested in a brief summary of the type of investment that is represented by an oil refinery with a capacity of between 300,000 and 400,000 barrels per day. Such a refinery requires 150,000 tons of steel, 65,000 yards of concrete, 20,000 gallons of paint, \$15 million worth of cables and equipment, and 10 million man-hours of construction. Going beyond what is actually taking place on the refinery site to just the steel mill where the 150,000 tons of steel will be produced, we find that it takes 6 man-hours to produce a ton of steel and that each man works approximately 2,000 man-hours per year. This means that a refinery employs at least 450 men in a steel mill alone for a year. Not counted are all the people who will be employed converting that raw steel to usable forms or the ripple effect on local economies of having this sort of construction and activity take place, the permanent employment that will be provided in the refinery, and the increased tax base that will accrue to local communities.

I very much hope that this Committee will report S. 1950 or a similar measure as a part of any comprehensive energy tax legislation. If this Committee amends H.R. 6860 to include a program along the lines represented by S. 1950, America will have taken a great step forward in providing a national energy policy which will serve both the consumer and the businessman well in the years ahead.

I know I speak on behalf of my two colleagues in expressing our thanks for your attention to and consideration of our proposals. We are firmly convinced that America must change its way of living. With the proper legislation we can change without lowering our standard of living. The future need not be worse than the past as I am afraid so many believe.

The CHAIRMAN. I certainly look forward to hearing Mayor Schaefer testify, and we will meet for that purpose at 2:30 this afternoon. Thank you very much.

[Whereupon, at 12:45 o'clock p.m., the committee recessed, to reconvene at 2:30 o'clock p.m. the same day.]

AFTERNOON SESSION

The CHAIRMAN. Hon. William Donald Schaefer, mayor of Baltimore, is he with us?

Mayor Schaefer, we are happy to have you, I hope the other Senators will be along shortly, if not I will see to it that they have made available to them the benefit of your wisdom.

STATEMENT OF HON. WILLIAM DONALD SCHAEFER, MAYOR OF THE CITY OF BALTIMORE

Mr. SCHAEFER. Before I start, I would just like to say that sitting here today and listening to the testimony of the witnesses and the questions of the various Senators, points up something that concerns me. People in the city of Baltimore really do not know there is an energy crisis. When there was an energy crisis some time ago and the President called it a crisis, when there were gas lines, that was the first indication. But when that went off, gas became plentiful and there was plenty of fuel oil, trying to convince people that there is an energy crisis became a very difficult thing.

I know there is a crisis in the city. We imposed great restrictions; we cut back the consumption of gasoline by 15 percent, we cut back on electricity and we did this for two reasons.

One, because we felt there was a crisis, and two, because of the cost. As soon as everything became plentiful again, it became impossible to tell the people in the city, our city employees, you cannot drive that car as much anymore, you should not have as much heat as you want, as much air-conditioning. Until they are really convinced that there is an energy crisis I do not know what we will do.

In the summer, there is no restriction on the amount of gasoline you can use. The only complaint I get is it is not cool enough in the buildings. It is not that we should cut back a little on the air-conditioning. I listen to the complexity of the problem in trying to figure the answers, and it is an enormous task that the Congress has, in trying to resolve the different problems in different sections of the country.

Sitting in the office one day, a group of people came in—we had just been over here—and our newspapers were telling us about the lack of natural gas. A man was sitting in the office, and this employee wanted us to build a new recreation center. I talked to him about conservation because it was on my mind and he told me where he worked.

And I said, do you know you may lose your job? There may not be enough natural gas next year to hold you on your job. And he said, "I do not believe you, that is all fake."

This is an attitude that really has to be overcome. How you do this and how you emphasize this is a tremendous task. What you are going to come up with ultimately is very difficult for us to get down to the American people.

If I may, I would like to go on with my statement.

My name is William Donald Schaefer, mayor of the city of Baltimore, Md., since 1971. I am very pleased and honored to have the opportunity to appear before this committee and to offer my whole-hearted support for the Mathias amendment to H.R. 6860 which was introduced on June 16, 1975, as S. 1950—the Petroleum Products Import Act—by Senator Charles McC. Mathias, my good personal friend and a very good friend to the people of Maryland and Baltimore City.

While the Mathias amendment is styled—and in fact does act—as an amendment to the tariff schedules of the United States, this bill if enacted would constitute an important and progressive part of the Nation's energy program.

While I do not consider myself an expert on matters of national energy policy, I do believe that my 16 years of public service in the city of Baltimore have qualified me to speak as an expert on matters relating to the needs of the city. Quite frankly, we require ready sources of energy to supply increasing urban demands; we also need controlled urban industrial development. Both of these factors lead to urban fiscal stability which in turn is at the heart of national fiscal stability.

As already explained in detail by Senator Mathias, his amendment would amend the tariff schedules so as to make the importation of crude petroleum products more economical than the importation of finished petroleum products. At the same time, the bill would create a system whereby the individual States would receive back from the

Federal Government a portion of the increased tariff applied to those imported finished products which are utilized by the individual States.

As I understand it, the net effect of the tariff amendments would be to encourage and to foster an increase in domestic refining capacity. An increase in domestic refining capacity would in turn help insure an adequate supply of domestic energy, would help end American reliance on finished products from foreign sources and would generate essential domestic economic benefits.

As the mayor of the city of Baltimore, I and my staff have worked very closely for the past 2 years with officials of the Baltimore-based Crown Central Petroleum Corp. to assist Crown in the location of a \$400 million to \$500 million refinery in Baltimore City.

As preliminarily planned, the Crown project would be located on 500 acres of land adjacent to the Baltimore Harbor, the plant would be capable of refining up to 200,000 barrels of crude petroleum each day. By directing its output primarily toward providing substitute natural gas for local domestic and industrial users and low sulfur fuel for consumption by area utilities, the Crown plant will go a very long way toward insuring an adequate supply of energy for all of the Baltimore region.

I have been advised that under present projections, the Crown refinery would produce on a daily basis approximately 280 to 300 million standard cubic feet of substitute natural gas; 45,000 to 75,000 barrels of low sulfur fuel; 40,000 to 65,000 barrels of diesel oil; 450 to 650 tons of molten sulfur; and 30,000 barrels of gasoline.

In addition, and just as important in my view, the Crown project will greatly alleviate the present job shortage in the Baltimore area. Construction of the refinery will last an estimated 2 to 3 years and will employ up to 2,000 construction workers at peak construction periods. When completed, the refinery will employ some 300 full-time employees. Finally, the Crown project will increase the taxable base of the city and will help to strengthen Baltimore by its overall impact on the economic structure of the great city of Baltimore.

The prospect of this dual blessing of assured adequate energy sources plus tremendous economic benefits, however, is largely dependent on the course that our Nation's energy policy takes. It seems to me that our present policy makes it more economical to import finished products than to import unfinished crude and refine it here.

Commonsense tells me that there is very little incentive for anyone to even consider the construction of a refinery in the United States under these circumstances. Companies like Crown will be forced by our own national policy to either scrap their plans altogether or to build in foreign countries in Europe or the Caribbean or the Middle East.

We should do everything in our power to encourage domestic refinery construction, lest we invite continued foreign domination of our energy supplies. Should the present system remain unchanged, we will continue to deny ourselves local and regional sources of readily available energy, and we will continue to export the jobs and other economic benefits which naturally flow from refinery construction and operation.

Senator Mathias' amendment would help to reverse all of these undesirable and unnecessary trends.

The other aspect of Senator Mathias' amendment deals with the sharing by the individual States of the increased revenues that would be available as a result of the increased tariff on the importation of residual fuel and middle distillates. Quite candidly, my enthusiasm for this form of revenue sharing stems in part from a desire to see that Baltimore and other major cities will be able to tap needed revenues from as many sources as possible. I would envision that when the individual States receive their proportionate share of funds, this money would then be subdivided according to local usage and need.

This direct financial payout from the proceeds of the increased tariffs would mean more money for major cities which could best use such assistance at this time. I believe, in fact, that my view accurately reflects the position that the chief executives of other major urban centers would take on this matter.

I believe in the Mathias amendment because I am convinced that it will help to insure that, one, sufficient energy will be available domestically; two, there can be a continued growth of petrochemical industrial facilities; and three, the cities of America will be able to participate with the States in a sensible and responsible system of energy-based revenue sharing.

For all of these reasons, I urge the Senate Finance Committee to incorporate Senator Mathias' amendment to H.R. 6860 as reported to the Senate.

All this really says is that in our city there is a lack of natural gas. A lack of natural gas is reflected in industries either closing down or their industries moving to States where there is no problem with natural gas which creates a loss of jobs in a city that can ill afford this.

Now, Baltimore happens to be a fairly lucky city. We are in pretty good shape. We are not a dying city. We are not a city that is toppling over, we are moving very well, but we want to keep it that way.

The refinery that Crown wants to build in our city, as I say in the statement, would give us about 2,000 construction workers for 2 to 3 years. That is very good for us.

In addition to that, many of the products that are needed will be manufactured in the United States—that is very good for us. After the refinery is finished, the spinoff effects of other industries in and around the Baltimore region help us.

So, in addition to our adding to our assessable base, it would relieve that shortage of gas products that we have to have for keeping the economy in the Baltimore region strong.

To allow refineries to be built in foreign countries, I think, is not exactly the way I would see it. I would think we would try here.

Now, there was a question asked. I believe, Senator, you asked the question about whether the cost is just as great for industrial oils in our countries as it is from the foreign countries. The difference will be that we will have the job here. We will not have the opportunities for an assessable base here. Even if the cost of gas is high in our own country we will still get something out of it. And that, I thought, made some sense when we talked about trying to build these refineries in the city of Baltimore and along the east coast.

We take this energy crisis very seriously. We have to convince the people of it and we have to wait for the Congress to give us some national direction to follow. I do not envy, of course, the ultimate decision that you will have to make. But, as I say, that is what the people in elective office are supposed to do. They are supposed to make those decisions.

The CHAIRMAN. Thank you very much, Mr. Mayor.

You have a good statement. I believe I agree with it. I have had explained to me why it is not a good idea to have the refineries outside the United States, if you can have them inside. One of them being that in times of shortage, that country which has a refinery might decide either that they want to keep the energy there or that they want to tell the company where it will have to go when it leaves there. Or, if they do not do that, they might decide to put a big tax on it just like Canada did on the exports from Canada.

In any event, it is not a very good idea, all things being equal, it is a far better idea to have the refinery here than to have it in some foreign country. So, I understand your argument and I think I agree with it.

Senator Haskell?

Senator HASKELL. Thank you, Mr. Chairman.

Mr. SCHAEFER, I certainly agree with the desirability of locating refineries on our shores. And I think Senator Mathias' amendment deserves very careful consideration. No doubt, in the past we have done everything possible to force refineries to go elsewhere; with the quota and the import system. We certainly did that.

I talked with Senator Mathias this morning. I was under the misapprehension that his amendment imposed a tariff not only on the processed materials but also on the crude and I see by structuring it on the processed product it will certainly operate as a disincentive to import that product.

Do you happen to know whether Crown is going to go ahead with this project?

Mr. SCHAEFER. We have done everything that we possibly can to encourage Crown to build the refinery in the area. We have made the people aware that it is going to be there. They have accepted it. We have also gone over the environmental factors and think that we will be able to meet the environmental problems.

In speaking with the Crown people, if the President's programs are continued, Crown will not be able to do it. It will not be economically feasible unless something like the Mathias amendment is put into operation.

In talking with Mr. Rosenberg, president of the company, he is very enthusiastic. He wants to build in the Baltimore area. His first location was in Anne Arundel County and then he went to Baltimore. But, he seems to indicate very strongly he will not be able to go forward with the project.

Senator HASKELL. Thank you very much.

Mr. SCHAEFER. And that, by the way, is why I am here. I believed Henry when he said this. This is a very important item from our standpoint; first going through the construction phase, but after that, the spinoff of all of the benefits of the gas, natural gas, substitute for

for natural gas, and other things in that Baltimore region make a tremendous difference to us.

Senator HASKELL. I can understand, that, Mayor Schaefer.

Thank you very much.

Thank you, Mr. Chairman.

Mr. SCHAEFER. Thank you.

The CHAIRMAN. Thank you very much, sir.

Next we will hear from Mr. William L. Slayton, executive vice president of the American Institute of Architects.

We are pleased to have you, Mr. Slayton, we will be glad to hear from you.

STATEMENT OF WILLIAM L. SLAYTON, EXECUTIVE VICE PRESIDENT, AMERICAN INSTITUTE OF ARCHITECTS

Mr. SLAYTON. Mr. Chairman, I am William L. Slayton, executive vice president of the American Institute of Architects, a national society representing the architectural profession. We are pleased to be here to express our views with respect to H.R. 6860, the Energy Conservation and Conversion Act of 1975.

We heartily commend the Congress for its recognition of the critical importance which energy conservation has in our national policies. We are convinced that long-term, comprehensive energy conservation policies must be adopted in all sectors of industry, construction, and transportation.

As the second largest energy-consuming sector, buildings offer a significant opportunity to save energy. For the past several years, the American Institute of Architects has studied the relationships between energy and the built environment, and our findings and recommendations are included in two reports which we would like to submit for the record; Energy and the Built Environment: A Gap in Current Strategies and A Nation of Energy Efficient Buildings by 1990.

Mr. Chairman, I have copies of these reports here.*

These reports outline the dramatic potential of a high priority national program to achieve energy efficient buildings. Our estimates show that a high priority program for energy efficient buildings could save an average of nearly 1 million barrels of petroleum equivalent per day each year between now and 1990. By 1990 a savings of 12.5 million barrels of oil per day could be reached.

We, of course, recognize that additional time is needed to develop and test the institutional innovations needed to implement our long-range strategy. We do, however, believe that complementary short-term initiatives can be taken. The positive incentive approach offers better means to resolve the energy problem than regulatory approaches which bring about conservation forcibly through prices or prescriptive standards.

This is why we believe that the incentives approach within the present version of H.R. 6860 is a step in the right direction. However, in its current form, H.R. 6860 will result in governmental subsidy on installation of prescribed hardware items such as insulation and storm windows. Depending on the particular situation, this could result in sub-

*The reports were made a part of the official files of the committee.

sidy dollars being invested in only marginal gains of energy and not necessarily providing the best or optimal energy return per investment dollar. It will be likely that building owners will comply with the requirements to get the incentive, but may not realize substantial savings. This approach nullifies, or at least ignores, a far greater range of alternative considerations for effective energy conservation which are available under a more comprehensive approach to the problem.

We have developed a more comprehensive incentive proposal than the one contained in H.R. 6860. It would apply to new and existing buildings, both commercial and residential. Our incentives approach would result in greater energy conservation, stimulate a lagging economy, and provide the needed professional and qualified attention required

I would like to briefly summarize our proposal.

Should the owner of an existing office building, for example, wish to have the structure retrofitted to be more energy efficient, he must arrange for the modification or retrofitting of this building. His goal is to reduce the building's annual energy consumption by a minimum of 30 percent. The building's annual energy consumption would be calculated by using either the average of the lowest three consecutive annual demands since 1970, or, for buildings less than 3 years old, the average annual energy consumption since the date of the first consumption of energy in the building.

We have called the range of possible modifications to the building an "integrated energy package." This does not mean simply hardware, insulation, or solar equipment, although these may be included in the integrated energy package. Rather, we are talking about the necessary design, engineering, and construction services associated with modification and/or additions to achieve energy conservation.

A qualified professional would certify that the integrated energy package will achieve at least a 30-percent annual energy savings.

After modification of the building, a commercial building owner may either (a) treat a percentage of the cost of the integrated energy package as an investment credit, or (b) amortize a percentage of the cost of the integrated energy package over a period of 5 or more years.

In addition, he, the owner, may be qualified to receive a second tax credit. If energy is saved over and above the required minimum of 30 percent, in each of the next 10 years after installation of the integrated energy package, a tax credit equal to 30 percent of the value of the energy saved from nonrenewable energy sources would be available. In this way, an incentive exists to make the best possible modifications to a building in order to save a maximum amount of energy. It also encourages the utilization of renewable energy sources, such as solar and wind power.

The incentive for the homeowner differs slightly. In this case, the option is to deduct a percentage of the cost of the integrated energy package in calculating taxable income within a period from 1 to 5 years. The second tax credit—for saving nonrenewable energy above and beyond the minimum 30 percent—remains the same as we described for the owner of a commercial building.

Here the incentive is intended to stimulate the owner to have a building designed to be energy efficient to the maximum extent feasible. Present tax laws make it unprofitable to invest more front-end money

because operating expenses are either deductible as a business expense, in the case of commercial buildings, or are passed on to the building's tenants or new owners. By making it economically beneficial to spend more money initially, owners and developers should be encouraged to build energy efficient structures.

With new buildings, calculating the amount of energy that a building would have consumed without the application of the integrated energy package is the heart of the problem. As a solution, we suggest that an energy conservation performance standard should be the base for the calculations. The Administration has submitted to the Congress a bill entitled Building Energy Conservation Standards Act of 1975, known as title X of S. 594. Various congressional committees have been considering this subject, and we believe that legislation authorizing the Federal Government to develop and promulgate energy conservation performance standards for all new construction will be passed by this Congress.

Therefore, we recommend that the tax incentive for energy efficient new buildings be a retroactive one. However, if a building is constructed in a State which already has adopted a set of energy conservation standards acceptable to the Federal Government, the incentive would be effective immediately.

To summarize, the potential owner of a new building could employ the services of a qualified professional to provide for the design of an energy efficient building through the use of the range of possibilities included in an integrated energy package. The professional would certify that the use of certain design techniques, equipment, and so forth would achieve an annual energy saving of at least 30 percent over the standard. A percentage of the cost of the integrated energy package is either treated as an investment credit or rapidly amortized, or, in the case of a homeowner, is deductible from taxable income. Both commercial and residential building owners, if they achieve energy savings above the minimum required 30 percent, are entitled to receive a tax credit in each of the next 10 years equal to 30 percent of the value of the nonrenewable energy saved.

There are more than 70 million existing residential buildings in this country, and millions of existing commercial structures. Energy conservation in this vast inventory of buildings could begin as soon as this measure is enacted. At the same time, knowing that it will be possible to qualify for a retroactive tax incentive as soon as the Federal standards are developed in 2 or 3 years, new buildings will be designed and built with energy conservation features.

The enactment of this incentive would stimulate 2 million to 3 million jobs in the construction industry and in the industries which supply materials and would sustain them over a period of many years.

If 7 percent of our existing inventory of buildings were redesigned and retrofitted with energy conservation in mind, we would save the equivalent of 4.65 billion barrels of petroleum within the first 5 years. These savings would then continue year after year without additional cost and without reduced standards of living.

To the American public, this represents a total saving in just the first 5 years of \$75 billion, assuming energy costs increase at the rate of 15 percent per year.

While the program of tax relief we recommend for energy investment would have a negative impact on the Treasury, the increase in corporate and individual taxes as a result of the stimulus to the economy would produce positive contributions to offset this impact.

We believe that the incentive approach which we are now proposing offers a mechanism to achieve the kind of energy savings the Nation needs. We are asking that you consider this approach as an alternative to replace the appropriate sections of H.R. 6860.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Senator Haskell.

Senator HASKELL. Thank you, Mr. Chairman.

Mr. Slayton, I find your paper most interesting. I would like to ask a couple of questions.

Do relatively well-defined standards that you would call energy efficient now exist for buildings, or is this something that would have to be developed in the future?

Mr. SLAYTON. Well, in a sense, they exist, in the sense that architects generally know how to design buildings to take advantages of orientation in terms of sun, shade, making it possible for the sun to warm in the winter and sufficient sunshade so it does not heat the house, or the structure, in summer. But they are not standards of the kind to which I have been referring in this paper, energy performance standards.

An energy performance standard is a standard that would say a building of a certain type in a certain locale should not consume more than a certain number of Btu's, say, during the year.

Senator HASKELL. This would take a little time to develop?

Mr. SLAYTON. Yes. Those standards are going to take 2 to 3 years. And the discussion and debates, that have been going on in Congress on this, recognize it will take time to develop those kinds of standards.

We have done some work for the General Services Administration on this to develop an energy budget approach to the design of buildings.

Senator HASKELL. Thank you, Mr. Slayton.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, sir.

Mr. SLAYTON. Thank you, Mr. Chairman.

The CHAIRMAN. The committee will meet at 10 o'clock tomorrow.

[Whereupon, at 3:05 p.m., the committee recessed to reconvene at 10 a.m., Wednesday, July 16, 1975.]

H.R. 6860—ENERGY CONSERVATION AND CONVERSION ACT OF 1975

WEDNESDAY, JULY 16, 1975

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to notice, at 10:05 a.m. in room 2221, Dirksen Senate Office Building, Senator Russell B. Long (chairman) presiding.

Present: Senators Long, Talmadge, Byrd, Jr., of Virginia, Gravel, Nelson, Haskell, Fannin, Hansen, Dole, and Packwood.

The CHAIRMAN. The committee will come to order.

As our first witness this morning, we wish to call Mr. W. T. Slick, Jr., senior vice president of Exxon, on behalf of the American Petroleum Institute. Mr. Slick, we are very happy to have you. There will be other Senators along with us as we progress, I am sure.

STATEMENT OF W. T. SLICK, JR., SENIOR VICE PRESIDENT, EXXON CO., U.S.A., ON BEHALF OF THE AMERICAN PETROLEUM INSTITUTE, MID-CONTINENT OIL & GAS ASSOCIATION, ROCKY MOUNTAIN OIL & GAS ASSOCIATION, AND WESTERN OIL & GAS ASSOCIATION

Mr. SLICK. Thank you, Mr. Chairman. I am W. T. Slick, Jr., senior vice president of Exxon Co., U.S.A., and I am pleased to have this opportunity to appear before the committee this morning on behalf of the American Petroleum Institute, Mid-Continent Oil & Gas Association, Rocky Mountain Oil & Gas Association, and Western Oil & Gas Association.

The Energy Conservation and Conversion Act of 1975, H.R. 6860, has been proposed as a meaningful response to this Nation's energy problems. However, in our view this bill is deficient in at least two critical areas. First, its import quota provisions will, in my judgment, create a permanent energy shortage or self-imposed embargo which will have serious economic impacts. Second, the bill does not address the fundamental need for increased development of domestic energy resources, and in particular, the critical problems of capital formation by the domestic energy industries.

There is only one way in which the United States can achieve increased energy independence without unacceptable economic penalties. This is through a balanced energy policy which encourages more efficient use of energy as well as increased resource development. The relationship between U.S. economic and energy growth is well known. No

one, in my judgment, can reliably predict how much the Btu/GNP ratio can be reduced and still meet the legitimate aspirations of the American people for jobs and for a better quality of life. In any event, even though more efficient use of energy can be achieved, and should be achieved, the Nation cannot maintain economic growth without energy growth.

A key provision of the Energy Conservation and Conversion Act of 1975 is the imposition of quotas to limit oil imports. Within 2 years, the maximum quotas under the bill begin to fall substantially below Exxon's projected volume of the oil imports needed to fuel an expanding U.S. economy. Unfortunately, this bill makes no provision for increasing U.S. energy production to offset this loss. The result is a self-imposed embargo. This creates permanent rather than temporary energy shortages, and all of the ills that go with such shortages. Most important will be the substantial negative impact on the U.S. economy, which we calculate could result in an 8-percent reduction in GNP and in the loss of up to 2 million jobs before 1980. This is an extraordinary price to pay for minimal improvements in national security through lowering imports by the use of quotas. Data on this and a number of other points that I will mention in my testimony have been tabulated in attachments to this statement.

A second illogical feature of the bill is imposition of an excise tax on oil and gas consumed by business and industry at a time when the price of much domestic oil and gas production is controlled at less than half of market price. Such a tax is clearly inflationary, and would be reflected in the cost of all goods and services. It should be considered only after oil and gas price controls have been removed, and then only if additional conservation is deemed necessary.

Real and permanent improvement in our national energy condition depends on increasing indigenous suppliers. The United States has a large resource base of conventional energy such as oil, gas and coal. Expeditious development of these supplies can make a significant contribution not only to improving U.S. energy independence, but to creating a healthy economy. Development of these resources is dependent on a number of factors such as Federal leasing policies and environmental regulations. However, the most critical factor today is the ability of the domestic energy producers in general and petroleum companies in particular to generate adequate capital to finance the very large development costs.

The capital formation problems of the petroleum industry can best be illustrated by comparing historical expenditures with projected requirements. During the decade 1963-72, the domestic petroleum industry's capital expenditures according to a Chase Manhattan Bank study, averaged \$8.1 billion per year. During 1973 and 1974, expenditure levels began to increase sharply, reaching an estimated \$13-\$14 billion in 1974. These increased expenditures were primarily the result of increased exploration and development activity, which was taken on in response to higher energy prices, as well as higher real costs due to deeper drilling and expanded offshore operations, and the rapid inflation experienced during this period in the petroleum industry, which far outstripped the general inflation in the economy. In 1974, the Consumer Price Index went up 11 percent. The industrial Wholesale Price Index in this country went up 22 percent, but the index of goods and materials used in the oil producing business went

up 49 percent, and the cost of goods in the processing industries went up 75 percent.

Now, the profitability of the petroleum industry during the 10-year period 1963-72 was actually slightly less than the average for all manufacturing; return on shareholders' equity for petroleum was 11.8 percent versus 12.4 percent for all manufacturing, according to studies done by the First National City Bank of New York. During this period of modest profitability, the industry was able to maintain its dividend payout rate at about a constant level of 50 to 55 percent, according to the Chase study of some 30 companies; and thereby sustain its equity investors. But the industry found it necessary to rely increasingly on borrowed funds to meet capital expenditure needs. As a result, the debt/equity ratio in the industry for the Chase group of companies doubled, from 15 to 30 percent, between the early 1960's and the early 1970's.

Knowledgeable experts in the industry, the financial community, and even in Government project that capital requirements for the U.S. petroleum and other energy industries will increase sharply over the next decade. I have tabulated a number of such estimates in my statement. These range from some \$20 billion to \$30 billion a year in constant 1974 dollars, I would emphasize, for petroleum alone, to some \$24 billion to \$40 billion for all energy industries exclusive of electric utilities. And if you throw in electric utilities, the number almost doubles.

Regardless of the exact figure, however, I think the significant factor is that all analysts project a need for an increase of from 100 to 200 percent in petroleum industry investments over present levels. It is also important to recognize that even these expenditures will not eliminate U.S. dependence on oil imports by 1985.

These sharply higher capital needs result from a number of factors. Increased levels of exploration and development activities are needed to replace the Nation's declining reserves of oil and gas. The bulk of this increased activity is expected to occur in much higher-cost areas, such as deep inshore basins, the Outer Continental Shelf, and the Arctic.

Finally, these constant dollar estimates do not include the effects of future inflation, which could substantially increase the required expenditure. I think these capital expenditure levels could perhaps be better appreciated if they were translated into some physical facility requirements, and I have done so in my statement. I would like to cite just a few of them for you in the petroleum industry. For example, these requirements include:

PHYSICAL FACILITY REQUIREMENTS 1975-85

Type	Number	Size
Oil and gas:		
Wells.....	300,000	Productive and dry.
Offshore platforms.....	850	
Refineries.....	38	150 thousand barrels per day.
Synthetics:		
Shale oil plants.....	10	50 thousand barrels per day.
Coal gas plants.....	11	250 million cubic feet per day.
Coal:		
Mines.....	145	5 million tons per year.
Unit trains.....	1,100	100 cars.
Uranium: Mines.....	35	2 million tons per year.

Over the next decade, from 1975 to 1985, we estimate that it will be necessary to drill at least 300,000 wells in this country. To put that in perspective, there are only 600,000 wells in the country today. We think there will have to be another 850 off-shore platforms, in ever-increasing deeper water, and there are only 800 platforms out there today. We think it will be necessary to add somewhere close to 40 additional refineries, with an average capacity of about 150 thousand barrels per day apiece. That is 5.7 million barrels a day of refining capacity, or more than a third of what the total capacity is in the United States today.

These are tremendous expenditures of both physical effort and capital. Similar situations exist in other energy fields in this country. So the critical issue is the ability of the private sector to finance such sharply higher expenditure levels. Chase Manhattan Bank has indicated that the petroleum industry returns on investment in the range of 15 to 20 percent will be essential if we are to finance future capital needs. Also, in view of the sharp increases in the debt/equity ratios, it is clear that a very high percentage of the increased capital needs must be generated internally rather than borrowed.

In this regard, much has been said about recent industry earnings. 1974 was a record year for the petroleum industry. Returns on investment increased to about 20 percent, as compared to about 16 percent for all manufacturing in that year. However, responsible observers now recognize that 1974 was not, by any stretch of the imagination, a typical year. Record earnings levels resulted, to a substantial degree, from nonrecurring factors, one of the most widely quoted being inventory profit, which is, as I am sure you recognize, purely paper profit. Furthermore, elimination of percentage depletion for most oil and gas production in this country will reduce industry earnings by about \$2 billion per year. In the first quarter of 1975, petroleum industry profits are down 25 to 30 percent from prior periods, and if this is typical of the full year's results, it suggests that industry returns will fall to the 14 to 15 percent range.

These factors are borne out by the committee's own analysis of the profitability of some 10 selected oil companies, which the chairman recently released.

Now, this leads us to the conclusion that the petroleum industry will have a great deal of difficulty financing needed resource development programs, unless the problems of capital formation receive immediate and constructive attention from the Government. In this regard, the current system of oil price controls is a major factor in limiting capital formation. It is true that under current regulations, oil from new discoveries needed to replace existing reserves is permitted to sell at market prices, and that these prices provide substantial economic incentives for many projects. However, because of the high initial costs of these activities, and the long lead-times before production and income are realized from these projects, they must be financed by earnings from existing production, most of which is controlled at less than half the market price. Thus, current earnings are not adequate to generate the necessary capital.

The CHAIRMAN. Pardon me. I want to be sure that I have that statement. What page are you on now?

Mr. SLICK. Page 5, sir.

The CHAIRMAN. I want to make reference to it later on, so I just want to find it. Would you mind reading that statement again, sir? I am impressed by it, and I want to find it. Where is it?

Mr. SLICK. It is about the middle of the page, Senator.

The CHAIRMAN. Would you mind reading it again?

Mr. SLICK. Because of the high initial cost and long leadtimes before production and income are realized from new projects, they must be financed by earnings from existing production, most of which is controlled at less than half the market price. Thus, current earnings are not adequate to generate the necessary capital. Furthermore, the uncertainties created by the regulations and various proposals to extend controls, or even roll back prices, inhibit industry's ability to obtain increased debt or equity financing for new ventures.

Now, Exxon U.S.A.'s experience is not necessarily typical. But I think it does illustrate the problem. Last year, Exxon U.S.A. had capital spending in excess of its earnings. This year, with no assurance of earnings growth, capital expenditures in our company in the United States will almost double. Still, we are foregoing investment opportunities for lack of funds. The 1975 tax bill has been a contributing factor. It cost our company some \$200 million after taxes, and that is just \$200 million of capital we do not have available for investments.

The removal of oil price controls, and the resulting few cents a gallon higher prices could significantly enhance the industry's ability to generate the necessary capital. Much has been said about a so-called windfall profits tax. We believe this is a great misnomer. First of all, careful analysis will show there are no windfall profits, because the resulting higher realization must be reinvested in the development of new energy supplies.

Second, the proposed taxes are in reality excise taxes, bearing no relationship to profits. Accordingly, we believe that the so-called windfall profits tax is both unnecessary and inappropriate. Nonetheless, if such a tax is deemed necessary to achieve decontrol of prices, it must be carefully structured so as not to be counterproductive to the capital formation needs. The adverse impact of such a tax can be minimized by confining it to old oil, which is decontrolled simultaneously with enactment of the tax, by incorporating a broad-based plowback provision, by phasing out the tax over a reasonable period of time—say, 3 to 5 years—and by recognizing inflation and the loss of depletion in establishing the tax base. The regulation of interstate gas prices substantially below the market has the same inhibiting effect on capital formation as the factors I discussed in the case of oil, and these controls, too, should be eliminated.

One final, more fundamental point needs to be made, I believe. The effects of inflation have severely damaged the capital formation ability of all industries in the United States, including petroleum. Depreciation of capital assets on the basis of historical costs has proven inadequate to generate the funds necessary to replace these assets at inflated prices. Revision and liberalization of existing depreciation provisions deserve urgent consideration by the Congress. Other proposals, such as a relief from double taxation on corporate earnings through a deduction for dividends paid also merit careful study by the committee as it reviews the capital formation problem.

Now, in conclusion, we oppose the Energy Conservation and Conversion Act of 1975. We are convinced that its import quota provisions are likely to be harmful to the U.S. economy. We believe that a better and more logical approach is one that simultaneously encourages resource development and energy conservation. In this regard, we believe one of the most critical issues to be dealt with by the Congress is capital formation. Of particular concern to us is the inhibiting effect of price controls and tax proposals on the ability of the domestic petroleum industry to finance the resource development programs necessary for increasing U.S. energy independence.

Thank you, Mr. Chairman. I would be happy to try to respond to any questions you or the committee might have.

The CHAIRMAN. Let me compliment you on your statement. It provides the Congress with a lot of information, which I think is factual and which we can use to help put together a bill. That is, if we want to serve the long-term interests of the people of this country. I regret to say that there has been altogether too much demagoguery about this issue and too little inclination up until now to get down to actual facts.

Now, it stood to reason that if the Arabs were going to quadruple that world price of oil, that the price of what was in the pipeline, in the tankers, in the storage tanks, in the refineries, in the filling stations' tanks out of which they sell, would all go up with it and that—unless, of course, somebody rushed in and imposed a tax on that to take it away from them. Because, generally speaking, when a man's cost goes up, if he is in business he tends to advance his price along with the increased cost.

Now, is that not about what happened when the Arabs raised the price, insofar as the oil industry was concerned?

Mr. SLICK. Yes, sir. In addition, I would say that inventory profits are an illusory sort of thing. If you have something in inventory and the price suddenly goes up, it may look like you have made a tremendous profit, on a bookkeeping basis, but you have to replace anything you take out of inventory at that higher price. So it is a paper profit; you do not really realize anything from it in a practical sense.

The CHAIRMAN. All right.

Now, if we are going to move toward self-sufficiency, the price that we are going to have to pay here would have to depend on what it takes to produce at a profit domestically, and not what it costs to produce at a profit overseas.

Now, is that correct?

Mr. SLICK. Yes, sir.

The CHAIRMAN. All right.

Now, that is why I asked the staff of the finance committee to undertake a study of what the profits of this industry are domestically. To me, it is really irrelevant whether the industry is making money or not overseas. I mean, I am not saying that they should not be paying taxes or anything like that on an equitable basis; I want that done. But, for the life of me, I do not see how it is going to do us much good to shout and scream about the profit that somebody is making or is not making in Saudi Arabia somewhere, when the problem is how are we going to go about getting production here and what would it cost.

Now, in 1975 the indications were that the earnings of the industry in 1974, when the price went up, were very favorable on the foreign oil, but not nearly so favorable with regard to domestic oil. Now, in your company, it did not seem to make too much difference. I see that, by our figures, in 1974 you had a 21-percent return on the overall, 22 percent in the United States and 20.9 in foreign. So your company did very well, no matter how you look at it. But, when you look at the industry average, the other companies were not doing very well in the domestic oil, because the profits were in the foreign oil, as I have mentioned.

Now, when you look at it this year, according to our calculations, for the 10-company average, of which your company is the largest, even though your company is reporting a 16-percent profit, the average for the big 10, the weighted average, is 9.2 percent.

Now, we had testimony by Mr. Nathan that to attract capital into this industry, in his judgment, you need about a 15-percent margin of profit. According to these figures, as of the first quarter, your company is making that in the United States, but that is not true of the rest of them. On the average, the weighted average is 9.2 percent, which is far below what we would like to see if we wanted this thing to be sufficiently attractive to bring capital in.

Now, is that correct or not?

Mr. SLICK. Yes, sir. Senator, I would comment that I think the committee has done the Congress a service by putting together some numbers of its own, because there is a tendency to look askance at numbers that come from almost any other source.

I do think it is illuminating to look at the return on investment in the petroleum industry in this country, compared to the return on investment of other industries, when one engages in a debate as to whether profits are too high or too low. And when you find that an industry of the character of the petroleum industry with its great risks in exploratory activity, has over the years shown a return on net worth about the same as manufacturing industries in this country that deal with the fixed plants and not with the imponderables of exploratory drilling, I am hard-pressed to see how one can conclude that the petroleum industry has been excessively profitable.

Now, I know there is a lot of attention paid to the past year or 2, and I can only say a couple of things. One, yes, profits went up in the petroleum industry in 1973. Profits went up in all businesses in 1973. 1972 was a pretty dismal year for business, no matter what business you were in. So one should not be surprised that when we have a recovery, profits go up. That is what a recovery is. It is when the economy is doing better.

I have already commented on the profitability in 1974, and your statement has put together some information on what has happened in the first part of 1975. I think if we are going to establish policy on the basis of performance, we need to look at the performance over some reasonable period of time and not on the basis of one quarter of 1 year.

The CHAIRMAN. Now, here it is the first quarter of 1975. And this is a recession year. Everybody agrees on that; we are not happy about it, but it is true.

Now, look at the return on investment: All manufacturing, after tax, 9.2; nondurables, 10.0; durables, 8.0; petroleum and coal, 10.2.

Now, looking at the 10 major companies, their profits are 9.2. Now, that 10.2 for the whole can only be accounted for, if you could reconcile these, by the fact that the independents, at least the smaller independents, were able to keep their depletion allowance. So they, apparently, are reporting in a larger profit after tax than the major companies.

But looking at the major companies, 9.2—which is far below what your company is showing—it would look as though that the industry average, if you want to attract investment, you are going to have to let them make more profits after taxes. And that is domestic; I am not talking about what it would take to get the oil here.

Mr. SLICK. I think, Senator, it should be pretty apparent, looking at the data that were published in the committee's report, that the return on investment for the 10 companies that you examined for the first quarter of this year is clearly inadequate as a long-term return on investment. If that is the kind of return on investment we are looking at, then it is clearly inadequate to attract the kind of capital that is going to be needed to get the job done.

You can do the mathematics. The Chase Bank has done it. It says that the profitability has to be somewhere between 50 percent and 100 percent higher than that if we are going to get the job done.

I think the important thing that has to be decided relates to whether or not we are going to get the job done in the private sector of this country in making progress toward energy self-sufficiency, energy independence.

The CHAIRMAN. I would like to ask one further question.

Every company with which I am familiar which has had its depletion allowance repealed last year has told me that they have had to go back through their drilling and exploration program and reduce their drilling and exploration. They are not like the Federal Government; they cannot run off printing press money and they cannot spend money that they do not have. So that most of them have had to reduce their drilling and their exploration, because the taxes were increased last year.

Can you tell me if that is the case in Exxon, and, if so, how much that would have been the case in the industry, if it is?

Mr. SLICK. Senator, if you would indulge me, I think I would like to give you a 2- or 3-minute answer to that question, because I think just to take one number out of context can be quite misleading and quite confusing.

If you just look at the absolute level of what is being done, it is possible to reach some wrong conclusions. So let me back up with you and point out that in 1974 in this country, my company made about \$1.1 billion. We had a capital expenditure program in this country in 1974 or \$1.3 billion.

The CHAIRMAN. So you spent more than you made?

Mr. SLICK. Yes; we spent more money than we made.

Now, you know as well as I what the total source of cash flow is, and you understand how that can happen. Of course, it obviously cannot happen over an extended period of time, because in industry we are not like the Government. We do have to pay our way.

In 1975, first quarter results do not give us any reason to believe that the profitability situation is going to be improved over 1974. In fact, the numbers are already down. But compared to a spending

program in 1974 of \$1.3 billion, we have a program in 1975 of \$2.2 billion.

Now, that is all of the money that we are generating and all of the money that we think we can prudently borrow. I think you have to look a little bit closer at that \$2.2 billion, because there are some rather significant expenditures tied to some activities we do not feel we can back away from, nor do we feel that anyone would really suggest that we back away from.

Let me give you a couple of examples. As you know, we have an interest in the trans-Alaska pipeline system. Our expenditures, actual cash expenditures this year on our interest in the pipeline will exceed \$400 million. We think that is a commitment we have to continue. Our expenditures on the North Slope to develop the production so that when the pipeline is completed, we will have production to put into the pipeline, now look like they are going to run some \$300 million-plus just this year.

We have a major refinery expansion under way in Baytown, Tex. A number of companies chose to back away from some refinery expansions over the past year for good and sufficient reasons. We decided to continue. We went into that, thinking it was a \$380 million refinery. The last number I saw, it is a \$502 million refinery, and we are going to have to spend about \$300 million of that money this year.

What I am saying is that there are some really major expenditures that have to take first priority, because they are commitments we cannot back away from. When we get through looking at those kinds of expenditures and put everything in order, we found that we had to forgo some drilling opportunities in this country with respect to possible wells in situations where we might do some step-out drilling, what we might call field wildcat drilling, to try to develop some additional locations to expand current production or to do some in fill drilling, in the hopes that we can expand production. We have had to forgo some of those and limit ourselves to drilling those kinds of wells that I would call obligation wells and defensive drilling programs. That is, drilling wells that we had to drill to protect leases, drilling wells that we had to drill to protect from drainage and things of that nature. So, we are forgoing opportunities not only in other areas but in drilling.

As I mentioned earlier, the tax bill in 1975 cost our company \$200 million. That is just \$200 million of after-tax money that we do not have available to put into an energy investment program, some major portion of which would be in drilling programs, if the money were available.

I am sorry to have been so long, but I think it is important to put these things in the proper perspective.

The CHAIRMAN. I appreciate that you did, because I think it is important.

Now, the way it is going now, how much do you think you are going to make? Do you say you are spending \$2.2 billion this year. How much do you think you are going to make?

Mr. SLICK. Senator, I have learned in corporate life one of the things it is not very good to speculate on is future profits, at least in my company. Our profit report for the first quarter is out. It is down from

last year; it is substantially lower if you annualize it, as your own numbers show. I think I will just rest on those data. Our 6-months report will be out later this month.

As I said earlier, we see nothing to indicate that the profit picture is going to turn up sharply from what the first quarter was. We will be lucky to sustain those kinds of levels. But I think it would be idle speculation to go beyond that, sir.

The CHAIRMAN. Thank you.

Senator Gravel is next.

Senator BYRD. Mr. Chairman, there is a live quorum now. I thought I would bring it to the chairman's attention.

The CHAIRMAN. Anyone may make that live quorum if he wants, I will protect the place on the list until he gets back.

Senator GRAVEL. Mr. Slick, on the charts that you show, attachment No. 3, you show a debt equity ratio of from 15 to 29 or 30 in this period. That means that you have gone from 15 to 30 percent debt, right?

Mr. SLICK. Yes, sir.

Senator GRAVEL. Obviously the compression of price now, has required you to go to the marketplace for capital like other industries have done historically.

Is it easier for oil companies to borrow money from our banking institutions than auto companies or chemical companies or large farming companies? Would you have any comment to make as to where you stand in line in getting financing?

Mr. SLICK. Senator, of course, that varies from company to company and time to time. The one comment I would offer, if you look at the plot that is attached to the statistical data, you will see that the ratio has been steadily rising. And we are really piercing new ceilings as we go along.

It has gotten more difficult to borrow money than it has in the past. There are some companies that are having extreme difficulty and there are others that are having less difficulty. I do not think that we can generalize on this. I think when you look at the petroleum industry, however, compared to some other industry, you find that other industries have sustained higher debt equity ratios but they have totally different risk relationships.

You can look at more specific examples when you get down to specific project-type investments. And I have had comments offered to me by people who finance on an individual project-type of basis, for example, that it is getting extremely difficult to attract new venture capital because of the great uncertainty that the industry faces.

Senator GRAVEL. I think I could expect that, but I was trying to get a feel as to how you stand in the debt market. Since the industry has not historically been in the debt market as heavily as other industries. I have just been trying to get a feel as to whether or not, in your coming into the market, if you just do not sort of jump the line.

I would say, as a banker, that we are going to be needing energy all of the time regardless of the capriciousness of Government and other things. The fact is that we know energy is going to be needed in our society or we are not going to have a society as we understand it. In light of that, you would be a better risk for a bank than would other types of industries.

Mr. SLICK. Senator, I would agree with you on your many circumstances. But, I would respectfully point out that if I were a banker looking at the petroleum industry and listening to the Congress in the United States talk about rolling back prices, about breaking up companies and divestiture, about refusing to let companies expand into areas that are legitimate areas for expansion, then as a banker I would begin to get a little bit concerned about whether this was an essential industry and whether or not the Congress was going to let this industry live.

I think there are as many points on the curve on the negative side as there are on the positive side, at least from my vantage point, sir.

Senator GRAVEL. Well, let me say that you are carrying coals to Newcastle with me in that regard. That is an echo of a speech that I have made on the floor.

The point I am trying to get at is that there is a general feeling in this country that there is going to be a shortage of capital. By requiring the industry to move into a stronger debt position, than was historically the case, and because regardless of what the Congress does, the banker can be reasonably secure that since we have an energy-based society, that his loan to you is a secure loan. Now he may change the ratio of the loan, but he knows that you are a secure risk. What I am trying to find out is: your judgment as to whether or not, because of your size and the historical situation, that you cannot walk right into the head of the line and push everybody back. That is my conclusion. And I wonder if you might have the same judgment.

Mr. SLICK. I do not think we walk in at the head of the line and push everybody back. I do believe, and I think my testimony tends to bear this out that the borrowing ability and needs of the industry, if in fact it is to do the things that are necessary, exceeds the industry's ability to support that borrowing based on the kinds of cash flows we are looking at under a controlled situation.

One of the real key factors, as you know, that a banker looks at, is what kind of a revenue stream do you have to carry the debt load. And as the debt load goes up, that revenue stream has to go up with it.

I think that the industry can carry a higher debt load if it has a higher cash flow stream. But it is going to have to have a substantially higher cash flow stream, if, in the decade ahead, the industry is going to be spending \$20 to \$30 billion, as compared to the \$8 or \$9 billion it spent in the decade just past.

Senator GRAVEL. Well, of course, the higher cash flow stream would give you more ability to finance expansion out of your cash flow, rather than going into debt, too.

Mr. SLICK. Certainly.

Senator GRAVEL. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Haskell.

Senator HASKELL. Thank you, Mr. Chairman.

Mr. Slick, this is more for the record than anything else. We make a great deal in this country about the fact that all the easy fields have been drilled. And I would like, Mr. Chairman, if I may, to have a very short article printed in the record, not this entire pamphlet, from Energy Information, which I think is a recognized industry publication, produced by Petroleum Information, and its authenticity.

is absolutely documented by the fact that it is published in Denver, Colo.

This particular issue, July 9, 1975, starts out "The percentage of new field wildcats completed as discoveries in both 1974 and through the first 6 months of 1975 is considerably higher than historical quoted averages."

I think that is material in view of the claim by all of the companies that all of the easy discoveries have been made. Then the companies come in here and bleed about the loss of the depletion deduction and how that is really adversely affecting drilling in the Nation. From the same publication, this time dated July 2, 1975, there is a chart on rig counts in the United States. The rig count on active rigs operating on July 2, 1975, in the United States totaled 1,630. In the year prior thereto, the active rig count was 1,459.

Now, I would like, Mr. Chairman, just the article in the front here, running partially over on page 4 to be included in the hearing record, if I may.

The CHAIRMAN. Without objection, it will be included.

[The material referred to follows:]

[From the July 2, 1975, Energy Information]

WEEKLY RIG COUNT AND CRUDE OIL PRODUCTION

State or region	Rig count ¹		Production (1,000 b/d) ²	
	July 2, 1975	July 1, 1974	June 20, 1975	June 21, 1974
Alaska.....	13	11	195	205
Louisiana.....	237	202	1,788	2,010
Midcontinent.....	228	190	602	656
Northeast United States.....	105	106	208	197
Rocky Mountain.....	241	248	794	850
Southeast United States.....	53	59	330	322
Texas-Southeast New Mexico.....	684	567	3,563	3,843
West coast.....	69	76	879	905
U.S. total.....	1,630	1,459	8,359	8,988
Alberta.....	114	115	1,375	1,717
Other West Canada.....	21	34	260	282
East Canada.....	5	3	3	3
Canada, total.....	140	152	1,638	2,002
Grand total.....	1,770	1,611	9,997	10,990

¹ Hughes Tool/Western Rock Bit.

² API/Provincial estimates.

[From the July 9, 1975, Energy Information]

INDUSTRY SUCCESS RATIOS SHOW IMPROVEMENT—AN ENERGY INFORMATION EXCLUSIVE

The percentage of new field wildcats completed as discoveries in both 1974 and through the first six months of 1975 is considerably higher than generally quoted historical averages.

In 1974, discovery completions were made on 14.9% of new field wildcats. In the first half of this year, performance was just slightly better at 15%. Percentages are calculated using classifications of wells at the time of completion as made by the operators and reported in Petroleum Information reports. "Hindsight" revisions based on later drilling have not been made. The exploratory risk under which the wells were drilled is recognized.

Through the first half of this year, larger operators had a considerably higher percentage of successful new field wildcat completions than others. This was also true in 1974, but the percentage favored larger operators-of-record even more during the first half of this year.

The following table presents percentages of successful completions in all categories, relative to each category, for the Chase Manhattan Bank Group of 30 larger companies and other operators for 1974 and the first half of 1975.

Not much change has occurred in the percentage of drilling done by the Chase Group and other operators. The 1975 figures are set out on page 4.

As in 1974, Chase operators drilled a higher percentage of footage than their percentage of wells completed. This showed their concentration on the deeper, more expensive efforts. Their better success ratios and the fact that Chase operators found 34.5% of the combined equivalent initial potentials reported in the first half of the year show the comparative effectiveness of the long range exploratory "game plans" to which the larger entities adhere.

	1974		1st half, 1975	
	Wells drilled	Successful (percent)	Wells drilled	Successful (percent)
All operators:				
New field wildcats.....	6,710	14.9	3,106	15.0
Other exploratory.....	2,810	53.2	1,387	52.1
Development.....	22,579	77.9	12,622	78.6
All wells.....	32,099	62.5	17,115	64.9
Chase group:				
New field wildcats.....	807	17.2	315	20.3
Other exploratory.....	511	75.5	200	70.0
Development.....	5,183	87.8	2,767	90.0
All wells.....	6,501	78.0	3,282	81.1
Other operators:				
New field wildcats.....	5,903	14.3	2,791	14.4
Other exploratory.....	2,299	48.2	1,187	49.1
Development.....	17,396	74.9	9,855	75.4
All wells.....	25,598	58.6	13,833	60.8

This doesn't alter the fact that the faster-moving risk-taking smaller companies still find more new petroleum deposits, bring more wells onstream annually, and generally keep any worthwhile prospects from being bypassed.

The better-than-generally-recognized percentage of exploratory success by all members of the industry argues strongly for encouragement of all drilling possible. It's still an effective means of offsetting declines in established production.

	Chase	Percent	Chase	Percent	Total
Well completions (January-June 1975):					
New field wildcats.....	315	10.1	2,791	89.9	3,106
Other exploratory.....	200	14.4	1,187	85.6	1,387
Development.....	2,787	21.9	9,855	78.1	12,622
All wells.....	3,282	19.2	13,833	80.8	17,115
Footage drilled (January-June 1975):					
New field wildcats.....	2,678,693	14.7	15,570,641	85.3	18,249,334
Other exploratory.....	1,500,616	18.5	6,604,227	81.5	8,104,843
Development.....	14,016,608	26.6	38,725,484	73.4	52,742,092
All wells.....	18,195,917	23.0	60,900,352	77.0	79,096,269

Senator HASKELL. So, Mr. Slick, when you come here talking about how the Congress is disturbing your industry, making these statements, you will find somewhat cold ears in certain members of this committee.

I am interested in one statement you made.

The CHAIRMAN. If the witness wants to comment on that, I think he should be able to comment on that.

Senator Haskell. Certainly, by all means. Would you like to comment on the petroleum data.

Mr. SLICK. Yes: I would like to make two comments, if I might, Senator. One, I think it is interesting to look at success ratios in terms of what percentage of wildcats drilled were successful completions. I

think it is even more illuminating to look at how much oil was found as a result of these successful completions.

And when the industry talks about the easy ones have been found, they are talking about having found the large fields. It does not do the Nation much good if we have 100 percent success ratio on wildcat wells and each wildcat well is a one well field.

What needs to be found are substantial reserves. And the reference that you made that the easy ones have been found is referring to the major fields that have been found on some pretty obvious structures.

Now, obvious structures are very interesting and most major oil fields have been found on obvious major structures. But I would point out to you, sir, that just having a major structure and knowing there is a major structure, does not remove the element of risk; it does not assure success. And the best example I can point you to is a \$330 million lease purchase that my company made from the Government of the United States on what is probably one of the classic examples of a major structure that has been documented in textbooks for years, and on which, to date, we have drilled seven dry holes and have very little prospect for anything other than those seven dry holes.

The second point that I would make has to do with rig count and I agree, sir, that the rig count today is 1,620, give or take a couple of rigs, and that about a year ago the number was about 1,400. But I think it is illuminating to also look back that maybe a year before that the number was about 1,100. And, about the first of this year, the number was 1,600.

So, in terms of the level of activity, there was a great spurt of activity. But we have sort of hit a plateau. And I think that to make the record complete, we have to recognize that plateau as well as the difference between the two points that you selected out of history, sir.

Senator HASKELL. Well, on the rig matter, I think it might also be interesting to see statistics on the number of rigs stacked, because, after all, we only have so many rigs in this country. And I think that would probably round out the information.¹

Mr. SLICK. You are not suggesting, Senator, that it would be desirable to see rigs stacked in this country under present circumstances?

Senator HASKELL. Mr. Slick, I have merely said to round out the statistical information it would be desirable to know the number of rigs active and the number of rigs stacked.

You say we have reached a plateau. We may have reached a plateau because we do not have any more rigs. And that is all I am talking about.

Now, you indicated in your statement, and then on your discoveries I will do a little independent investigation on what type of discoveries were made. I am sure that there is some industry information published on that. But, I think it is significant that the averages are going up substantially.

You mentioned, Mr. Slick, that you thought it might be desirable, something that we ought to consider, to have a dividend deduction from income tax.

¹ A subsequent telephone conversation July 16, 1975, between staff and Mr. Tom Dougherty, vice president, Petroleum Information, indicated they do not have information on inactive rotary rigs on hand on a regional basis. Nor do they have nationwide summary statistics.

I think there was an economist before this committee that made a suggestion—and I wonder how you would react to it—that we should eliminate the corporate income tax completely, and tax the corporate income pro rata on the shareholders. How would that sit with you?

Mr. SLICK. Senator, there have been a number of suggestions of that type, which I would put in the category of innovative. I do not know whether revolutionary is the right term, but they are major shifts in the tax structure. And I would have to preface anything I say with that I am not a tax expert. And I think that one of the things that has to be looked at is the incidence of tax.

I happen to agree with the notion that the double taxation situation we have had in this country, is one that deserves some attention. Whether the tax is applied at one end or the other, is a second issue, I think, in the question of do you apply the tax twice. If you go to one tax, then you have got to decide at which end do you put it. And there are points on both sides that say it is easier to collect if you collect it at the corporate level. And another one says that it is more equitable if you collect it at the consumer or investor level.

I do not think that is an absolute one way or another. I think that is something that has both pros and cons.

Senator HASKELL. Thank you, Mr. Chairman.

My-time is up.

The CHAIRMAN. Senator Packwood.

Senator PACKWOOD. Mr. Slick, I am sympathetic to much of what you have said. I would disagree with only a few things.

But first, let me ask you, Dr. Nathan testified the other day as to how much it costs to produce a barrel of new oil, on the average, assuming, a 15 percent profit. Without leading the witness, would you tell me what Exxon's estimate is of the average cost of producing—finding, drilling, producing—a new barrel?

Mr. SLICK. Senator, I am familiar with Mr. Nathan's testimony and his study. I would comment that he had made an effort to deal with one of the problems that has been, perhaps, the most perplexing analytical problem faced by the industry over its history. I know of no one who has come out with a precise formula that says, this is the way to do it, and this is the way you get to the answer. The problem is that you do not know how to precisely relate expenditures and results in the sense that the geologic knowledge that is accumulated, that leads to any one of those ventures, is accumulated over a period of time; lease expenditures are made at one point in time, drilling expenditures at another, dry holes at another, and then subsequently you find something. To deal with industry averages can lead to some misleading results.

On the positive side, I would say that Mr. Nathan's study clearly indicates that, regardless of the individual judgments that go into that kind of a study, there has been a pretty obvious trend in this country toward substantially increased costs of finding oil. And the cost of finding oil is one that varies over a tremendously wide range, depending upon the nature of the drilling and the nature of the discovery. Even when you establish the cost of finding, then you have not dealt with the total cost of developing and producing, which gets to be even more complex. I think his numbers are reasonable at the

margin, when we are looking at the high cost of exploring in places like the offshore and the Outer Continental Shelf. I do not believe, by any stretch of the imagination, that the price for old oil which has to be replaced by new discoveries is adequate to cover finding and development costs.

Senator PACKWOOD. Is your answer that Exxon does not have a figure?

Mr. SLICK. I would not want to mislead you by giving you a specific number, because I do not think I have one. I question whether there is one. It is substantially above the \$5.25 the barrel, which is the peg price of old oil.

Senator PACKWOOD. You are not prepared to say that his \$12.50 to \$13 a barrel average in 1974 is necessarily right?

Mr. SLICK. Some oil that we have found, has been \$20 a barrel. Some of it has been substantially less than that.

Senator PACKWOOD. That is why I said an average.

Mr. SLICK. I am not prepared to give you an average number, Senator.

Senator PACKWOOD. Because of his credentials and the fact that he is not normally regarded as sympathetic to conservatives, if his statement is accurate, it is a linchpin in the case for new regulation, and it will, I think, bear very heavily on quite a number of people. And I want to make sure that study is accurate.

I have asked several of the witnesses. I get frustrating answers; I do not get any answer. It is hard for us, when we are passing specific legislation, and people are saying, well, let us roll back the price of new oil to \$7.75 a barrel, not to be able to come back with specific figures that say, look, you cannot produce it for that.

Mr. SLICK. Senator, I think that your comments lead to a real, crucial, and critical point. Mr. Nathan's study had to make, as does any other study, a reasonable set of judgments about the relationship between a number of factors that lead to the final economics of the petroleum industry. I think he made a reasonable set of judgments. I might or might not make the same as I went through the calculating process. I am convinced I would not make all of the same judgments, because no two analysts ever do.

The point I would try to make, however, is that, because there are so many judgments reached, this is not a problem that has one finite, specific answer. Therefore, one must look elsewhere for some evidence as to whether or not the price is at too high a level or too low a level.

I think the Congress would be well advised to look at the performance of an industry over a period of time in reaching its judgment as to whether that is a reasonable level of profitability or not, and whether it is evidence of a reasonably competitive industry, and not try to engage in legislating price. I think it is a fatal mistake to think that—with all due respect to the Congress of the United States—that any group of 535 people can determine the specific price that ought to apply to any commodity, be it oil or bread.

Senator PACKWOOD. All right.

That is fair enough. But, then, do not come back and whack us if we set a price and say this is the best judgment we could come up

with, and then come forth with facts saying, well, that is not right.

Mr. SLICK. Well, Senator, what I am saying is the fatal error is to set the price in the first place. I think we need to get back to the market mechanism and rely upon its results.

Senator PACKWOOD. I agree. I am with you. I think we ought to deregulate.

Now, let me go drilling. Who does most of the drilling in this country and the finding of new oil? Are they the independent wild-cat people or, basically, the larger companies?

Mr. SLICK. There are some statistics recently published that indicate that the independents do somewhere around 75 percent of the drilling and that, on the basis of the barrels involved, or the mcfs involved, that they find about half of the oil.

Senator PACKWOOD. And then I assume they sell their rights. They are not in the business of refining and transporting, by and large?

Mr. SLICK. That varies from operator to operator. Some of them make a discovery and sell it, some of them make a discovery and develop it, some of them have integrated in both directions in the industry. I do not think there is a stereotype by any stretch of the imagination. I do not think there is a general answer to that question. There are a great many independents in the producing business that have been in the producing business for generations and there are others who stay in the business for extended periods of time but keep turning over properties. It is widespread.

Senator PACKWOOD. The record was made that the oil companies have too great a control on the entire petroleum process from the discovery to the gas tank.

Could the oil industry exist if it were split up, if the majors could not do any drilling, or retailing, and if they were limited to refining and transporting?

Mr. SLICK. I think the more important question is, what is to be achieved by splitting them up? Is there something wrong with them being the way they are?

We are talking about the issue of vertical integration. It is not unique in the petroleum industry. Integration is an economic phenomenon. It is a manifestation of economic efficiency in a system. Petroleum companies are integrated for the same reason that the New York Times owns timberland. It cuts timber and makes paper and prints newspapers. They find it more efficient economically to run their business that way.

Senator PACKWOOD. But from time to time the policy of this country says that bigness is sometimes bad, and our antitrust laws are premised on the assumption that big companies should not be allowed to have even a well-intentioned control of too big a portion of the market. And maybe you say the antitrust laws are bad and they ought to be repealed, that you ought to be able to be as big as you want.

Mr. SLICK. No, I do not say that at all, Senator. I merely say that in my industry, in some facets of the business, my company is the largest. We have got less than 10 percent of any phase of the business. I fail to find it major control when the largest company in the industry has got 10 percent.

If you look at concentration ratios—which I think serve their purpose but have their limitations—you will find out that the petroleum

industry is less concentrated than the manufacturing industries in this country. There are 10,000 companies in the producing end of the business; depending upon whose number you want, there are somewhere between 8 and 20 major oil companies. And I ask you to just tick off in your mind the other significant industries in this country and ask yourself how many major companies are there in those industries and what share of the market does the largest one have. I think by any standard you will find that the petroleum industry is not a concentrated industry, that nobody dominates that industry.

Senator **PACKWOOD**. Thank you.

The **CHAIRMAN**. Might I insert into the record, for Senator Packwood's benefit, a statement sent to me by a number of consulting geologists in the firm of Butler, Miller, & Lance, Ltd., of Houston, Tex. Here is their study.

They say:

We have concluded that the domestic oil industry spent \$9.83 per barrel to replace oil withdrawn from domestic underground inventories in 1973. If these costs were applied using conventional inventory cost practices—

That is, the last in, first out—

to the oil industry, no "windfall profits" would have occurred.

Now, if you projected \$9.83 per barrel expenditure forward to 1975, I would like to ask the witness about how much would the increase in the costs of drilling and exploration be?

What would the increase be from 1973 to 1975?

Mr. **SLICK**. In the producing end of the business, about 49 percent.

The **CHAIRMAN**. Forty-nine percent in production?

Mr. **SLICK**. That is drilling and producing equipment went up 49 percent in the year 1974, half again that.

The **CHAIRMAN**. So that you would arrive at about the same position as Mr. —

Senator **PACKWOOD**. Even slightly higher.

The **CHAIRMAN** [continuing.] As Mr. Nathan is. And he said he picked 1974 as his year.

Senator **PACKWOOD**. Right.

The **CHAIRMAN**. Mobil Oil put an ad in the paper saying that the windfall profits were gone. Now, a Congressman from New York sent a letter to the Washington Post saying that that was completely fraudulent, and he compared the 1973 profits with 1975 profits. He left out just one thing. How much had the cost of living gone up from 1973 to 1975?

Do you know that, Mr. Slick?

Mr. **SLICK**. From 1973 to 1975?

The **CHAIRMAN**. Yes.

Mr. **SLICK**. Eleven percent.

The **CHAIRMAN**. So if you put the 11-percent increase, just put the cost of living increase in that, Mr. Ottinger would not have written his letter. As a country boy, I was very disappointed to find that in the last few years mud had gone up by 8 percent. I thought you could get mud, all you wanted, just for the cost of going out and putting a shovel to it. But somebody tells me that mud is 10 percent of the cost of a well.

I recall reading "Pogo" sometime back, and he had this secret. One of his friends said that mud is a secret "ingredient," that without mud you would not have any detergents, you would not have any soaps. There are all sorts of things you would not have if you did not have mud. And without mud, you would not have oil wells, it seems.

That is correct; is it not, Mr. Slick?

Mr. SLICK. Yes, sir.

The CHAIRMAN. And the cost of mud has gone up very substantially, I regret to say. I thought that mud was something you could have all you wanted of, just for the cost of going out and picking it up. But it seems that you have to have certain types of mud, certain weights of mud, and all that, as I understand it.

Mr. SLICK. It is a highly sophisticated end of the business, yes, sir. Although that is not to say that when a fellow goes home and tells his kids that he makes his living by being a mud engineer that they do not look at him with a strange look.

The CHAIRMAN. Thank you very much.

Sorry, Senator Packwood.

Senator PACKWOOD. I have no questions.

The CHAIRMAN. Senator Byrd?

Senator BYRD. I yield my time.

The CHAIRMAN. Thank you very much.

Mr. SLICK. Thank you, sir.

The CHAIRMAN. Excuse me. I did want to ask one more thing, Mr. Slick.

Exxon has been running an ad saying that you have succeeded in reducing your industrial consumption of energy in your refinery and business operations. Would you tell us about that?

Mr. SLICK. We have a rather extensive program. We are trying to reduce energy consumption, and we are working on a targeted plan that will cut energy use in our company by about 15 percent over about a 2-year period of time.

We have done essentially all of the things that you can do in terms of changing the operation and are now in the phase of doing the things that would require making investments in order to save energy.

Some of the kinds of things we have done, we have found ways in refineries, for example, where, under normal practice, a part of the refinery stream, after it is processed, might go into a tank. It would be pretty hot when it went into that tank; it would cool down, then it would go to the next step. We would have to heat it up again. We have insulated those tanks, and we have never let it cool down, so we have saved the heat of reheating it.

We have installed what we call CO boilers, where you actually take the exhaust out of a boiler which has a high carbon monoxide content, and you can feed it back into a boiler and you can burn it as a real low-grade fuel. You can burn it to CO₂, carbon dioxide. So you are recovering the heat content of the exhaust gases in terms of the fuel content. The heat content itself is used for preheating boiler water. We take the hot stack gas and use it as a source of heat. So we are doing all those kinds of things.

The CHAIRMAN. I further understand that in your office buildings at one time you were operating on the theory—and I say this because

there is an executive of your company who lives in the Watergate complex, with whom I have visited on occasion—that when energy was very cheap, you were proceeding on the theory that with neon tubes, the tubes would last longer if you just leave them burn all of the time, that it did not pay to turn the lights off at night. You would have a few central switches in these office buildings. And you have changed all of that to where, because energy is expensive, you turn those lights off.

Is that correct or not?

Mr. SLICK. One of my responsibilities is for that piece of our house-keeping. We have gone through the building and conducted illumination surveys to find out how much light you need to work. We found out, like most people, we were way overlighting the building. In most of the corridors we have taken out a half to two-thirds of the light bulbs. We actually gone in and taken them out. We have reduced the amount of lighting in the office spaces themselves. We have changed the way you have things like drapes to keep the sun from coming in when it is hot and the cold from coming in when it is cold. All those things have been done, and they are very effective.

The CHAIRMAN. Do you think you will achieve this 15-percent savings in the use of energy in your operation? That is, I assume if you have a bigger operation that—

Mr. SLICK. Yes, sir. I think we will probably exceed that over the long pull. But I think there is no question that we will hit the 15-percent level. That is pretty much assured.

The CHAIRMAN. Well, here is the point I had in mind. A Senator from New England testified yesterday that New England has reduced the use of fuel oil by 20 percent up there, I take it largely because the price went up. Exxon, the largest energy producer, is reducing its consumption of energy by 15 percent.

Now, if everybody in the country would do the same thing, there would not be any energy crisis. But so far, we have succeeded in preventing that from happening. If the price had gone up, I would think that people in Louisiana would probably achieve the same savings that New England has achieved. But, no, sir, we have managed to keep the price down and have done nothing to put pressure on the consumer or to try to prevail upon him to change his wasteful habits with regard to energy. So we have made practically no savings in energy in Louisiana, other than, maybe, what you are doing in that Exxon refinery at Baton Rouge.

Mr. SLICK. I was going to say, Senator, I would have to disagree with you, because we have saved some in our Baton Rouge refinery. But let me also—

The CHAIRMAN. Well, I gave you credit for that, though. I said, other than that, I do not know of anything that Louisiana has done to conserve energy.

Mr. SLICK. Let me also point out, though, Senator, that, while I am convinced that conservation is essential, and I think we need to do more of it and create the atmosphere and the circumstances that will bring it about, I do not believe that as a Nation we can save our way out of this problem. At the present time, the United States is importing 37 percent to 40 percent of its oil requirements, depending upon which

month you happen to look at it. There is no way we can reduce oil consumption by that amount just through the savings approach. Even if we could, we would not be catching up with the decline in the domestic production that has been under way.

I think it is essential that we work both sides of the equation, both the demand side and the supply side; that we do what we can in the conservation field and the savings field, but that we get on with the very serious and important job of expanding energy resources in this country and developing our indigenous supplies of all forms of energy, not just oil and gas but all of our indigenous energy supply.

The CHAIRMAN. I could not agree with you more, but I am very dismayed that up until now we have failed to pass a bill that would open up the vast coal reserves to exploration in this country. We have failed to pass a bill that would encourage the drilling for the new gas. You have got people sitting on top of gas fields all over America who could drill down deeper and get more. But, we have failed to pass a bill that would give them the incentives to do that.

We have done just the opposite, if anything, and we have failed to provide the oil industry with the incentive to go out and provide the new reserves. We have failed to do anything to move our time for atomic energy from 11 down to 4½, as in Japan.

Somebody has got to be blamed. If it is not the President, it is us. And, as much as one might point the finger of scorn at the other, we have failed to get together here, and expand our coal production as we should be doing, expand atomic energy as we should be doing, expanding gas production as we should be doing, and also provide adequate incentives for people to save. So, on the whole, I would think that the public is going to get pretty dissatisfied after a while of the failures of the Congress and the President one way or the other to provide them with some leadership out of this mess. I could not agree more that the answer has to be not only conservation, it has to be production, and it has to be coal as well as oil and gas and atomic.

I take it that is pretty much what your view is, too?

Mr. SLICK. Yes, sir.

Senator, if I might comment, sir.

The CHAIRMAN. Yes?

Mr. SLICK. I share your impatience at times with Congress and with the administration, and I think you perhaps are a little bit overly self-critical. I think in the long pull I am convinced of the efficacy of this body, and I think you all will see the light sooner or later.

The CHAIRMAN. I live in hope. I am an optimist. But I must express, at this point we are going the wrong way. So far all we have managed to do is to raise the taxes on the industry. So far that is all we have managed to accomplish.

Mr. SLICK. The recent track record is not very good, Senator.

The CHAIRMAN. We are making great headway in the wrong direction, that is all I can say.

Senator FANNIN?

Senator FANNIN. Thank you, Mr. Chairman.

Mr. Slick, I regret I did not have the opportunity of being here to hear your testimony. We presently are discussing in the Interior Committee a bill pertaining to coal and what we can do in that regard. I understand that your company is quite involved in some of the coal

gasification programs, and that the reports are encouraging, even though we still do not have any substantial amount of product being produced. In fact, there is no commercial product being produced as far as I know in coal gasification plants.

But, the economics of it, I understand, are more encouraging now because of the complete cycle. That is, not only the gas will be produced, but byproducts also are very much involved in the petroleum industry.

Do you have any report from your company as far as the economics of this are and what is expected as far as coal gasification and the utilization of end products from coal?

Mr. SLICK. Senator, we are involved in coal gasification research. I would make a few simple comments. We can get you some additional data if you desire. I merely observe that we think synthetics from coal have an important place to play in the future energy spectrum.

As I point out in my statement, we think that between now and 1985, there may be some 10 coal gasification plants built that would produce about 250 million cubic feet a day. That translates into about 40,000 or 50,000 barrels a day of oil equivalent, which by any standard compared to a typical refinery in this country, is not a great amount coming out of any one plant. Our best estimate is that a plant to do that is likely going to run somewhere close to \$1 billion, and that the cost in oil equivalent terms of synthetic gas is going to run in the \$14 to \$18 a barrel range.

I make those points only to illustrate that the capital requirements to get the synthetic industry going in this country are going to be tremendous.

Senator FANNIN. Well, why I ask that question, I am wondering what legislation is needed now? We have talked about what could be done to encourage industries to go forward. I know of one particular company that I have had the opportunity to talk to over the last few years. Even as long as 2 or 3 years ago, they had a prepared project that was going to cost \$650 million. I discussed that same project with them in the last 2 or 3 months, and it is up now to \$850 million. Their problem is not the financing of the project as much as it is a guarantee as to what would result if they go forward with this program. The economics do not work out as anticipated.

So, they are requesting consideration of a Government subsidy that would not go into effect unless the economics do not work out. We have seen this type of request before. For instance, in World War II, we did it on synthetic rubber. We did it even in copper where the guaranteed price was given in the copper industry, and large projects were developed. I know one in my own State of Arizona, a \$90 million project. Of course, \$90 million in those days is like \$900 million today. But this project was a copper mining operation and it never cost the Federal Government a dime. In other words, the price had been at the level where they could sell the copper without having a subsidy involved.

Do you feel that legislation of that type is needed, and if it is needed, would you have any suggestion as to how it could be handled?

Mr. SLICK. Senator, I think the first thing that is needed is a substantial clearing of the air in both the legislative and regulatory sense to where there is some clear indication of where we are heading. It

is difficult for businessmen to look at ventures requiring this much capital, and ask themselves the imponderables about what the legislative attitude is going to be about prices and about the market mechanism in the face of what is going on in price controls at the present time.

Secondly, in the regulatory area, there is a great deal of uncertainty, as I understand it, as to the relationship between synthetic natural gas and conventional natural gas and where it is going to fit in a regulatory picture vis-a-vis the Federal Power Commission. Where does the Power Commission take hold, where does it not? I think that synthetic gas, if allowed to roll in, if you will, with conventional gas can work its way in the marketplace. But there are so many uncertainties at the present time that people have some reservations about it, and there is an area of environmental uncertainty because the coal has to be produced before you can synthesize it into gas; and, at the present time in the West there is a big cloud over when we are going on with developing western coal.

Senator FANNIN. Well, I think you brought out some of the very serious factors, and of course, when you discuss regulatory agencies, we also have that involved in LNG, liquified natural gas. Which has presented a problem that has not been resolved as far as I know.

Is that true?

Mr. SLICK. That is my understanding, Senator. I do think, though, that we are dealing with a substantially different problem in terms of the contribution they will ultimately make to the energy spectrum. I think synthetic coal, I think you would agree, has a much larger potential than liquified natural gas.

Senator FANNIN. I agree. That location of it, and there are so many factors involved. But what was first discouraging to me was the report that about 55 percent of the Btu in the coal would be lost if they went from coal to the gasification, and then I was told more recently that if you take into consideration all of the elements involved with the recoveries of the byproducts from the coal, that it would bring it up to as high as 71 percent.

Of course, that is a very high factor, and I was very encouraged by it. But I do feel that we need to do a great deal in this field, and we certainly are delaying the programing by not taking action in Congress to see that these projects go forward.

I thank you very much.

My time has expired.

The CHAIRMAN. Senator Talmadge?

Senator TALMADGE. Thank you very much, Mr. Chairman.

Mr. Slick, my apologies for being late. I just arrived. I had to preside in an executive session of the Agriculture and Forestry Committee. I did not have an opportunity to hear your entire testimony. I have hurriedly read your prepared statement. There are many things therein with which I heartily agree.

Apparently Senator Fannin was asking about some of the things that I had on my mind. The one abundant natural energy source that we have in this country is coal. It has been estimated that we have, I believe 600 to 800 years' supply of coal. Is that about correct?

Mr. SLICK. Senator, the number is about that order of magnitude or larger. It is so big it sometimes staggers the imagination, but it is tremendous in terms of years of supply.

Senator TALMADGE. What are the oil companies doing to try to convert that resource to natural gas or to petroleum, or something along that line?

Mr. SLICK. Well, there is a close relationship between the technology, the type of technology that is involved in processing coal into synthetic gas or synthetic liquids, and the operation and processing of liquid hydrocarbons into a different form of liquid hydrocarbons. So, it is a natural area for petroleum research firms to get into. Oil companies are expending significant sums of money in both coal gasification and coal liquefaction. They are not the only ones engaged in those activities. There are other firms that have nothing to do with the oil industry that are looking at coal gasification.

There is a known process for gasification of coal into pipeline quality gas. Research is being done to try to find one that is more economic, because it is a very expensive process. There are processes that are at the point where prototype units can be and are being built and tested. There is a major question of how you are going to finance and develop a demonstration plant, a commercial-sized plant, even a small commercial-sized plant; to demonstrate whether or not it is a viable commercial operation requires a tremendous investment.

As I was commenting to Senator Fannin, there are an awful lot of uncertainties on the horizon of the probability of getting this into a viable economic situation over a reasonable timeframe. They are such that there is some reluctance to go forward without getting some of these questions clarified.

Now, there are some research programs through ERDA with which I am sure you are familiar that I think will probably stimulate some of this and move it along.

Senator TALMADGE. As you know, the Germans liquidified coal and gasified coal during World War II very effectively; but then, cost was no object. I understand South Africa has had a plant that has been operational for many years. One of the ministers from South Africa was in my office several weeks ago, and he told me they were presently engaged in vastly increasing that capacity. I believe there is also a similar plant that is operating in Scotland in the British Isles. Do you know what the cost comparison is between gasifying coal now as related to other competitive market factors?

For instance, to create petroleum out of coal, what would it cost vis-a-vis importing petroleum from OPEC at about \$13 a barrel?

Mr. SLICK. Our data indicate it would still be more expensive than that at the present, in 1975 dollars. Setting aside what might happen with inflation, but in current dollars our best estimates are that synthetic gas from coal is going to run in the \$14 to \$18 a barrel equivalent range. So, it is somewhat just a little above what OPEC prices for oil are.

Senator TALMADGE. Is that petroleum or gas you are talking about?

Mr. SLICK. That is gas.

Senator TALMADGE. What about petroleum?

Mr. SLICK. Liquid would be more expensive than gas. The technology for coal liquefaction is a little behind the technology and state of de-

velopment for coal gasification, and our numbers for coal liquefaction might run from \$16 to \$24, something in that order of magnitude. That is, I admit, a pretty big range, but it bespeaks some of the uncertainties in the technology.

Senator TALMADGE. Is there not at least one utility in the Chicago area?

The CHAIRMAN. Might I ask, just to get this straight, in terms of per thousand Btu's, what would that coal gasification price be? Can you give us that?

Mr. SLICK. Between \$2 and \$3.

The CHAIRMAN. Per thousand cubic feet?

Mr. SLICK. Between \$2 and \$3.

Senator TALMADGE. If the Chair would yield at this point.

How does that compare with imported gas from, say, Algeria?

Mr. SLICK. It is in the same ball park. Imported LNG is awfully expensive. I cannot give you a specific number, Senator.

Senator TALMADGE. My recollection is something on the order of \$3.

Mr. SLICK. It is substantially higher than any gas is selling for in the United States today.

Senator TALMADGE. And that is about the cost it was anticipated when we had this deal going with the Soviets, was it not?

Mr. SLICK. Senator, you are straining my memory. It is in that order of magnitude. We have had some experience with LNG in Africa going into south Europe, and it is an extremely expensive process.

Senator TALMADGE. So, your conclusion then is that we presently have the technology to gasify coal in this country at a comparative price to what it would cost us to import it from foreign countries; to wit, Algeria.

Mr. SLICK. Yes, sir.

Senator TALMADGE. Is there not at least one utility in the Chicago area now that is gasifying coal?

Mr. SLICK. Senator, there is a utility in the Chicago area that is using a combined cycle-type technology with which I am familiar.

Senator TALMADGE. They are mixing it, are they not?

Mr. SLICK. Well, you burn part of it, then you put it in the turbine, and you in effect get gas out of coal. Yes, sir, they are not using a high Btu gas. They are not using gas which you can put into a home. As we are both well aware, it is kin to the old coal gas that we used in some parts—

Senator TALMADGE. It was used years ago.

Mr. SLICK. Used years ago. In my hometown, we manufactured gas out of coal, low Btu gas.

Senator TALMADGE. What is the comparative cost of that?

Mr. SLICK. When you start dealing with that, you suddenly have to go through another cost threshold, because it is not only the cost of getting gas, but you cannot burn it in a usual home, so you have to go through a whole change in the distribution system. You have to keep it segregated. And that, at the consumer end, would be extremely expensive.

Senator TALMADGE. Thank you, Mr. Slick. My time has expired.

The CHAIRMAN. Senator Dole.

Senator DOLE. I believe Senator Hansen was ahead of me.

The **CHAIRMAN**. According to this list, you got here at the same time. Senator **HANSEN**. He jumped ahead of me as we came through the door.

Senator **DOLE**. Well, in any event, I had the same problem Senator Talmadge did. I was at the same Ag meeting, an executive session, and had the chance only to scan very quickly the testimony of Mr. Slick. I would guess that the questions I have already been propounded. Rather than take the time of the committee, since there are four additional witnesses, I will submit the questions in writing in the event they have not been asked. It is in reference to windfall profits, plowback, and things of that kind that I am certain you have touched on. Is that right?

Mr. **SLICK**. Yes, sir.

Senator **DOLE**. I know your position from reading the statement. Mr. Chairman, I will submit the questions to the witness. If he has not responded, then he can do it in writing, and it will save time.

Mr. **SLICK**. I will be pleased to do so.

[The questions and answers referred to follows:]

Question. If we were able to reduce our imports by 2 MMB/D, would the industry be able to increase domestic production to cover this short fall?

Answer. The nation's ability to balance supply and demand to eliminate 2 MMB/D of imports without damage to the economy depends on a number of factors. First, it is important to recognize that the most effective way to reduce imports is to simultaneously encourage increased development of domestic resources and energy conservation. This can best be achieved by decontrol of domestic oil prices.

A second critical factor is timing. The U.S. has a substantial oil and gas resource base, however, the rate at which these resources can be developed is dependent on many factors, such as federal leasing policies and availability of adequate capital in the private sector. Even if these were not constraints, lead times of several years are required to discover, define, and bring new reserves on-stream. These lead times are even greater in remote frontier areas where a substantial portion of the nation's future reserves are expected to be found. Similarly, lead times of several years will be required to achieve appreciable improvements in energy use efficiency.

U.S. reserves of oil and gas peaked a decade ago and production has been declining for several years, resulting in growing dependence on imports. A substantial effort will be required just to maintain current projection levels. The nation's key initial goal must be to reverse this trend. Only then can we hope to achieve actual reductions in imports.

Exxon U.S.A. analysis indicates that the U.S. can reverse the import trend within the next decade. This can be accomplished through government policies which permit market prices for U.S. oil and gas production, provide access to federally owned resources, and encourage energy conservation. These policies can achieve a reduction of up to one-third in currently projected 1985 import levels, although it is unlikely that future imports can be reduced below today's levels.

Question. How much capital would have to be invested to create this new capacity? How much more than is generated currently does the industry need?

Answer. If an additional 2 MMB/D of domestic production is to be achieved, it will be necessary to discover 7-10 billion barrels of new reserves. Reserves of this magnitude are most likely to occur in high potential frontier areas, such as the Arctic or the OCS where finding and development costs will be very high. However, the key problem is the overall petroleum industry capital requirements over the next decade, and the ability of the private sector to finance these expenditures.

During the decade 1963-72, U.S. petroleum industry capital expenditures averaged \$8.1 billion/year. During this period, industry profitability (as measured by return on stockholders' equity) was equal to or less than the average for all manufacturing. Also, industry debt/equity ratios doubled (from about 15-30% during this time, indicating that insufficient capital was being generated internally to meet expenditure needs.

Most knowledgeable observers project domestic petroleum industry capital expenditure levels of \$20-\$30 billion per year (1974 \$) over the next decade, or an increase of 100-200%. More important, even these increased expenditures cannot eliminate the need for substantial import levels in the future.

The critical issue is the ability of the private sector to finance these sharply higher expenditures. They must be financed from earnings from current production, much of which is controlled at less than half of market price. These current earnings are not adequate to generate the necessary capital. Further, the uncertainties created by various proposals to extend controls and roll back prices, inhibit industry's ability to obtain increased debt or equity financing.

Question. How long would it take to bring this oil onstream?

Answer. New production of 2MMB/D would require the discovery and development of 7-10 billion barrels of new reserves. Reserves of this magnitude are most likely to be found in the unexplored, but high potential frontier areas such as the off-shore and the Arctic. Also, it is most likely that they would occur in a number of separate fields, rather than one or two large fields. If these reserves were discovered in an area such as the Atlantic or Gulf of Mexico, about three to four years would be required from discovery to initial production, and 8-10 years from discovery to peak or full production. If the reserves occurred in more remote areas, these lead times would be increased several years.

Also, it is important to note that these lead times are measured from initial discovery which cannot occur until federal lease sales are held and various permit requirements and environmental procedures are complied with.

Question. If there was an excess profits tax with a plowback provision to go along with a decontrol measure, would the industry be able to invest the excess profits meaningfully in order to escape the tax?

Answer. A careful analysis will clearly show that no "windfall" or excess profits result from decontrol because the resulting higher realizations must be reinvested in the search for new energy supplies. However, if such a tax is deemed necessary to achieve decontrol, it must be carefully structured so as not to be counter productive to the industry's capital formation needs. The adverse impacts of such a tax can be minimized by a broad based plowback provision. Also, the tax should be applied only to production which is decontrolled simultaneously with enactment of the tax. It should be phased out over a reasonable period of time (3-5 years), and recognize the impacts of inflation and loss of percentage depletion in establishing the tax base.

Currently, 60% of domestic production, or about 5.4 MMB/D is controlled at a price of about \$5.25 per barrel. If, in the event of decontrol, this were permitted to rise to the current price of new domestic oil (about \$11.50/Bbl), the petroleum industry's annual gross before tax revenue would be increased by about \$12 billion per year. However, about 7% of this revenue would be paid to state governments in the form of higher severance taxes, and 13% would go to royalty owners. This would leave the petroleum industry with a net increase in before tax revenue of \$9.6 billion, 50% of which would go to the Federal Treasury in the form of higher income tax payments. Thus, the industry would gain less than \$5 billion in earnings. When this is compared to 1974 domestic capital expenditures of \$13-\$15 billion, and projected future requirements of \$20-\$30 billion per year, it is clear that the petroleum industry can spend the increased income from decontrol meaningfully.

Question. Are there plans now that go begging for lack of capital?

Answer. The experience of Exxon U.S.A. is not necessarily typical, but it does illustrate the problem. Last year, Exxon's capital spending exceeded earnings. This year with no assurance of earnings growth, capital expenditures will almost double. Still, we are foregoing attractive opportunities for lack of capital. This 1975 tax bill, which cost us about \$200 million, has been a contributing factor. Judging from the numerous announcements of cutbacks in capital spending plans by other companies, it is apparent that our experience is not unique.

Question. Could the industry and its suppliers cope with a large increase in demand?

Answer. If this question is intended to address a large increase in domestic petroleum demand, Exxon U.S.A. believes such an increase in the short term is highly unlikely. The relationship between energy and economic growth is well known and we believe that continued energy growth is vital to long term economic growth. However, because of increased energy use efficiency, we expect energy demand to grow at a slower rate than in the past. No difficulties are

anticipated in coping with this growth—provided adequate supplies of domestic or imported oil and gas are available.

If the question is intended to address the ability of the U.S. petroleum industry and its suppliers to increase activity levels, recent Exxon U.S.A. experience indicates that many of the critical material constraints of last year have disappeared. Oil country tubular goods are now in ample supply, except for some specialty items. Utilization of land drilling rigs continues at high level, however, with new construction, supply now exceeds demand and continued growth in the rig population is expected. Mobile offshore rigs are available, but still in tight supply. These conditions, coupled with the fact that the entire U.S. capital goods sector is operating well below capacity, indicates that increased activity levels would be possible. The most effective way to insure continued expansion of the oilfield equipment and supply industry, is through decontrol of domestic oil and gas prices—thus, providing a clear market signal that the nation plans to accelerate the development of domestic oil and gas resources.

Question. How much capital, on the average, has the industry invested in the last five years to increase domestic production? What is the usual source of this capital? Is it still available?

Answer. During the 5 year period 1969-73, according to Chase Manhattan, the U.S. petroleum industry capital expenditures averaged \$9.4 billion per year. Of this amount, \$6.7 billion/year (66%), was spent for the exploration and development of oil and gas reserves, \$1.5 billion/year (16%) was spent on refineries and transportation of the crude end products, and \$1.7 billion/year (18%) on marketing and chemicals. During this period, about 80%¹ of the cash gain was generated internally by means of earnings and capital recovery allowances, and about 20% from outside borrowing.

Although these traditional sources of capital are still available, they do not appear adequate to meet the industry's future capital needs. As a result of price controls which maintain a substantial portion of domestic oil and gas production at less than half of market price, current earnings are not adequate to generate the industry's higher capital needs. Furthermore, current depreciation provisions, based on historical costs, have proven inadequate to generate funds for replacement of equipment in an inflationary environment. Finally, industry reliance on outside capital has increased sharply over the past decade as indicated by a doubling of debt/equity ratios. Because of the relatively high risks inherent in oil and gas exploration and production as well as the technically complex, long lead time projects facing the industry in frontier areas, it is doubtful if the debt/equity ratios and use of outside capital can be increased substantially.

Question. How much oil reserve is recoverable only by secondary or tertiary methods? How fast could this oil be brought onstream if there was enough money to make it economically feasible?

Answer. A large portion of domestic reserves which are suitable for secondary recovery operations are already operating under some form of water flood or pressure maintenance project.

There is wide agreement that U.S. reserves which can be recovered by tertiary methods are potentially large. In 1973, the AEC contracted Gulf Universities Research Consortium (GURC) to assess the potential for tertiary recovery. This extensive study concluded that potential ultimate recovery by tertiary methods in the range of 30-60 billion barrels (current U.S. proved reserves at year-end 1974 are about 35 billion barrels).

Tertiary recovery can be very important in extending the life of U.S. reserves and increasing ultimate oil recovery, but the impact on daily production, especially in the short term, is likely to be small for a number of reasons. First, the technology for applying tertiary recovery in a substantial portion of U.S. reservoirs does not now exist. Second, the tertiary process, where applied, is not characterized by sharp and dramatic production increases. For example, GURC estimated that tertiary production in 1985 might vary from an "almost assured" level of 274,000 barrels per day, to a "realistic estimate" of 1.2 million barrels per day, with higher levels considered possible.

The CHAIRMAN. Senator Hansen.

Senator TALMADGE. Would the Senator yield that I might also submit a question?

¹ Based on the Chase Group of 30.

I would ask you to prepare remarks for the record, please, Mr. Slick, about the future possibilities of the development of our shale rock also.

Mr. SLICK. All right, Senator. We have not been extremely active in that area, but we will be glad to give you our view.*

Senator TALMADGE. Thank you, sir.

Thank you, Senator Hansen.

Senator HANSEN. Thank you, Mr. Chairman.

Mr. Slick, I too am sorry I was not here to hear your statement when you gave it orally. I have been at an Interior Committee meeting where we were marking up a bill to revise the mineral leasing laws in the United States, and to the State that I represent, that is of no little concern to me. I gather that among the various statements you make, and I think you state the case very well for the oil industry, and indeed, I believe for America. I observed you a few weeks ago on TV, and I just hope that you might do that another time.

Mr. SLICK. Thank you, sir.

Senator HANSEN. You did very well.

One of the faults you find with this bill is that it imposes restrictions on imports which would have the effect, as I gather in scanning your testimony, that that would, by the imposition of the self-imposed embargo, make even less energy available. We are an energy-intensive Nation, as you know far better than I, and I just give one statistic. In agriculture, I think, for each man-hour of work that is put in on a farm or ranch in America, we burn 1.2 gallons of fuel. The production of our farms and ranches in this Nation is truly the amazement of the rest of the world, and one of the reasons, I think maybe one of the major reasons we are able to do the job we do is because we have machines and we have fuel to power those machines. As a consequence, at the disposal of every farmowner is a very great amount of horsepower which makes his farm far more productive than would otherwise be the case. This excise tax, which you criticized, I understand that the way that this bill is written, the House bill is written, the excise tax applies to oil and gas only when they are used as fuels. Is that right?

Mr. SLICK. That is my understanding, Senator.

Senator HANSEN. What inducement or what encouragement or what sort of a stick do you think should be applied in order to hasten the conversion of, say, powerplants from burning natural gas or oil, to coal? Or do you think any further incentive is needed?

Mr. SLICK. I think the most effective incentive, of course, is to get energy back into a market mechanism, if you will, and let the market force it. But I have to hasten to add that within the near term, at least, there are a couple of other very serious inhibiting factors of coal conversion, setting aside the mechanical problems on the utility level, and that is being about to develop the coal of the quality consistent with the environmental laws of this Nation. For example, as you know better than I, Senator, there is at the present time an injunction imposed against the development of coal in a five-State area—including your State—Montana, Wyoming, North and South Dakota, and some parts of Nebraska, until a decision is made about a regional environmental impact statement.

*See p. 999.

I think as a nation we need to examine the question of what do we have to do to get the environment right and what do we have to do to keep people from using the environment as an excuse to slow down some of the other things that we need to do in this Nation, because I think there is a balance point between the environmental needs, the economic needs and the energy needs of this country, and unless we find that balance point, we are going to get a biased answer to the problem. And so there is some clearing of the way that needs to be done.

Senator HANSEN. Congressman McCormack of Washington was testifying some couple or 3 months ago, and he made the statement—and I am just paraphrasing what he said—that if this Nation were to adopt a no-growth energy policy—and for those who know Congressman McCormack, I am certain I need not try to embellish his environmental concerns or his philosophical point of view; I have my own assessment of that—but he made the statement that if this Nation were to opt for that kind of a policy, it would visit upon this country a greater catastrophe than would have resulted if we had lost World War II. And then he went on to point out that most of the jobs that we have are energy dependent; that the opportunities for people out of work, the unemployed, relate directly to the availability of energy. That minority groups would be among the first to suffer if we had to cut back on energy, because obviously, if plants had to work only part-time or if we had to try to determine which plants were to operate and which were not, obviously with people unemployed there would be a thrust to keep the more productive workers employed. Obviously, that makes very good sense, and I was quite struck with his observation.

I would ask you, do you think that, without knowing precisely what he said and having only possibly heard about his statement through what I have just now said, do you think that a cutback in the available amount of energy we have would indeed react severely upon job seekers and exacerbate the problems that we have been trying to address this past several months?

Mr. SLICK. Senator, I would say unquestionably that is the case. There is an attachment in my statement that indicates that if we arbitrarily decide to cut energy consumption in this country by 2.5 million barrels a day, round numbers, by 1979, as would be done by this bill against our judgment of what is necessary, we would foist on this country a reduction of GNP of over 8 percent. Contrast that against the fact that we are now in the throes of what some people call a depression or a recession, with about 3.5 percent reduction in GNP; 8 percent by 1979—a reduction of over 2 million jobs.

I do not know where that kind of a scenario leads us, but it is certainly a horror story by any means.

Senator HANSEN. Thank you, Mr. Chairman. My time is up.

The CHAIRMAN. Mr. Slick, I would like to introduce you to this Nation's No. 1 environmentalist, Senator Gaylord Nelson.

Senator NELSON. I trust that is intended as a compliment.

I did not hear the latter part of your statement. If you reduced oil or energy consumption by what percentage?

Mr. SLICK. Compared to our assessments of what will be necessary, the bill we are talking about would reduce energy consumption—would reduce oil imports, in 1979, by 2.4 million barrels a day. We looked at what would happen to the economy under those circum-

stances, and it indicated that there would be a reduction in GNP of 8.6 percent.

Senator NELSON. That would be a total of what?

Mr. SLICK. A 2.4 million barrel-a-day reduction in 1979, against our assessment of what is necessary, would result in a reduction in GNP of some 8.6 percent, and a reduction in employment of about 2 million.

Senator NELSON. Why would it mean that, if you did it by energy conservation programs?

Mr. SLICK. We analyzed taking energy out of the economy arbitrarily over this period of time in a way that would be the least disruptive to the economy, and it is very easy to say we will do it by conservation, but the question becomes conserving of what. If you look at doing this over an extended period of time through more efficient use of energy, then you can undoubtedly reduce energy consumption through an efficiency move, but when you do it by arbitrarily cutting off in the short term, without allowing for adjustment in the system, then what you end up doing is cutting out productive activity and you end up cutting out jobs, you end up cutting out output from the economy.

The simple example I like to use is that the place everybody wants to turn immediately to reduce the use of oil is to the automobile. And I might agree with that, but of the total energy consumption, oil consumption, in this country, some 17-plus million barrels a day, and only 6.5 of it that is gasoline, and when you boil that down to how much of it is personal use of the automobile that might be changed, you find out there is no way you can get 2.5 million barrels out of it. And even if you do, it is not with impunity to the rest of the economy, because if you tell the average citizen who has been driving 10,000 miles a year that by one device or another I am only going to let you drive 5,000 miles a year next year, he obviously is going to change his judgments on what he is going to do about buying automobiles, what he is going to do about buying tires, and you begin to get a ripple effect through the economy. So, it is not just as simple as saying, well, we will car pool everybody and cut the consumption of gasoline a great deal. When you do that, you are going to cut the manufacturing of automobiles, steel, glass, tires, plastic fibers that go into the upholstery in the car. The whole economy suddenly gets involved in the process.

Senator NELSON. Well, we live in an economy of waste. Waste is the most conspicuous thing this country does with all of its resources. And I just do not accept the argument you make. There is not any doubt in the world we could double the gasoline mileage of the automobile fleet in this country with current technology. All you have got to do is make a lighter, smaller car. Now, people will not like that. The auto industry was here saying, oh, we have got to leave people the freedom of choice to buy anything they please. What nobody seems to recognize who comes before any committee I listen to, either when I was on Interior or here, is that we are in a disaster in this country. It is here. It is not a crisis, it is a disaster. We are either going to rationally make some decisions, some hard decisions, particularly about energy consumption and waste, or they will be

made for use in an irrational way. That is all there is to it. And it will be imposed upon us.

Now, the auto industry says, oh, we cannot do that. The fact of the matter is that the automobile is here that will do 28 miles to the gallon. It will get you all over. I talked to a friend of mine, not long ago who had recently returned from living for 6 years in England and I said, what was the most dramatic thing you noticed when you came back to this country? And he said, the monstrous size of the automobile. He said it is unbelievable. He said, all day long in London, you are looking at all these small cars moving millions of people. Suddenly you land in New York and the monstrous size of the automobile was the most noticeable thing to me when I came back.

Now, you would save 3 million barrels a day if you just doubled the average miles per gallon of the automobile. And the whole thing is there. Now, of course, people would be limited in their choices. They are going to be a damn sight more limited in their choices unless we do something about it.

So, I think we ought to start thinking in terms of the disaster we are in. The Freeman study indicates that the United States unnecessarily, he concludes, unnecessarily wastes more energy than the third largest power on Earth uses. We waste more than Japan uses. So it is going to have to come to a halt. You make the argument if you start to conserve energy and stop wasting it costs somebody some jobs. Well, they will do something else that is productive. I do not think the country wants to survive on the basis of creating jobs through waste, and I do not think you would defend that, I do not think anybody can defend that. This idea that we cannot do something substantial in a rational way about utilization of our energy and cutting its wastage—if that is the conclusion of the leadership in this country and the leadership in industry, then we have no way to win, we are licked; the whole economy is going to go down. There is no question about it.

Mr. SLICK. May I comment, Senator?

Senator NELSON. Yes.

Mr. SLICK. I do not propose that we do nothing about conservation. To the contrary, I think it is essential. You made the comment if we do something in a rational way, and I agree with you, Senator, but I think the key element is it must be done in a rational way. And to arbitrarily cut off the consumption of energy, rather than let the system evolve to where we can use it more efficiently, I submit, sir, is irrational. Now, I am not suggesting that the technology is not here today to make a 25 mile a gallon automobile; it obviously is. But we have almost 100 million automobiles in this country, and to turn that fleet over into a more efficient automobile is going to take time.

We have put together an assessment of the energy outlook of this country. In 1974, about 25 percent of the automobiles purchased in this country were the equivalent in weight and in energy efficiency of a Pinto or a Volkswagen; but the fleet average on the road in 1974 is 12.5 miles to the gallon. Our assessment shows that by 1990, 50 percent of the automobiles purchased in that year should be of the order and magnitude of a Volkswagen or a Pinto, in terms of weight and energy efficiency. And those automobiles ought to have miles per gallon characteristics of over 20. And by that time, the total fleet will be well

over 16. Where, exactly, I do not know, but it takes a period of time to do that.

Now, the important thing is that if you look at the people who live in America today who have already been born, and make some judgments about how much this country needs to grow, even improving the efficiency of the automobile that much, you are going to have to have more cars in that period of time, you are going to have to have more energy in that period of time, and this is a long-term, time consuming process.

The thing that creates havoc with the economy is to try to change things overnight. We did not get to where we are overnight, and I submit, Senator, we are not going to get out of what we are in overnight. We have got to start getting out.

Senator NELSON. I have heard no one, no one, suggest we are going to do anything overnight. I have not suggested it and no one else has suggested it. I am not arguing the question of the import quotas, one way or another. That is a different matter. Just the question of what we attempt to do in this country——

Mr. SLICK. That was the issue, sir, to which I was addressing myself when I said that this bill, by our judgment, will have that impact on the economy.

Senator NELSON. I thought you were saying, and I think you were, that you could not think of any way you could cut consumption——

Mr. SLICK. Oh, no, sir.

Senator NELSON [continuing]. Of oil by 2.5 million barrels without disrupting the economy.

Mr. SLICK. No; I said it would hurt the economy if you cut consumption the way this bill would do it.

Senator NELSON. Oh; all right.

The CHAIRMAN. Senator, you may go right ahead.

Senator NELSON. I am sorry; I have to appear before the Government Operations Committee. I will reserve my speech for later.

The CHAIRMAN. Thank you very much.

Senator NELSON. Thank you.

Mr. SLICK. Thank you, Senator.

The CHAIRMAN. May I say this to our good friend Senator Nelson, that as much as I may differ with him, if you talk about it long enough, we tend to arrive at the same point eventually. We tend to agree. So that is one good thing I would say about the members of this committee. They are, without exception, they are all subject to reason if you present to them facts to contradict an erroneous assumption.

Thank you very much, Mr. Slick. I appreciate the very fine presentation that you gave.

Mr. SLICK. Thank you, Senator.

[The prepared statement of Mr. Slick follows:]

STATEMENT BY WILLIAM T. SLICK, JR., SENIOR VICE PRESIDENT, EXXON CO., U.S.A., IN BEHALF OF THE AMERICAN PETROLEUM INSTITUTE, MID-CONTINENT OIL AND GAS ASSOCIATION, ROCKY MOUNTAIN OIL AND GAS ASSOCIATION, WESTERN OIL AND GAS ASSOCIATION

I am W. T. Slick, Jr., Senior Vice President of Exxon Company, USA, a division of Exxon Corporation. I am pleased to have this opportunity to appear before the Committee on behalf of the American Petroleum Institute, Mid-

Continent Oil and Gas Association, Rocky Mountain Oil and Gas Association, and Western Oil and Gas Association.

The Energy Conservation & Conversion Act of 1975, has been proposed as a meaningful response to this nation's energy problems. However, in Exxon's view this bill is seriously deficient in at least two critical areas. First, its import quota provisions will in my judgment create a permanent energy shortage or self-imposed embargo which will have serious economic impacts. Second, the bill does not address the fundamental need for increased development of domestic energy resources, and in particular, the critical problems of capital formation by the domestic energy industries.

There is only one way in which the United States can achieve increased energy independence without unacceptable economic penalties. This is through a balanced energy policy which encourages more efficient use of energy as well as increased resource development. The relationship between U.S. economic and energy growth is well known. No one can reliably predict how much the BTU/GNP ratio can be reduced and still meet the legitimate aspirations of the American people for jobs and a better quality of life. In any event, even though more efficient use of energy can be achieved, the nation cannot maintain economic growth without energy growth.

A key provision of the Energy Conservation & Conversion Act of 1975 is the imposition of quotas to limit oil imports. Within two years the maximum quotas under the bill begin to fall substantially below Exxon USA projected volume of the oil imports needed to fuel an expanding U.S. economy. Unfortunately, this bill makes no provisions for increasing U.S. energy production to offset this loss. The result is a self-imposed embargo. This creates permanent rather than temporary energy shortages, and all of the ills that go with such shortages. Most important will be the substantial negative impact on the U.S. economy which could result in an 8% reduction in GNP and in the loss of up to two million jobs before 1980. This is an extraordinary price to pay for minimal improvements in national security through lowering imports by quotas. (These effects are illustrated in Attachment I.)

A second illogical feature of the bill is imposition of an excise tax on oil and gas consumed by business and industry at a time when the price of much domestic oil and gas production is controlled at less than half of market price. Such a tax is clearly inflationary and would be reflected in the cost of all goods and services. It should be considered only after oil and gas price controls have been removed, and then only if additional conservation is deemed necessary.

Real and permanent improvement in our national energy condition depends on increasing indigenous supplies. The U.S. has a large resource base of conventional energy such as oil, gas, and coal. Expedient development of these supplies can make a significant contribution not only to improving U.S. energy independence, but to creating a healthy economy. Development of these resources is dependent on a number of factors such as federal leasing policies and environmental regulations. However, the most critical factor today is the ability of the domestic energy producers in general and petroleum companies in particular to generate adequate capital to finance the very large development costs.

The capital formation problems of the petroleum industry can be illustrated by comparing historical expenditures with projected requirements. During the decade 1963-72, the domestic petroleum industry's capital expenditures according to Chase Manhattan, averaged \$8.1 Billion per year (Attachment II & III). During 1973 and 1974 expenditure levels began to increase sharply, reaching an estimated \$13-14 Billion in 1974. These increased expenditures were primarily the result of increased exploration and development activity in response to higher energy prices, as well as higher real costs due to deeper drilling and expanded offshore operations, and the rapid inflation experienced during this period, which far outstripped the general inflation in the economy.

Profitability of the petroleum industry during the ten year period (1963-72) was actually slightly less than the average for all manufacturing; return on shareholders' equity for petroleum was 11.8% vs. 12.4% for all manufacturing based on First National City Bank Data (Attachments III & IV). During this period of modest profitability the industry was able to maintain its dividend rates about constant (50-55% of net income based on the Chase Group of 30) in order to sustain its equity investors, but found it necessary to rely increasingly on borrowed funds to meet capital expenditure needs. As a result, industry debt/equity ratios (Chase Group) doubled (from 15% to 30%) between the early 1960's and the early 1970's.

Knowledgeable experts in industry, the financial community, and even government, project capital requirements for the United States petroleum and other energy industries will increase sharply over the next decade (Attachment V). These estimates range from \$20 to \$30 billion per year (constant 1974 \$) for petroleum alone, and from \$24 to over \$40 billion for all energy industries, excluding electric utilities. If electric utilities are included, these estimates double. Regardless of the exact figure, the significant factor is that all projections indicate a need for a 100-200% increase in petroleum industry investments over prior levels. It is also important to recognize that even these expenditure levels will not eliminate U.S. dependence on oil imports by 1985.

These sharply higher needs result from a number of factors. Increased levels of exploration and development activity are needed to replace the nation's declining inventory of oil and gas reserves. The bulk of this increased activity is expected to occur in much higher cost areas such as deep inshore basins, the OCS, and the Arctic. Finally, these constant dollar estimates do not consider the effect of inflation which could substantially increase the required expenditures. These capital expenditure levels can be better appreciated when they are translated into physical facility requirements (see Attachment VI). For example, these requirements include:

PHYSICAL FACILITY REQUIREMENTS 1975-85

Type	Number	Size
Oil and gas:		
Wells.....	300,000	Productive and dry.
Offshore platforms.....	850	
Refineries.....	38	150 thousand barrels per day.
Synthetics:		
Shale oil plants.....	10	50 thousand barrels per day.
Coal gas plants.....	11	250 million cubic feet per day.
Coal:		
Mines.....	145	5 million tons per year.
Unit trains.....	1,100	100 cars.
Uranium: Mines.....	35	2 million tons per year.

The critical issue is the ability of the private sector to finance such sharply higher expenditure levels. Chase Manhattan has indicated that petroleum industry returns in the 15%-20% range will be necessary to finance future capital needs. Also, in view of the sharp increases in debt equity ratios, it is clear that a very high percentage of the increase capital needs must be generated internally rather than borrowed. In this regard, much has been said about recent industry earnings. 1974 was a record year for the United States petroleum industry, and return on investment increased to about 20% (19.7%) as compared to 16% (15.5%) for all manufacturing. However, responsible observers now recognize that 1974 was *not* a typical year; record earnings levels resulted to a substantial degree from non-recurring factors such as inventory profits. Further, elimination of percentage depletion for most oil and gas production will reduce industry earnings by \$2 billion this year. First Quarter 1975 petroleum industry profits are down 25-30% from prior periods, and if this is typical of full year results, it suggests industry returns in the 14-15% range.

This leads to the conclusion that the petroleum industry will have a great deal of difficulty financing needed resource development programs unless the problems of capital formation receive immediate and constructive attention from the government. In this regard, the current system of oil price controls is a major factor in limiting capital formation. It is true that under current regulations oil from the new discoveries needed to replace existing reserves is permitted to sell at market prices and that these prices provide substantial economic incentives for many projects. However, because of the high initial costs and long lead times before production and income are realized from these projects, they must be financed by earnings from existing production, most of which is controlled at less than half the market price. These current earnings are not adequate to generate the necessary capital. Further, the uncertainties created by the regulations and various proposals to extend controls or even rollback prices inhibit industry's ability to obtain increased debt or equity financing for new projects.

Exxon USA's experience is not necessarily typical, but it illustrates the prob-

lem. Last year Exxon USA's capital spending exceeded earnings. This year, with no assurance of earnings growth, capital expenditures will almost double. Still, we are foregoing investment opportunities for lack of funds. The 1975 tax bill has been a contributing factor costing us about \$200 million (AFIT) this year.

The removal of oil price controls, and the resulting few cents per gallon higher prices, could significantly enhance industry's ability to generate the necessary capital. Much has been said about a so-called windfall profits tax. We believe this is a great misnomer. First, careful analysis will show there are no windfall profits because the resulting higher realizations must be reinvested in the development of new energy supplies. Second, the proposed taxes are in reality excise taxes bearing no relation to profits. Accordingly, we believe the so-called windfall profits tax is both unnecessary and inappropriate. Nonetheless, if such a tax is deemed necessary to achieve decontrol, it must be carefully structured so as not to be counter productive to capital formation needs. The adverse impacts of such a tax can be minimized by confining it to only production which is decontrolled, simultaneously with enactment of the tax, incorporating a broad based plowback provision, phasing out the tax over a reasonable period of time (3-5 years), and recognizing inflation and the loss of percentage depletion in establishing the tax base. The regulation of interstate gas at prices substantially below the market has the same inhibiting effect on capital formation and these controls should also be eliminated.

One final and more fundamental point needs to be made. The effects of inflation have severely damaged the capital formation ability of all U.S. industry, including petroleum. Depreciation of capital assets on the basis of historical costs has proven inadequate to generate the funds necessary to replace these assets at inflated prices. Revision and liberalization of existing depreciation provisions deserves urgent consideration by the Congress. Other proposals such as relief from double taxation of corporate earnings through a deduction for dividends paid, merit careful study as the Committee reviews the capital formation problem.

In conclusion, we oppose the Energy Conservation and Conversion Act of 1975. We are convinced that its import quota provisions are likely to be harmful to the U.S. economy. We believe that a better and more logical approach is one which simultaneously encourages resource development and energy conservation. In this regard, we believe one of the most critical issues to be dealt with by the Congress is capital formation. Of particular concern to us is the inhibiting effect of price controls and tax proposals on the ability of the domestic petroleum industry to finance the resource development programs necessary for increasing U.S. energy independence.

ATTACHMENT I

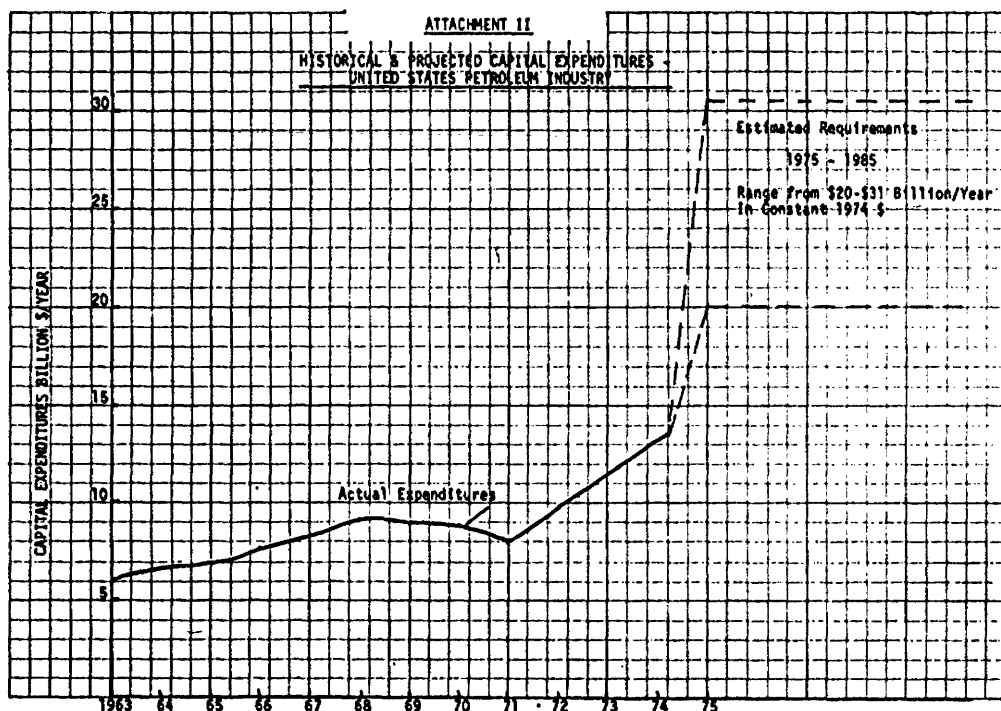
EFFECT OF ENERGY CONSERVATION AND CONVERSION ACT OF 1975 (H.R. 6860) IMPORT QUOTA PROVISIONS ON U.S. ECONOMY

[In million barrels per day]

Year	Exxon U.S. oil import projection	H.R. 6860 quotas ¹	Difference
1975.....	6.3	7.0	(0.7)
1976.....	7.2	7.0	.2
1977.....	8.5	7.5	1.0
1978.....	8.9	7.5	1.4
1979.....	9.9	7.5	2.4
1980.....	10.7	8.5	2.2

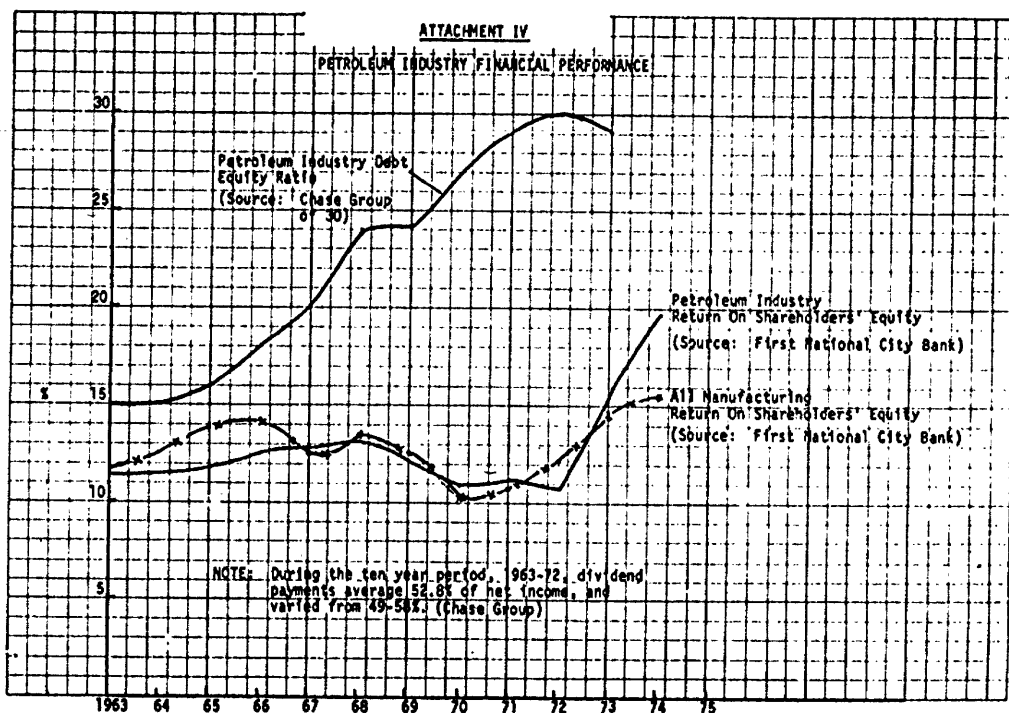
¹ Includes maximum Presidential allowance.

Year	Exxon U.S. GNP projection (bil- lion 1958 dollars)	Reduction in GNP due to import quotas (billion 1958 dollars)	GNP reduction (percent)	Potential loss of jobs (millions)
1975.....	791	0	0	.....
1976.....	832	6.4	.1	.....
1977.....	872	33.1	3.4	1.0
1978.....	913	47.4	5.2	1.5
1979.....	956	82.1	8.6	2.0
1980.....	1,001	75.9	7.6	2.0

**ATTACHMENT III****HISTORICAL DATA—PETROLEUM INDUSTRY CAPITAL EXPENDITURES AND FINANCIAL PERFORMANCE**

Year	Capital expenditures (million dollars per year) ¹	Return on net worth (shareholders' equity) ²		Dividends as a percent of income ³	Debt/equity ratios ⁴
		Petroleum	All manufacturing		
1963.....	6.1	11.5	11.6	49.0	15
1964.....	6.8	11.5	12.6	52.0	15
1965.....	7.0	11.9	13.9	52.0	16
1966.....	7.8	12.6	14.2	50.0	18
1967.....	8.3	12.9	12.6	50.0	20
1968.....	9.1	13.1	13.3	51.0	24
1969.....	8.9	12.1	12.5	56.0	24
1970.....	8.9	10.9	10.1	58.0	27
1971.....	8.0	11.2	10.8	54.0	29
1972.....	9.9	10.8	12.1	56.0	30
1963-72 (average).....	8.1	11.8	12.4	52.8	
1973.....	11.5	15.6	14.8	35.0	29
1974.....	13-14.0	19.7	15.5	(⁵)	(⁵)

¹ U.S. capital expenditures source: Chase Manhattan.² Source: FNCB.³ Source: Chase Manhattan Group of 30.⁴ Estimated.⁵ Not available.



ATTACHMENT V
CAPITAL EXPENDITURE PROJECTIONS—DOMESTIC ENERGY INDUSTRIES, 1975-85
(Billions of 1974 dollars per year)

	Petroleum industry only	Total energy excluding electric utilities	Total energy including electric utilities
FEA Project Independence, November 1974.....	1 22	25	50
First Chicago Corp., May 1975.....	21	24	49
First National City Bank, September 1974.....	31	46	84
Sun Oil Co., March 1975.....	27	NA	NA
Exxon USA, December 1974.....	20	24	46

¹ Excludes marketing and chemical expenditures.

ATTACHMENT VI
PROJECTED CAPITAL EXPENDITURE AND PHYSICAL FACILITY REQUIREMENTS, U.S. ENERGY INDUSTRIES,¹ 1975-85

	Cumulative capital required 1975-85 inclusive (billion 1974 dollars)	New facilities required
Conventional oil.....	195	300,000 wells, 850 offshore platforms, 38-150 Mbbl/d equivalent refineries, 90,000 mi of new pipelines.
Synthetics.....	16	10-50 mbbl/d equivalent shale oil plants, 11-250 MMft ³ /d equivalent coal gas plants.
Coal.....	21	145-5 MM ton/yr mines; 1,100-100-car unit trains.
Uranium mining and processing.....	12	35-2 MM ton/yr equivalent mines and enrichment facilities.
Total.....	244	

Note: Excludes petroleum marketing and chemicals and electric utilities.

The CHAIRMAN. Next, I will call Mr. C. John Miller, President of the Independent Petroleum Association of America.

Mr. Miller, we are very happy to have you with us here today. We think your association has done some very fine work, and we certainly do appreciate what you are doing to try to help solve the energy crisis.

So, we welcome your testimony—at least I know I do, and I am sure the rest of the committee agrees with that.

STATEMENT OF C. JOHN MILLER, PRESIDENT, INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

Mr. MILLER. Mr. Chairman and members of the committee, my name is C. John Miller. I am a partner in Miller Bros., an independent oil and natural gas exploration and production firm at Allegan, Mich. I appear here as president of the Independent Petroleum Association of America, a national organization of independent petroleum producers representing some 4,000 members in every producing area in the United States.

The opportunity to appear and present our views on H.R. 6860 is most appreciated. I would like to commend the efforts of the Senate Finance Committee to derive energy policies that will serve this Nation well.

H.R. 6860, as passed by the House of Representatives, will not solve our domestic energy deficiency because it deals only with conservation of our existing energy resources. Because it does nothing to encourage an increased supply of domestic energy, the long term effects would be to lock in further unnecessary increases of foreign crude oil imports.

There has been great emphasis on the opportunity and need for improved conservation. As a result, there appears to be a false assumption by many that we can conserve our way out of our energy problem. However, the most optimistic expectation is that we might—through successful energy-saving techniques—limit future growth in demand to about 2 percent per year. In general, that is the goal of H.R. 6860 and of other pending legislation. If achieved, this would be a substantial saving from the years preceding the Arab embargo when demand growth averaged above 5 percent.

I would observe that such a limit of demand is highly speculative, because the theory that we can have maximum industrial output and full employment under such constraints on energy use has yet to be tested. When recovery from the current recession occurs, substantially increased energy demands will be unavoidable. Arbitrary limits on energy use in the future, unless shifted entirely to personal and leisure activities which would be difficult, would place arbitrary limits on industrial growth and employment in America.

I would call your attention now to the chart following entitled, "U.S. Oil Supply and Demand," which compares 1985 oil consumption based on assumed demand growths of 2 percent and 5 percent. Even with conservation efforts which would successfully limit growth to 2 percent annually, the domestic demand for oil in 1985 would rise to 21 million barrels a day. Without conservation, demand would

rise to 28 million barrels daily under the assumption of 5 percent growth.

Assuming that we could achieve the lower growth rate through improved efficiencies, will this solve the energy problem? The answer is "no."

As this chart shows, domestic production of petroleum liquids has declined 1.1 million barrels daily in the 5 years 1970-1975, while our level of import dependency has almost doubled. This makes one fact clearly apparent: Even with the best conservation the decline in domestic production must be turned around and production must be increased substantially.

This chart assumes that it would be in the national interest to restore by 1985 the 1970 level of importing dependency of about 23 percent. To achieve this, even while limiting growth in demand to 2 percent per year, domestic production must be increased from the current level of 10.5 million barrels daily to 16 million barrels a day. If we assume 2 million barrels a day will be coming from the Alaskan North Slope, production in the lower 48 States and the contiguous continental shelves must be increased by 3.5 million barrels daily from current levels. Again, I emphasize this must be done even with maximum conservation efforts and in face of currently declining production.

It is vitally important that we understand the alternatives; that is, what happens if the present downtrend in domestic production continues and Congress deals only with the demand end of the equation through conservation? The next chart, entitled, "Oil Imports versus Domestic Supply," sets forth the prospective levels of import dependency under this "do no more" assumption. As can be seen, continuance of the decline in domestic production at the 1970-75 rate would reduce U.S. oil availability to 8.5 million barrels daily by 1985. This means that our Nation would be dependent on foreign oil for half its needs by 1980, and 60 percent of its requirements by 1985.

It is submitted, Mr. Chairman, that this prospective level of dependence on foreign oil as a result of failure to correct the course we are now following would be unacceptable because it is fraught with dangers that are unthinkable. The implications to our domestic economy are clear. In the absence of efforts to maximize domestic supplies, there is no way that we can come to grips with the pressing problems of inflation, recession and unemployment.

We will fail or default in the need to reverse present trends not only at peril to the consuming public and our economy which would become hostages of the OPEC cartel, but the Nation's position of leadership and its freedom to pursue independently its vital interests in world affairs could be obstructed and compromised.

Assuming that one would find a public and political consensus that our present course is potentially disastrous and, therefore unacceptable, this brings us face to face with two basic questions. What can we do about it? What will it cost?

The answer to the first of these questions is that we have the fortunate options of finding and developing the substantial remaining petroleum resources in the unexplored sedimentary basins of the lower 48 States and of greatly increasing recovery from known reservoirs through enhanced recovery techniques. We have an army of some 10,000 independent producers who have the experience, the technology,

and the will to search out and produce these resources in the next decade when oil and natural gas supplies will be critical in bridging the way toward alternate and "exotic" energy technology and production. It is significant that even the lowest estimate of our undiscovered petroleum resources is more than adequate to meet our requirements through this transitional era.

The answer to the question of cost is the one that is in great doubt; that is, whether from its internally generated funds and from borrowed and outside investor capital, the domestic petroleum producing industry can put together the capital resources needed to maximize oil and gas exploration and development in the next decade. Specifically, I would like to talk in terms of funding the exploration and development that would be needed to restore our 1970 level of dependency on oil imports by 1985. Any less, we believe, would be putting the Nation's energy future in jeopardy.

I now refer you to the chart entitled, "Expenditures for Drilling Wells." As can be seen from this chart, drilling expenditures in the years 1960 through 1973 ranged from \$2.25 billion to about \$3 billion yearly. In 1974, the domestic industry increased its drilling expenditures to an estimated \$4.5 billion. To reverse the downtrend in domestic oil production and raise 1985 output to needed levels, we must almost double the 1974 expenditures for drilling in the years 1976-80, and more than double the average annual expenditures in the succeeding 5 years, 1981-85. These estimates are in constant dollars and would have to be adjusted upward for future inflation.

I would like to cite also that that chart is prepared with the assumption that we will be limited to a 2 percent per year increase in demand. If we are not able to achieve that, these numbers would necessarily have to be adjusted upward.

I should point out, Mr. Chairman, that drilling outlays represent only a part of the industry expenditures involved in expanding petroleum supplies. Not included in these figures are the very substantial expenditures for geological and geophysical work, lease acquisitions and production costs. These expenditures also will have to be increased proportionately if we are to solve our oil and natural gas supply dilemma.

It should be clear from the facts that I have discussed that the needed expansion will not and cannot be forthcoming under an energy policy of Government price rollbacks and punitive tax actions. From the facts I have presented, one conclusion is inescapable. We must increase exploration for and production of domestic petroleum fuels irrespective of the scope or the success of future energy conservation initiatives.

In attempting to meet this challenge, the petroleum industry has been operating in an atmosphere of great uncertainty. Unfortunately, the recent removal of percentage depletion of the great bulk of the domestic crude oil production was a severe blow to this Nation's effort to become reasonably self-sufficient in energy. In addition to that action by Congress the industry faces great uncertainty from the threat of further counter-productive legislation, such as a so-called "windfall profits" tax or a crude oil price rollback or both. The higher prices in recent years for crude oil and natural gas have greatly stimulated domestic exploration activity—the forerunner to increasing our domestic producing rate. In 1971, there were less than 1,000 drilling

rigs active in the United States; now there are over 1,600. Even the 1,600 rigs now operating fall far short of being enough. In the mid-1950s, some 2,600 rigs operated in the United States.

The petroleum industry is not the only industry that is concerned and apprehensive about Federal policies toward oil and gas. For the petroleum industry to double the number of operating rigs, the steel industry must make commitments to expand their output and rig manufacturers must enlarge their rig-making capabilities. Commitments have to be made to increase oil field tubular goods capacity in the United States. These are just a few examples of the many investments that must be made if this Nation is to become reasonably self-sufficient in energy by 1985. As you know, these tremendous commitments of capital require many years of exposure before they have paid themselves out. The steel industry, fabricators of wellhead equipment, sucker rods, compressors and pumps, and the other industries that make up the infrastructure of the petroleum industry are also uncertain about the ability of the petroleum industry to sustain its own financial commitments and, therefore, we are not seeing an expansion of rig-making capability at the needed rate. Steel companies are not going to build drilling rigs that no one will buy, and no one will buy a rig if it is not profitable to go out and explore for oil and natural gas.

To achieve domestic energy self-sufficiency, Congress should remove the uncertainties created by Federal Government control. The free market can function to allocate and conserve the available energy resources more efficiently than the Federal Government. And most importantly, the free market would serve to solicit additional supplies of crude oil and natural gas as well as alternative sources of energy.

The proposed roll back of the price or imposition of a windfall profits tax on new and stripper oil would have disastrous effects on future domestic petroleum supplies. The higher price for new crude oil has led to the greatest increase in drilling activity ever and the higher stripper oil price has maintained production from thousands of wells that would have otherwise been abandoned.

Independent producers have been in the forefront of the increased domestic exploration and development activity and accounted for approximately 90 percent of the new field wildcat drilling ventures in the first 6 months of 1975. A price rollback or a so-called windfall profits tax on domestic new and stripper oil would impact on independent producers much more heavily than it would on the large international oil companies.

The price the consumer pays will go up whether domestic control occurs or not. Each barrel of domestic oil that is not produced because the price is controlled must be replaced by a barrel of foreign crude oil that already sells at the highest price in the market. Currently, American consumers are paying foreign producers approximately \$25 billion annually for crude oil, and if present trends continue this outflow could double by 1985. Among other harmful economic effects, this growing dependence means the loss of thousands of jobs in the United States because that money is not kept circulating in our own economy.

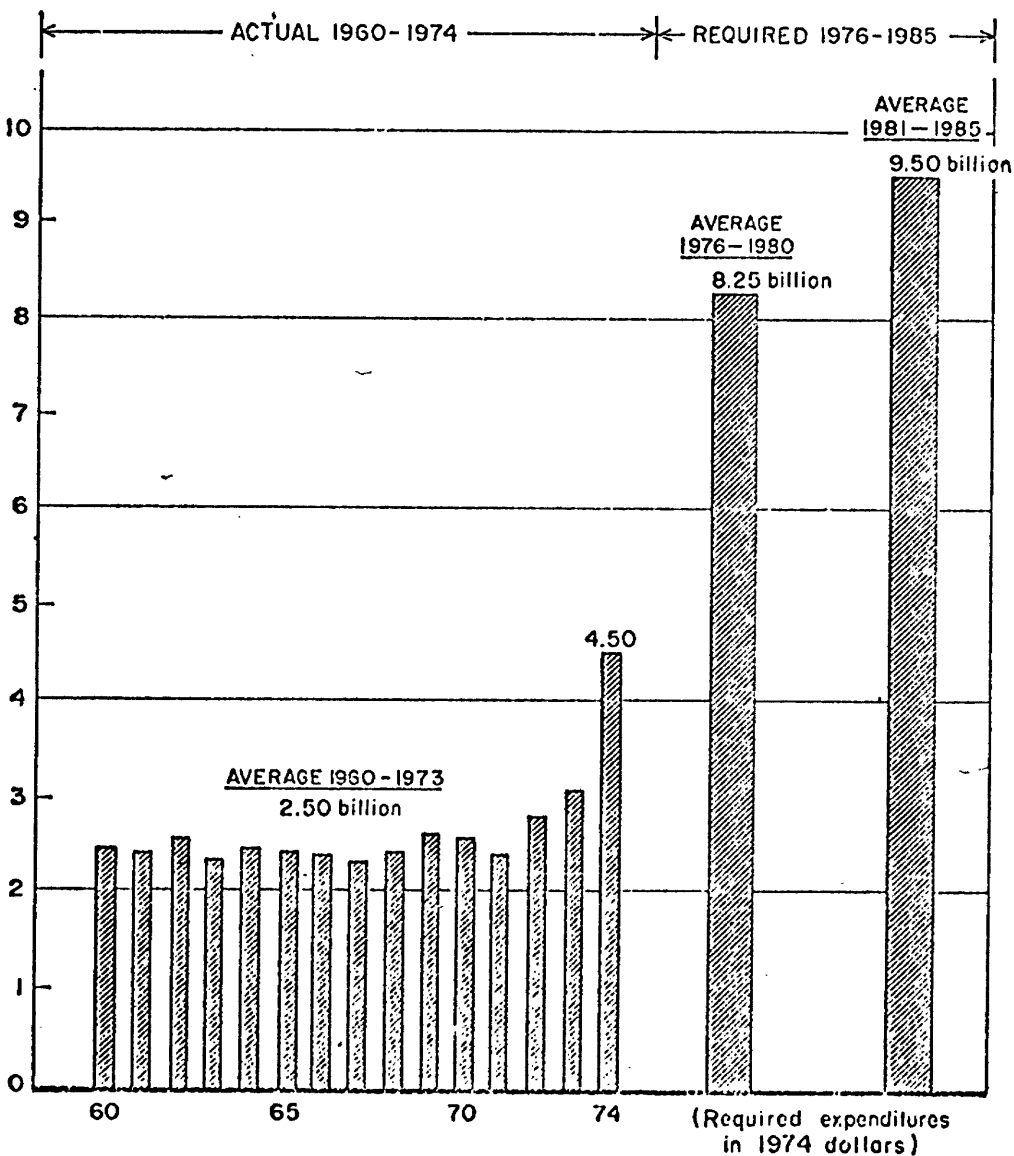
In conclusion, I would urge that this committee and the Congress take into account these considerations. Domestic production of petroleum fuels is declining and our dependence on foreign oil is in-

creasing. It is in the national interest that we reverse these trends, and Congress, the American people and the industries involved, face no greater challenge. We believe that, thus far, Congress has done little that would encourage and assure future expansion of domestic production. It has done some things, and threatens others, that would discourage the domestic industry, and independent producers in particular. It is our hope and our urgent recommendation that every proposal be examined carefully against this test: Does it serve to increase or to decrease our dependence on foreign oil?

[The attachments to the prepared statement of Mr. Miller follow:]

EXPENDITURES FOR DRILLING WELLS IN THE UNITED STATES

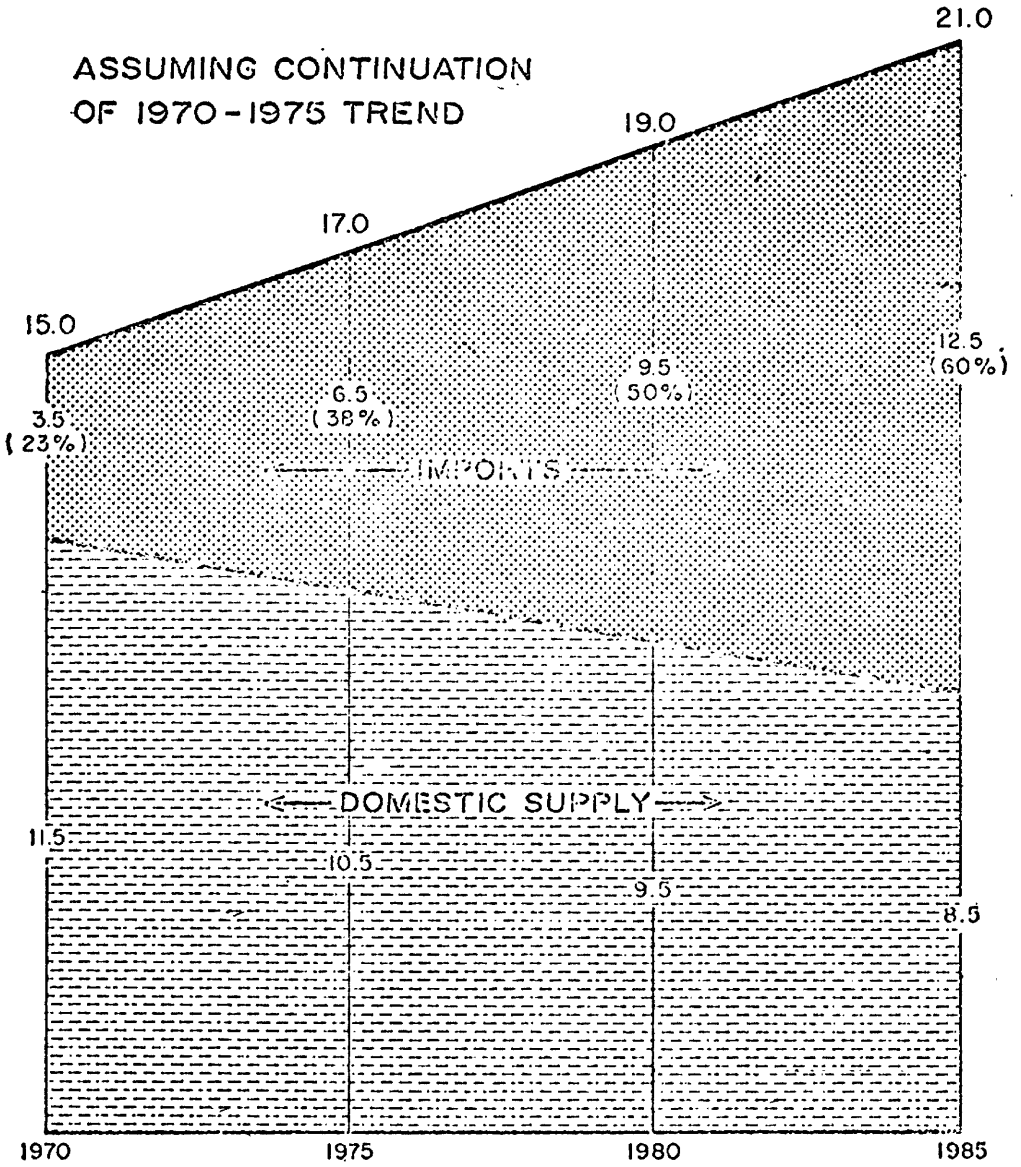
(billions of dollars per year)



OIL IMPORTS VS. DOMESTIC SUPPLY

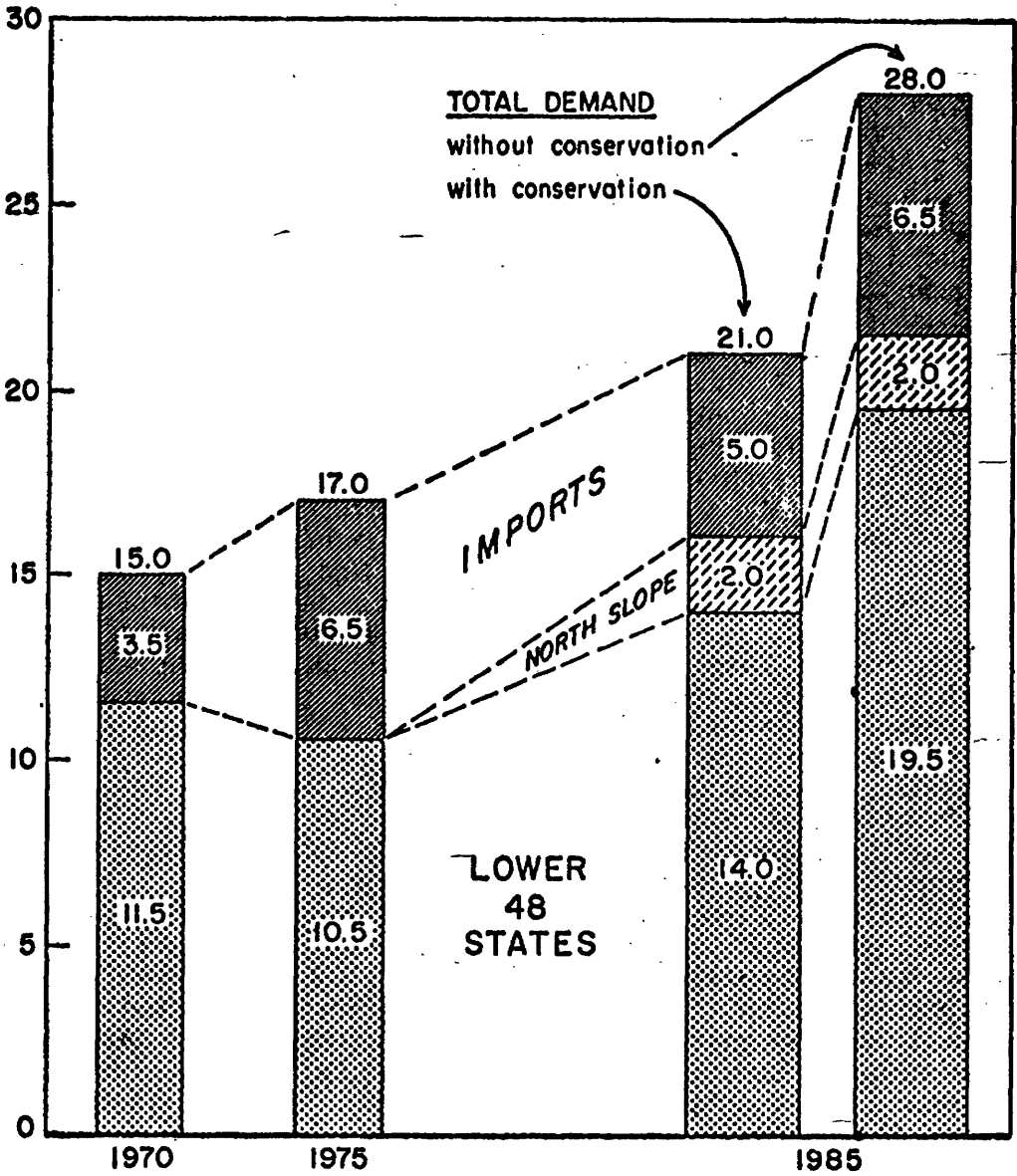
(million barrels daily)

ASSUMING CONTINUATION
OF 1970-1975 TREND



U.S. OIL SUPPLY AND DEMAND

(million barrels daily)



Note: 1985 imports at 1970 ratio to demand (23%)

The CHAIRMAN. Thank you very much. That is a good statement.
Senator Haskell.

Senator HASKELL. Thank you, Mr. Chairman.

Thank you, Mr. Miller. It is an excellent statement.

The figure you use, the 90 percent discoveries by independents, is a figure I have heard before and thoroughly believe in and agree with. What I have never been able to understand is how the independents, lacking the great resources of the majors, can account for 90 percent of the discoveries in this country.

Mr. MILLER. Well, the discoveries are not necessarily categorized as to the cost of the venture, the depth of the venture, and so forth. So naturally, it follows that the independents, because of their lesser financial capabilities, tend to drill in less expensive areas, and we therefore, do not have that type of expense.

Senator HASKELL. Nevertheless, it is a remarkable figure. If an independent is able to get 90 percent, I do not care if they are not in the Alaska wells. I assume you cannot drill there. I assume you cannot drill offshore, although I hope the outer continental leasing bill will enable you to do so. And still, I think it is an amazing figure. I never thoroughly understood how the independents were able to do it.

Mr. MILLER. We are very proud of the figure, of course. And it is true—I do not mean to indicate that the independents do not participate in the deeper wells. I think in fact that last year's study may indicate that independents were involved in a majority of the onshore tests over 20,000 feet onshore. But nevertheless, it does follow that there are somethings that we have a greater difficulty doing, but we do have some 10,000 independents, as I indicated, that have been in this business and are in this business. And we have moved upward, in fact, in that percentage number of wildcats.

Senator HASKELL. Thank you, Mr. Miller.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Fannin.

Senator FANNIN. Thank you, Mr. Chairman.

Mr. Miller. I commend you for an excellent statement. You covered quite well the problems that you face, the lack of certainty that exists, which, has vitally affected what is being done by all of the companies, both large and small, the independents and the majors. If you are seeking a solution in this legislation, I agree with you, we do not have a solution. In fact, we are placing greater barriers in your path. I think the great problem we have in explaining to many of the Members of Congress what is happening is because of the lack of understanding of the time element involved.

I have heard you bring it out many times, that the drilling increases—and of course, that does not immediately reflect in the amount of product that is produced. Could you give us some thought on how we could better explain this time element that is involved?

Mr. MILLER. Depending on the type of prospect you are working on, Senator, I think commonly it has been stated, that from the time you have the thought and the basic idea of developing the geological proposal, until the time that you might anticipate having that on production, you are dealing with a timelag of 3 to 5 years. Some of the prospects take more time than that.

I would like to give you a personal illustration if I might. In my own State of Michigan right now, we are developing a very fine Niagaran reef prospect across the northern half of the lower peninsula. A lot of these leases were taken in 1968. Some of the geophysical work had been done prior to that time. But by the time we were able to acquire all the leases, do the geophysical work successfully, with the reinterpretation of the data, and all those things that are required, from that time until right now, we have been getting this play going. And now it is a very substantial play, but nevertheless, it took us that amount of time to turn it from an idea or concept into a producing, or a number of producing reservoirs.

Senator FANNIN. I thank you for that explanation. I think it is misunderstood. But the factor which I feel causes the greatest discussion is when you have been able to increase drilling—say that there has been a 25-percent increased drilling in 1973, for instance, or 1974, but the amount of oil produced has dropped. You have heard some of the comments by different Senators who say we are going to produce more oil if we give this incentive and still we are producing less oil.

I understand from your explanation that this is the lag time that is involved. But would you want to discuss the matter of what happened, say, in 1974, with the increased drilling, and then the falloff on production?

Mr. MILLER. I think I could say we are producing less than we would be producing without the increased drilling activity. By that I am saying, we did arrest the decline. And our normal rate of decline—had that been followed without any of the new input of production, we would be at a less-barrels-per-day figure right now than we presently are.

But again, if I may again use another personal illustration. In that same area that I spoke about in Michigan, there are over 120 wells that are not now on production. They have all been drilled during this last year, but there are no gathering lines out there yet. We have environmental problems which require a number of things that have to be done before those wells can be put on production. Altogether in the State, there are something around 200 wells not on production. And this is something that occurs in each of the new producing areas, where there are no pipelines in existence.

So even though the wells have been drilled, some production has been found, that is not necessarily being translated into a daily production, at this particular moment. We have another 6 months or a year, a year and a half to go.

Senator FANNIN. I know that the downward trend has leveled out some, and we certainly hope it will level out more. And I hope we can give you greater incentives for going forward with the exploration work and your drilling, because I think it is going to result in that line perhaps starting back up the other way. That is what we all hope for.

Mr. MILLER. We fully anticipate, Senator, that that will be achieved.

Senator FANNIN. I hope it is better understood by members of the Congress, who are voting on different legislation and considering different provisions of the legislation. What specific proposal would you offer to resolve the problem of capital formation? What do you

think we could do that would assist you the greatest in helping you on capital formation?

Mr. MILLER. Insofar as our position, the decontrol of the old oil price, and of our natural gas prices would be that which would be most helpful. This would allow the increased capital formation for the people that are involved in the business. They would have additional dollars available for exploration. And if this can be achieved, I think it would be the single greatest step we could take.

Senator FANNIN. All right. So this legislation goes the other way, as far as the new oil is concerned, so you are very much opposed—and naturally would be, to any action of that nature.

The problems that we have, as I have said, are a better understanding of just what would be involved if we had deregulation. So many people think that immediately on deregulation, that the prices would increase tremendously. I do not know but what that may come about. If we are ever going to resolve the energy problem in this country, we must have not only the increased production of petroleum products but also greater utilization, as we have discussed here this morning, of coal, and of coal gasification and coal liquefaction. All of these other programs will not come about until we have the higher prices.

We have many programs we are trying to get underway, but the economic factors are difficult. It is difficult to understand why many Members of the Congress will not realize the economics involved in your activities—that economics are going to determine what we are going to be able to do as time goes along.

As I understand it now, you have rigs that are available, but that there is not the investment capital availability to go forward on drilling. Is that true today?

Mr. MILLER. Well, it has been said accurately but facetiously, that one thing the Congress did do—it cured the steel shortages, the pipe shortages, and the rig condition. And this is certainly true. There are rigs available today, and there is pipe that is available today, but it is for the wrong reason—a leveling off in drilling.

Senator FANNIN. And this came about immediately after the action was taken by the Congress, as I understand it. It was almost an immediate reaction, as far as capital formation is concerned, and as far as people that were normally making these investments; they just stopped.

Mr. MILLER. That is correct, Senator, and I have another fear, and that is that I am afraid we are only seeing the tip of the iceberg, insofar as that cutback is concerned. Some commitment had been made. They were irrevocable. So I think we are seeing a false rig count perhaps even at this time. And when those commitments are worked off, we may see a precipitous decline in the rig count.

Senator FANNIN. In other words, you feel there is even going to be more of a decline than what has been registered up to this time?

Mr. MILLER. Yes, sir, I do. Barring the changes that I have asked the Congress to consider and to implement in the statement that I have given.

Senator FANNIN. I think you have made it very clear that the uncertainty has resulted in a great deal of this lack of investment and apprehension. And I do feel that we had better look at some incentives, rather than some penalties to what is being done in the field of endeavor.

And I commend you for what you are doing, and the leadership that you are giving in the independents.

Mr. MILLER. Thank you, Senator.

If I might just amplify one answer that I gave a moment ago. You asked me what could best be done to secure the necessary capital formation, and I answered you in the context of what is now in regulation or law. I did not answer you in the context of what is being contemplated. Otherwise, I want to be sure that it is understood that the so-called windfalls profits tax, or rollback in crude oil prices would devastate the independent. Those things that have been proposed would impact about 85 percent of the penalty on those independents that have been doing the bulk of the new drilling.

Now, I did not answer you that way, because I was answering due to the fact that the controls are now upon us, and the others are proposed. I want to be sure that you understood my answer.

Senator FANNIN. I appreciate your amplifying your answer. Thank you.

The CHAIRMAN. Senator Dole.

Senator DOLE. I think there is also some discussion about changing the tax treatment of tangible drilling costs. I think that would have some impact on your industry. If that were eliminated, there would probably be even more pipe available.

Mr. MILLER. Senator, if that is eliminated, there is no question but what the domestic drilling operation is finished, insofar as the independent sector is concerned. That will just roll us up; that is the end of it.

Senator DOLE. There is a feeling in the Congress, and I think, across the Nation, that because the price of oil is \$13 or more per barrel, everyone in the oil business is rolling in money. They do not understand the two-tier system, and the fact that we sharply have reduced the depletion allowance, and we have not really provided any incentives. I do not know the answer, but I agree with your statement that we have got to find some incentives.

I think at the same time, we have to be realistic, and look at some of the problems we are going to have, if we have any solution.

So what about the President's decontrol? Do you think 30 months is too slow. I suppose you do.

Mr. MILLER. I could answer that, I suppose, two ways. I could say that instant decontrol would be better, but looking at the political expediency of the thing, the 30 months, let us say, may not be too objectionable. And I think that most important, if we could just get understood, get across the entire consumer section, the entire citizenry of this country, that we are talking about decontrol that means less than 7 cents a gallon. Some horrendous figures have been blowing up and circulated around in the media, but we are talking about less than 7 cents a gallon. And I think that needs to be clearly understood, and that amount phased in over 30 months certainly ought to be considered to be a very minimal number.

Senator DOLE. And I think also there is going to have to be some windfall profits tax in conjunction with the phasing-in of the decontrol program. You mentioned you are opposed to it insofar as stripper and new oil, and I would share that view.

Yesterday, in an effort to start some discussion, I introduced an amendment to 6860. Of course, I hope 6860 does not pass in its present form but at least I have an amendment that we can discuss. What about a windfall profits tax? Mine would be for a period of 5 years. It would phase in with the decontrol. It contains a plowback provision at 90 percent. And at least 10 percent of the tax, regardless of the amount of the plowback would be paid. It is only a starting point, but I think if we are going to get a package, we are going to have to have some windfall profits tax on the oil, as it is decontrolled—not the new and not the stripper production.

Mr. MILLER. Let me, if I may, Senator, comment on that suggestion this way. First of all, and I know that you know this, certainly as well as I do, but just for the record, I would like to be sure that it is indicated, that the term windfall profits has nothing to do with cost or profit. It is an ill-chosen word. It is an excise tax.

Now, once we have determined that particular point to be true, then we also look at the inflation factors over the cost of 30 months, and the increased production cost for that oil as it becomes decontrolled. Then we would have to grapple with the question, is there indeed an increased profit of any type? But beyond that, I think that the industry has indicated a reasonable approach to the reinvestment of that money in qualified investment expenditures.

I would have a serious concern about the 90 percent. If our goal is to achieve additional energy, then it should be 100-percent plowback. We should be trying to encourage the maximum reinvestment of those dollars and not taking some lesser number and preventing that being invested in capital formation for the development of our energy resources.

Senator DOLE. I think, just so the record is clear, I refer to the tax in my amendment as an excise tax.

Mr. MILLER. Thank you. I appreciate that definition greatly. The entire industry will, I am sure.

Senator DOLE. The popular phrase is windfall or excess profits, but the technical word used in my amendment, which I would ask to be made a part of the record, is clearly called an excise tax and recognized as such.

[The amendment referred to follows:]

94TH CONGRESS
1ST SESSION

H. R. 6860

IN THE SENATE OF THE UNITED STATES

JULY 15 (legislative day, JULY 10), 1975

Referred to the Committee on Finance and ordered to be printed

AMENDMENT

Intended to be proposed by Mr. DOLE to H.R. 6860, an Act to provide a comprehensive national energy conservation and conversion program, viz: At the end of the Act insert the following new title:

1 **TITLE V—OIL DEREGULATION TAX**
2 **SEC. 501. DEREGULATION PROFITS TAX; PLOWBACK**
3 **CREDIT.**

4 (a) IN GENERAL.—

5 (1) AMENDMENT OF SUBTITLE D.—Subtitle D of
6 the Internal Revenue Code of 1954 (relating to mis-
7 cellaneous excise taxes) as amended by this Act is
8 amended by adding at the end thereof the following
9 new chapter: †

Amdt. No. 691

1 **"CHAPTER 45—OIL DEREGULATION TAX ON**
2 **DOMESTIC CRUDE OIL**

"Sec. 4995. Imposition of tax.

"Sec. 4996. Amount of tax.

"Sec. 4997. Plowback credit against tax.

"Sec. 4998. Definitions and special rules.

"Sec. 4999. Records and information; regulations.

3 **"SEC. 4995. IMPOSITION OF TAX.**

4 " (a) **IMPOSITION OF TAX.**—There is hereby imposed
5 on the deregulation profits from taxable domestic crude oil
6 removed from the premises during each taxable period an
7 excise tax as provided in this chapter.

8 " (b) **BY WHOM PAID.**—The tax imposed by this sec-
9 tion shall be paid by the person entitled to the deduction
10 under section 611 for depletion with respect to the crude oil.

11 **"SEC. 4996. AMOUNT OF TAX.**

12 " (a) **IN GENERAL.**—The tax imposed by section 4981
13 shall be an amount equal to 90 percent of the deregulation
14 profit from each taxable barrel of crude oil removed from the
15 premises.

16 " (b) **FRACTIONAL PART OF BARREL.**—In the case of
17 a fraction of a barrel, the tax imposed by section 4981 shall
18 be the like fraction of the amount of such tax imposed on a
19 whole barrel.

20 **"SEC. 4997. PLOWBACK CREDIT AGAINST TAX.**

21 " (a) **GENERAL RULE.**—There shall be allowed to each
22 person liable for the tax imposed by section 4981 for any

1 taxable period, as a credit against such tax, an amount equal
2 to such person's plowback investment for such taxable period.

3 “(b) LIMITATION.—The amount of the credit allowed
4 under this subsection for a taxable period and for a recompu-
5 tation period shall not exceed 90 percent of the taxpayer's
6 liability for tax under section 4981 for such periods.

7 “(c) PLOWBACK INVESTMENT.—For purposes of this
8 chapter, a person's plowback investment for any taxable
9 period is the excess of—

10 “(1) his qualified investment for such taxable
11 period, over

12 “(2) his plowback threshold for such taxable period.

13 “(d) RECOMPUTATION OF TAX AND CREDIT ON CU-
14 MULATIVE BASIS.—

15 “(1) IN GENERAL.—In the case of each taxable
16 period (hereinafter in this subsection referred to as ‘cur-
17 rent period’) ending after December 31, 1975, the tax-
18 payer's liability for the tax imposed by section 4981
19 and his credit under this section shall be recomputed by
20 treating the current period and all prior taxable periods
21 as one taxable period (hereinafter in this subsection re-
22 ferred to as ‘recomputation period’).

23 “(2) EFFECT OF RECOMPUTATION.—If the sum of
24 the taxpayer's net tax liability for the current period and

1 for each prior taxable period exceeds his net tax liability
2 for the recomputation period—

3 “(A) a portion of such excess (not greater
4 than the amount by which the tax imposed by
5 section 4981 for the current period is greater than
6 the credit allowable by this section for the current
7 period) shall be applied to, and shall reduce, the
8 amount of the tax imposed by section 4981 for the
9 current period, and

10 “(B) the remainder of such excess shall be
11 treated as an overpayment of the tax imposed by
12 section 4981 for the current period.

13 “(3) NET TAX LIABILITY DEFINED.—For purposes
14 of this subsection, the term ‘net tax liability’ means, with
15 respect to any taxable period, the excess (if any) of the
16 amount of the tax imposed by section 4981 for such
17 period (or, in the case of the recomputation period,
18 would be imposed for such period) over the credit allow-
19 able by this section for such period.

20 “(4) ADJUSTMENT OF NET TAX LIABILITY FOR
21 PRIOR ADJUSTMENTS UNDER THIS SUBSECTION.—For
22 purposes of this subsection, if for any taxable period be-
23 fore the current period the application of this subsection
24 resulted in a reduction in tax liability or an overpayment
25 of tax (or both) under paragraph (2), the excess re-

1 ferred to in paragraph (2) for the current period shall be
2 reduced by an amount equal to the sum of all such
3 reductions and overpayments.

4 **"SEC. 4998. DEFINITIONS AND SPECIAL RULES.**

5 **"(a) DEREGULATION PROFIT.—**

6 **"(1) IN GENERAL.** For purposes of this chapter,
7 the term 'deregulation profit' means an amount equal to
8 the excess of the removal price of the barrel of taxable
9 crude oil over the sum of—

10 **"(A)** the base price for such barrel, and

11 **"(B)** the amount by which any severance tax
12 imposed with respect to such barrel exceeds the
13 severance tax which would have been imposed if the
14 barrel of oil had been extracted and sold on Decem-
15 ber 1, 1973, at the ceiling price determined in the
16 manner provided in regulations section 150.353
17 prescribed by the Cost of Living Council, as such
18 regulations were in effect on such date, for domestic
19 crude oil of the same grade and location;

20 **"(2) 75 PERCENT OF NET INCOME LIMITATION ON**
21 **DEREGULATION PROFIT.—**The deregulation profit on any
22 barrel of taxable crude oil shall not exceed 75 percent of
23 the net income attributable to such barrel. For purposes
24 of the preceding sentence, the net income attributable to
25 a barrel shall be determined—

1 “(A) by taking the taxable income from the
2 property (within the meaning of section 613 (a))
3 for the taxable period, computed without an allow-
4 ance for depletion and without any deduction for
5 the tax imposed by section 4981 or for costs de-
6 ductible under section 263 (c) (other than those in-
7 curred in drilling a nonproductive well), and

8 “(B) by dividing such taxable income by the
9 number of barrels of all crude oil produced from
10 such property during such taxable period.

11 “(b) REMOVAL PRICE.—For purposes of this chapter—

12 “(1) IN GENERAL.—Except as otherwise provided
13 in this chapter, the term ‘removal price’ means the
14 amount for which the barrel of oil is sold.

15 “(2) SALES BETWEEN RELATED PERSONS.—In the
16 case of a sale between related persons (within the mean-
17 ing of section 103 (c) (6) (C)), the removal price shall
18 be not less than the constructive sales price for purposes
19 of determining gross income from the property under
20 section 613.

21 “(3) OIL REMOVED FROM PREMISES BEFORE
22 SALE.—If crude oil is removed from the premises be-
23 fore it is sold, the removal price shall be the constructive
24 sales price for purposes of determining gross income
25 from the property under section 613.

1 such property and sold or removed from the premises
2 during any month, reduced by

3 “(B) the sum of—

4 “(i) the number of such barrels for which
5 the removal price is not greater than the base
6 price, plus

7 “(ii) the amount by which the number of
8 such barrels (not including any barrels taken
9 into account under (i)) exceeds the adjusted
10 base price control quantity for such month.

11 “(2) **BASE PRICE CONTROL QUANTITY.**—For pur-
12 poses of this subsection, the base price control quantity is
13 the average monthly number of barrels from any prop-
14 erty for the three-month period ending June 30, 1975,
15 which, pursuant to sections 212.73 and 212.74 of title
16 10 of the Code of Federal Regulations, as then in effect,
17 could not be sold at a price which is greater than the
18 base price described in subsection (c). In the case of
19 any property from which production does not occur
20 for the entire three-month period, the average monthly
21 production shall be determined pursuant to regulations
22 prescribed by the Secretary or his delegate.

23 “(3) **ADJUSTED BASE PRICE CONTROL QUAN-**
24 **TITY.**—For purposes of this subsection, the adjusted base
25 price control quantity for any month is an amount equal

1 to the base price control quantity reduced by an amount
2 equal to $1\frac{2}{3}$ percent of the base price control quantity
3 multiplied by the number of calendar months in the
4 period beginning on the effective date for any law or
5 regulation described in paragraph (2) and ending on the
6 last day of such month.

7 “(c) QUALIFIED INVESTMENT.—For purposes of this
8 chapter, any person’s qualified investment for any taxable
9 period is the sum of the amounts or incurred by such person
10 during such taxable period (with respect to areas within the
11 United States or a possession of the United States) for—

12 “(1) intangible drilling and development costs to
13 which section 263(c) applies or geological and geo-
14 physical costs described in subsection (g) (7),

15 “(2) the construction, reconstruction, erection, or
16 acquisition of the following items if the original
17 use of such items begins with such person:

18 “(A) depreciable assets used for—

19 “(i) the exploration for or the develop-
20 ment or production of oil or gas (including
21 development or production from oil shale),

22 “(ii) converting oil shale, coal, or liquid
23 hydrocarbons into oil or gas, and

24 “(iii) refining oil or gas (but not beyond
25 the primary product stage), and

1 “(B) pipelines for gathering or transmitting oil
2 or gas, and facilities (such as pumping stations)
3 directly related to the use of such pipelines,

4 “(3) secondary or tertiary recovery of oil or gas,
5 and

6 “(4) the acquisition of oil and gas leases, but the
7 aggregate amount which may be taken into account
8 under this paragraph for any taxable period shall not
9 exceed one-third of the aggregate of the amounts which
10 are taken into account by the taxpayer under para-
11 graphs (1), (2), and (3) for such period.

12 “(f) **PLOWBACK THRESHOLD.**—

13 “(1) **IN GENERAL.**—For purposes of this chapter,
14 any person’s plowback threshold for any taxable period
15 is an amount equal to \$3 multiplied by an amount equal
16 to the sum of the lesser of—

17 “(A) the number of barrels of crude oil pro-
18 duced by such person during such period, or

19 “(B) the base price control quantity for each
20 of such person’s domestic oil-producing properties.

21 —“(2) **LIMITATION BASED ON 75 PERCENT OF NET**
22 **INCOME.**—A person’s plowback threshold for any tax-
23 able period shall not exceed the excess of—

24 “(A) 75 percent of his taxable income attrib-
25 utable to taxable crude oil from all oil-producing

1 properties (within the meaning of section 613 (a))
2 for the taxable period, computed without an allow-
3 ance for depletion and without any deduction for the
4 tax imposed by section 4981 or for costs deductible
5 under section 263 (c) (other than those incurred in
6 drilling a nonproductive well), over

7 “(B) the amount of such person’s liability for
8 tax under section 4981.

9 “(g) OTHER DEFINITIONS.—For purposes of this
10 chapter—

11 “(1) CRUDE OIL.—The term ‘crude oil’ includes a
12 natural gas liquid recovered from a gas well in lease
13 separators or field facilities.

14 “(2) DOMESTIC CRUDE OIL.—The term ‘domestic
15 crude oil’ means crude oil produced from an oil or gas
16 well located in the United States or in a possession of the
17 United States.

18 “(3) BARREL.—The term ‘barrel’ means 42 United
19 States gallons.

20 “(4) UNITED STATES.—The term ‘United States’
21 has the meaning given to such term by paragraph (1)
22 of section 638 (relating to Continental Shelf areas).

23 “(5) POSSESSION OF THE UNITED STATES.—The
24 term ‘possession of the United States’ has the meaning
25 given to such term by paragraph (2) of section 638,

1 “(6) TAXABLE PERIOD.—The term ‘taxable period’
2 means—

3 “(A) the period beginning on the first day of
4 the first calendar month beginning after the date
5 of the enactment of this chapter and ending at the
6 close of December 31, 1975,

7 “(B) each calendar year beginning after
8 December 31, 1975, and ending before January 1
9 of the calendar year described in subparagraph (C),
10 and

11 “(C) the period beginning on January 1 of the
12 calendar year in which ends the 60th calendar
13 month after the date of enactment of this chapter
14 and ending on the last day of such 60th calendar
15 month.

16 “(7) GEOLOGICAL AND GEOPHYSICAL COSTS.—The
17 term ‘geological and geophysical costs’ means expendi-
18 tures of ascertaining the existence, location, extent, or
19 quality of any deposit of crude oil or natural gas.

20 “(h) MEMBERS OF AFFILIATED GROUPS TREATED AS
21 ONE PERSON.—If two or more corporations are members of
22 an affiliated group making a consolidated return with respect
23 to the tax imposed by chapter 1 for a taxable year or years
24 which include any entire taxable period, such corporations

1 shall be treated as one person for purposes of the tax imposed
2 by section 4981 for such taxable period and for purposes of
3 the credit against such tax allowable under section 4983 for
4 such period.

5 “(i) EXEMPTION FROM TAX WHERE TAX-EXEMPT
6 ORGANIZATION IS PROHIBITED FROM PLOWING BACK.—

7 The tax imposed by section 4981 shall not apply to any
8 organization described in section 501(c)(3) which is
9 exempt from tax under subtitle A, to any political subdivi-
10 sion of a State, or to any agency or instrumentality of a
11 State, or political subdivision thereof, if under the applica-
12 ble State or local law such organization, subdivision, agency,
13 or instrumentality is not permitted (and was not on April 1,
14 1974, permitted) to pay or incur amounts for any of the
15 purposes specified in subsection (e).

16 “SEC. 4999. RECORDS AND INFORMATION; REGULATIONS.

17 “(a) RECORDS AND INFORMATION.—Each person
18 liable for tax under section 4981, each partnership, trust,
19 or estate producing domestic crude oil, each purchaser of
20 domestic crude oil, and each operator of a well from which
21 domestic crude oil was produced, shall keep such records,
22 make such returns, and furnish such information with re-
23 spect to such oil as the Secretary or his delegate may by
24 regulations prescribe.

1 “(b) REGULATIONS.—The Secretary or his delegate
2 shall prescribe such regulations as may be necessary to carry
3 out the purposes of this chapter.”.

4 (2) CLERICAL AMENDMENT.—The table of chap-
5 ters for subtitle D is amended by adding at the end
6 thereof the following new item:

 “Chapter 45. Deregulation profits tax on domestic crude oil.”.

7 (b) TECHNICAL AMENDMENTS.—

8 (1) The first sentence of section 164 (a) (relating
9 to deduction for taxes) is amended by inserting after
10 paragraph (5) the following new paragraph:

11 “(6) The net deregulation profits tax imposed by
12 section 4981.”.

13 (2) The first sentence of section 613 (a) (relating
14 to percentage depletion) is amended by striking out the
15 period at the end thereof and inserting in lieu thereof
16 the following: “, and (in the case of oil and gas wells)
17 reducing such gross income by the amount of the tax
18 imposed by section 4981 (relating to deregulation profits
19 tax).”.

20 (3) (A) Part II of subchapter B of chapter 1
21 (relating to items specifically included in gross income)
22 is amended by adding at the end thereof the following
23 new section:

1 **"SEC. 85. OVERPAYMENTS OF DEREGULATION PROFITS**
2 **TAXES.**

3 "Gross income includes any amount treated as an over-
4 payment of tax under section 4983 (d) (2) (B) (relating
5 to recomputation of deregulation profits tax and credit on
6 cumulative basis).".

7 (B) The table of sections for such part II is
8 amended by adding at the end thereof the following new
9 item:

"Sec. 85. Overpayments of deregulation profits taxes.".

10 (c) **TIME FOR FILING RETURN OF DEREGULATION**
11 **PROFITS TAX.—**

12 (1) Part V of subchapter A of chapter 61 (relating
13 to time for filing returns and other documents) is
14 amended by adding at the end thereof the following
15 new section:

16 **"SEC. 6077. TIME FOR FILING RETURN OF DEREGULATION**
17 **PROFITS TAX.**

18 "Each return of the tax imposed by section 4981 (relat-
19 ing to deregulation profits tax) for any taxable period
20 (within the meaning of section 4984 (g) (7)) shall be filed
21 not later than the 15th day of the third month (15th day
22 of the fourth month in the case of an individual) following
23 the close of the taxable period.".

1 (2) The table of sections of such part V is
2 amended by adding at the end thereof the following new
3 item:

“Sec. 6077. Time for filing return of deregulation profits tax.”.

4 (d) CERTAIN INFORMATION REQUIRED TO BE
5 FURNISHED.—

6 (1) GENERAL RULE.—Subpart B of part III of
7 subchapter A of chapter 61 (relating to information
8 concerning transactions with other persons) is amended
9 by adding at the end thereof the following new section:

10 **“SEC. 6030A. INFORMATION FURNISHED BY PURCHASER**
11 **AND OPERATOR REGARDING DEREGULA-**
12 **TION PROFITS TAX ON DOMESTIC CRUDE**
13 **OIL.**

14 “(a) CERTAIN INFORMATION FURNISHED BY PUR-
15 CHASER.—Under regulations prescribed by the Secretary
16 or his delegate, the purchaser of domestic crude oil (as
17 defined in section 4984 (g) (2)) shall furnish to the person
18 liable for tax under section 4981 with respect to such oil a
19 monthly statement showing the following:

20 “(1) the amount of domestic crude oil purchased
21 from such person during such month,

22 “(2) the amount of taxable domestic crude oil
23 purchased from such person during such month,

24 “(3) the removal price of such taxable oil,

1 “(4) the base price with respect to such taxable
2 oil,

3 “(5) the amount of such person’s liability for tax
4 under section 4981 with respect to such oil,

5 “(6) the severance tax liability with respect to such
6 oil, and the severance tax liability which would have
7 applied with respect to such oil under the rates in effect
8 on December 1, 1973, and

9 “(7) such other information as may be required by
10 regulations prescribed by the Secretary or his delegate.

11 “(b) INFORMATION FURNISHED BY OPERATOR.—

12 Under regulations prescribed by the Secretary or his dele-
13 gate, if the purchaser of domestic crude oil and the operator
14 of the well from which such crude oil was produced make a
15 joint election under this subsection, the monthly statement
16 required to be furnished by the purchaser under subsection
17 (a) shall be furnished by such operator.

18 “(c) TIME FOR FILING MONTHLY STATEMENT.—

19 Each monthly statement required to be furnished under sub-
20 section (a) or (b) for any month shall be furnished before
21 the first day of the second month which begins after the close
22 of such month.

23 “(d) CERTIFICATION FURNISHED BY OPERATOR.—

24 Under regulations prescribed by the Secretary or his dele-
25 gate, the operator of the well from which crude oil subject

1 to the tax imposed under section 4981 was produced shall
2 certify (at such time and in such manner as the Secretary
3 or his delegate shall by regulations prescribe) to the pur-
4 chaser the base price (within the meaning of section 4984
5 (c)) and the base price control quantity (within the mean-
6 ing of 4984 (d) (2)) with respect to such crude oil. For
7 purposes of section 6652 (b) (relating to additions to tax for
8 failure to file other returns) such certification shall be treated
9 as a statement of a payment to another person.

10 “(c) CROSS REFERENCES.—

“(1) For additions to tax for failure to furnish information required under this section, see section 6652(b).

“(2) For penalty for willful failure to supply information required under this section, see section 7252.”.

11 (2) TECHNICAL AND CONFORMING AMEND-
12 MENTS.—

13 (A) Section 6652 (b) is amended by striking
14 out “or section 6051 (d)” and inserting in lieu
15 thereof the following: “section 6050A (relating to
16 information regarding deregulation profits tax on
17 domestic crude oil), or section 6051 (d)”.

18 (B) The table of sections for subpart B of part
19 III of subchapter A of chapter 61 is amended by
20 adding at the end thereof the following new item:

“Sec. 6050A. Information furnished by purchaser and operator regarding deregulation profits tax on domestic crude oil.”.

1 (e) CRIMINAL PENALTY FOR FAILURE TO PUBLISH
2 CERTAIN INFORMATION.—

3 (1) IN GENERAL.—Part II of subchapter A of
4 chapter 75 (relating to penalties applicable to certain
5 taxes) is amended by adding at the end thereof the fol-
6 lowing new section:

7 **"SEC. 7242. WILLFUL FAILURE TO FURNISH CERTAIN IN-**
8 **FORMATION REGARDING DEREGULATION**
9 **PROFITS TAX ON DOMESTIC CRUDE OIL.**

10 "Any person who is required under section 6050A (or
11 regulations thereunder) to furnish any statement, informa-
12 tion, or certification to any other person and who willfully
13 fails to furnish such statement, information, or certification to
14 any other person and who willfully fails to furnish such state-
15 ment, information, or certification at the time or times re-
16 quired by law or regulations, shall, in addition to other pen-
17 alties provided by law, be guilty of a misdemeanor and upon
18 conviction thereof, shall be fined not more than \$10,000, or
19 imprisoned not more than 1 year, or both, together with the
20 costs of prosecution."

21 (2) CLERICAL AMENDMENT.—The table of sections
22 for such part II is amended by adding at the end thereof
23 the following new item:

"Sec. 7242. Willful failure to furnish certain information
regarding deregulation profits tax on domes-
tic crude oil."

1 (f) INFORMATION FURNISHED BY PARTNERSHIPS,
2 TRUSTS, AND ESTATES.—

3 (1) INFORMATION TO BE FURNISHED TO
4 PARTNERS AND TO BENEFICIARIES OF ESTATES AND
5 TRUSTS.—Subpart B of part III of subchapter A of
6 chapter 61 is amended by adding at the end thereof the
7 following new section:

8 "SEC. 6050B. INFORMATION TO BE FURNISHED TO PART-
9 NERS AND BENEFICIARIES OF ESTATES
10 AND TRUSTS.

11 "(a) REQUIREMENT.—Under regulations prescribed by
12 the Secretary or his delegate, each partnership, estate, and
13 trust required to file a return pursuant to section 4985 for
14 any taxable period shall furnish to each partner or bene-
15 ficiary, as the case may be, a written statement showing the
16 following:

17 "(1) the name of such partner or beneficiary,

18 "(2) information received by the partnership, trust,
19 or estate pursuant to section 6050A,

20 "(3) the total amount of qualified investment made
21 by such partnership, trust, or estate during such taxable
22 period,

23 "(4) such partner's or beneficiary's distributive
24 share of the items referred to in paragraphs (2) and
25 (3), and

1 “(5) such other information as may be required by
2 regulations prescribed by the Secretary or his delegate.

3 “(b) TIME FOR FURNISHING WRITTEN STATE-
4 MENT.—Each written statement required to be furnished
5 under this section with respect to any taxable period shall be
6 furnished before the first day of the third month following
7 the close of such period.”.

8 (2) CLERICAL AMENDMENT.—The table of sections
9 for such subpart B is amended by adding at the end
10 thereof the following new item:

 “Sec. 6050B. Information to be furnished to partners and to
 beneficiaries of estates and trusts.”.

11 (g) EFFECTIVE DATE.—The amendment made by
12 this section shall apply to crude oil produced after June 30,
13 1975.

14 (h) TERMINATION DATE.—The tax imposed by this
15 amendment shall terminate at the close of 60 calendar months
16 following the date of enactment.

Senator HANSEN. If the Senator would yield, I might observe, Mr. Chairman, that in the Interior Committee, we refer to them as obscene profits.

Senator DOLE. In any event, in the absence of decontrol, is there any doubt that domestic production and exploration for petroleum will continue to decline. I think you should repeat it for the record.

Mr. MILLER. I hope it does good to repeat it. I have been doing that now, for about near on 2 years, and I have not, I guess, been very successful in telling the story.

Senator DOLE. And how much, if we adopt the President's decontrol plan, how much oil per day can be produced from the independent sources by 1985?

Mr. MILLER. There are various studies that have been made on that, but they deal with substantial levels. I would rather not select the number. As you know, there are a number of studies made on that. It is very substantial.

Senator DOLE. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Hansen.

Senator HANSEN. Thank you, Mr. Chairman.

Let me compliment you, Mr. Miller, on your clear perception of the problem, and your relating it, as you do, so factually, in my opinion in terms of national security and economic well-being in this country.

You say in your testimony:

The answer to the first of these questions is that we have the fortunate option of finding and developing the substantial remaining petroleum sources in the unexplored sedimentary basins of the lower 48 states, and of greatly increasing the recovery from known reservoirs through enhanced recovery techniques.

I might have questioned, more than I am inclined to today, that statement, if I had not read earlier in the Washington Post, by J. W. Anderson—this is John Anderson, and not Jack Anderson, I want to observe—he writes about the Minco field in Oklahoma. And anyone who is familiar with the oil business knows that that State has probably been explored and drilled and geologized and seismographed probably as much as any comparable area on the Earth's surface. And yet this Woods Co. down there went into a field that I understand has been drilled and redrilled and abandoned, and drilled 13 dry holes in a row, and the 14th happened to produce a very sizable discovery down there.

Woods had spent, I think, some \$300,000, but they made one more test in that area, and they found this very significant petroleum deposit.

Now, what I am concerned about is, it seems as though a lot of people these days have a feeling that we have found the last oil there is, that there is not very much left to do or to discover, and yet, I think, by pointing out, as you have, what could be accomplished if we took price controls off, took regulation off the oil industry, it does indeed merit our serious consideration.

They tell me, the USGS and the AAPG, the American Association of Petroleum Geologists, and also SIPES, the Society of Independent Petroleum Earth Scientists, that, given present values of oil in this country, old oil, we have in place and recoverable, about 40 billion

barrels; that is, with the costs where they are, and the prices where they are, we will produce about 40 billion barrels of oil.

How much more oil could we produce if we were to take price controls off, and not discover any new fields—and I am told also that there is not a major oil field in the United States that has been discovered since we started drilling for oil, that has been completely abandoned. There is some stripper-well operation going on, and there is some flooding or secondary or tertiary recovery, that is taking place right now. So if we would take the price controls off, and let the prices of domestic oil, old oil, move up where they would, we could recover, in addition to the 40 billion barrels, another 60 billion barrels; in other words, $1\frac{1}{2}$ times more than we will likely otherwise be able to recover. Does this square with what you understand? You are an expert in this field, and I would like your opinion?

Mr. MILLER. I thank you for your qualification. However, let me just say, I do agree with those numbers and feel that we do not have any real handle on what can be developed in the United States if we have a free market, uncontrolled situation.

Now, there are a couple of specific illustrations I might use just quickly here, Senator, if I might? As you know, in the State of Texas, there was a great shortage of gas for a number of the cities. The gas that had been found there had been to interstate pipelines and shortages were developing within the State. With the better price of intrastate gas and the new drilling that has occurred, that intrastate market is basically cared for. I am not saying completely cared for but I am saying that sufficiently so the price has softened.

The contracts that are being discussed down there today are discussed at a lesser rate than those which were discussed 3 or 4 or 5 months ago. I think that is probably as quick an illustration of what can occur.

Various basins were looked at. The gas was known to be there but it could not come on stream with some artificially regulated price that was not commercial. At a better price, a supply demand situation that is commercial, the supply has been developed, the demand has been met and you have a price interaction.

Senator HANSEN. You spoke about what happened after the passage and signing into law the Tax Reduction Act of 1975 which many people believe was a misnomer. But, whether it was or not, let me call your attention to what I hear from a constituent of mine in Wyoming. He says, "Since the passage of that act, the average number of drilling rigs active in the State of Wyoming has decreased from 129 to 99, a 30-rig dropoff in activity:" which he says is a decrease of over 23 percent.

And he goes on to point out, "During the same period last year, the average number of drilling rigs in operation increased by 13 percent." Is this what you have in mind when you say that that act proved to be a very explicit disincentive to the industry? And what it did accomplish, I think you said, was to relieve the shortage in tubular goods and drill rigs.

I gather a lot of them are being stored now. Is that correct?

Mr. MILLER. That is correct, Senator.

Early today, Senator Haskell was referring to a piece of information developed in his own State and I think a week or two previous

this same publication had done a study in various active areas of the United States on the rig count and it indicated that this same percentage that you are alluding to here was basically true.

I think beyond the point of the rigs being shut down at this point, and they are, the rig count has dropped, let us say, from a high of 1,680 to perhaps presently around the range of 1,620.

You might say a 60-rig drop is not that important if we just deal with the numbers superficially. I think more importantly we ought to deal with the fact we have been on an incline from less than a 1,000 in 1971 coming up to the 1,250 to 1,450 to 1,670. And without the so-called Tax Reform Act as you have called it, without that particular action taking away the depletion provision, we could well have anticipated that today, instead of dealing with 1,600 or 1,620, we might be looking at 1,820 or 1,850 on our way back toward 2,000, 2,500, and some other numbers that we need to be going for instead of coming to this point and then taking this precipitous drop.

Senator HANSEN. Mr. Chairman, if I could exceed my time with just one more observation? I talked about my State of Wyoming which happens to be the fifth largest oil and gas producer. And I have referred to SIPES and other professional organizations as to what they think might be accomplished.

Let me now read from the Oil Daily, Wednesday, July 9, 1975. And this, I am certain, will be of interest to you, Mr. Chairman.

The Louisiana Mineral Board has called upon the national leadership to prevent what will certainly be a catastrophe. In a resolution it painted this picture of Louisiana oil and gas operations: leasing and drilling on State-owned water bottoms down 35.01 percent from January to May 1975; acreage leased down 62.09 percent in 2 months; Louisiana drilling permits issued in the first 16 weeks of 1975, 5.09 percent, fewer than in the like 1974 period, completions off 30 percent year-to-year.

"Even more alarming," the article continues, "1,020 wells plugged and abandoned in the first 16 weeks of this year compared with 600 a year earlier, a net increase of 41.02 percent."

May I just conclude, Mr. Chairman, by saying that I think this indicates that this is a national problem. We are going the wrong way, as you have so often said, and I appreciate the contribution Mr. Miller has made as president of IPAA and his appearance here today in trying to get the attention of people as to what has taken place in this country.

Thank you, Mr. Chairman.

The CHAIRMAN. You indicated that the demand for rigs has fallen off sharply. Can you give me some indication as to how many idle rigs there are in the country now today?

Mr. MILLER. I missed the last part of the question.

The CHAIRMAN. How many idle rigs are there in this part of the country?

Mr. MILLER. I would say in the trade rig count, you are probably looking at 100 rigs at least that are not working at this time.

The CHAIRMAN. Now here we are in a recession with a lot of people out of work and an energy shortage which is one of the big contributing factors to the recession. Would it not make sense to be doing everything within our capacity to operate all of the rigs we have available with which to drill and to be manufacturing more rigs as rapidly as they can be manufactured and put into operation?

Mr. MILLER. Yes, sir, that is another side, and I am glad you raised that point because it is true that some rigs that have been ordered, new rig orders placed, have been canceled because of a lack of assurance that they were going to have a viable place to operate.

The CHAIRMAN. Now, if Congress cannot do anything better, you would think it might be capable of correcting some of the mistakes that it has made at least during this year.

You and I had something of a difference of opinion when we were voting on the depletion allowance. I did not really favor going as far as the Congress went, as you well know, but I felt that if we did not do something along that line, not only were the majors going to be denied their depletion allowance, but everybody would be denied the depletion allowance.

And I felt we should draw up something that would very tightly see that nobody gets by without a substantial amount of income tax if he is making a profit even though he is in the oil business.

Your people have been concerned about this, and insofar as you have fears along that line, would you submit to us some suggestions as to how we might be able to protect you from some unintended hardships that were occasioned in the recent tax cut bill?

Mr. MILLER. Thank you, Mr. Chairman, we would be most happy to do so.

The CHAIRMAN. That is obviously something we did not intend, and I think also you have a problem where the depletion allowance does not apply to someone who has sold a producing property. And the way independents operate is that ordinarily they pool their money, and one fellow goes and he is usually described as the operator, and he obtains a lease, he drills the well, and if it is successful, he then assigns to everybody his share.

It was my thought when we did that, that all of those people would receive their depletion allowance. But someone has pointed out to me that you are afraid it might be construed that although those people were partners from beginning, that they would not get their depletion allowance because they were not listed as the operator in the beginning.

Mr. MILLER. Yes, sir, we are very much concerned about two aspects of that, at least. And those two are normally referred to as the retailer exclusion, which you first illustrated, and the second one being the transfer of property. And we would like very much to set forth some specific corrective suggestions in both of those areas.

The CHAIRMAN. If you cannot get anyone else to correct the errors, I will try to correct some of those that I made.

Now, would you explain to me why you felt that you would be reluctant to pick any particular price at which a barrel of oil could sell? Would you explain to me what you told me personally just yesterday?

Mr. MILLER. I think probably it starts in this way—by saying that for some 20 years the Federal Power Commission has tried to develop a price structure for gas and has been completely unsuccessful in its attempt, and it is one of the large contributing factors to having us in the problem that we are in today.

In addition to that, if you go back and try to assign the costs that have gone into the development of oil and gas, you necessarily have to try to break out, if you are going to tell them an oil price, what was

drilled for gas and vice versa, here are some very difficult procedural things here to come up with a specific number in allocating costs to your gas versus your oil.

In addition, while you can count permits issued and footage drilled and estimate drilling costs, there are a number of things that go into the other phase of oil business. In fact, it has been said that about \$1 out of \$5 goes into the drilling. So, you have the other expenditures and geophysical, geological, and all of the interrelated costs, and I do not feel there is any way that those costs can be properly estimated and cranked into a picture.

You can come out with a fixed barrelage cost for oil or a cubic foot of gas. We can demonstrate the fact that it has accelerated tremendously; that can be done.

But again, to go back to a particular illustration, the area that is now under development in my own State, we believe, that totally there is going to be 400 to 500 million barrels found in this so-called little north slope.

The CHAIRMAN. What State is that when you say your home State?
Mr. MILLER. Michigan.

And also, perhaps 3 to 5 trillion cubic feet of gas. But, if you tried to equate the cost basis of those particular commodities, you would necessarily have to go back and be able to ascertain all of the beginning geophysical work that went in there back some 20 years ago.

I have some personal knowledge of one company that expended over \$20 million, and they produced a total of 2,800 barrels of oil—2,800 barrels, Senator. Then they left, shut down, cleaned out; they are shut down.

Now, later on some of that geophysical data was used and was upgraded with new technology, new techniques, and it has been helpful as a resource base for today's development. But, those costs, those previous costs of one company—one company is the only one I mentioned but a number of other attempts were made—those costs are not necessarily available in a study.

We have 10,000 independents today. We can perhaps calculate their cost by some type of a survey. But, how are we going to find the 30,000, 40,000, or 50,000 people that over the past 20 years have left this business? They were unable to make a profit. Some 10,000 of them were active operators that we can demonstrate from our own personal knowledge but there are a number of other large private investors. How do you gather all of those costs together then and come up and say, this is the unit price and at that unit price we will have a guaranteed or an assumed 15 percent profitability?

These numbers bother me tremendously. I maintain that we can demonstrate an accelerated cost. But, I have a real fear of trying to develop a cost and say that is the magic number and at that number, that will be sufficient to bring all of the investor capital into the industry and it will be sufficient to take into account accelerating new costs and it will bring onstream the need of development of new oil and gas.

The CHAIRMAN. Well, in addition to that, it is sort of hard, even by pulling the producer's tax returns—which can be done by this committee—but it is hard to say what the price of the energy ought to be on that basis because we are not in position to pull the tax returns out of

people who went broke in the business. There are plenty of them, is that not correct?

Mr. MILLER. Quite a number of them, the majority I believe.

The CHAIRMAN. That is one thing a lot of people do not understand. I have been told that about 40,000 people put money into the oil business and lost their money and just wanted to forget about it and hear no more about it. And I know some of those 40,000 people, some of them are dead now, but I know some of them are still alive and my impression is that when they lose their money they do not even want to go home and tell their wife about it. They would just as soon forget about that whole thing.

I see you smiling because you know some of those people too.

Mr. MILLER. Yes; I do.

The CHAIRMAN. But, this much, I think people can rely upon: That if we let the price go up too high it will bring a tremendous number of people into the industry and I would think that it would bring onstream other forms of energy such as coal, shale, atomic and others. And when the production of energy gives us a surplus again then the price will come down.

Now, that makes sense does it not?

Mr. MILLER. It certainly does.

The CHAIRMAN. Now, we have reports here for the first quarter of 1975 would indicate that the industry average for petroleum and coal is running about 10.2 percent profit after tax, which is a little better than all manufacturing or nondurables as a whole or even durables.

But, the major, oddly enough for their domestic energy, are reporting in at 9.2, which it would sound as though the independents must be doing better than the majors right now, probably because the independents still have the depletion allowance, at least in part.

Are you familiar with some of that?

Mr. MILLER. Not totally on that survey because I am sure that that is addressing itself to public companies. And, of course, as you are very much aware, a large number of the independents are not public stock companies. And so I am not exactly sure of the genesis of that study.

The CHAIRMAN. Well, one point that does occur to me is that if you are willing to agree with Mr. Nathan's figure that one should expect about a 15 percent profit margin in something as risky as this—and it is very speculative, I think we all know how risky a drilling operation is—and he said, if you do not want to buy that, you at least ought to be willing to agree that 12 percent would be a fair profit margin.

Our latest figures indicate that the industry is not making that. And so, if people are worried about the price or profits in the industry, I think it might make some happy, I mean some of the people who do not seem to like the industry might be happy to know that the industry is not making enough money to attract the capital it needs to provide for the needs in this country.

Mr. Miller I think there is one added point Senator, and this is very important to me, and that is that a number of times the statement has been made about the high profits of the industry and how easy it is and so forth and so on. I think one thing that ought to be very clearly understood is that it is an open industry.

Senator HANSEN. It is what?

Mr. MILLER. It is an open industry. There is no closed system, there is no closed corporation. As I stated earlier, there are some 10,000 active, ongoing, aggressive independents. Anyone in this room or anyone in the United States that cares to involve themselves in the development of oil and gas properties has the perfect right to do so. And it is not that complicated to get in.

It does take some particular requirements, albeit the necessity of somebody else's money, perhaps, but some money for investment. But you can get a permit to drill in almost any State I know of. You do not have to qualify as an attorney or a doctor, or a patent lawyer, or whatever the case may be. If you want to get a permit to drill, you prove that you have acquired a lease and you set down the stipulation of where you are going to drill, file the necessary form, and file that particular fee. And then have at it.

The CHAIRMAN. That just gives me one more thing that occurred to me. Someone has the idea there is too much profits in this oil business and they have a few dollars to invest.

Could you give me the names of a few people who pay dues to your association, who have a good reputation, and who would be willing to take them in as partners in their next drilling venture?

Mr. MILLER. Senator, if you had not said a good reputation I would have got in line first. I ought to get some fringe benefit for this work, sir.

Yes, sir, I am sure there is a great number of places of good worthwhile prospects, that need capital and can be drilled and hopefully with the intrastate markets and the release of some of these regulations, we will see a greater activity on the part of the private investor back in the development of these resources.

The CHAIRMAN. Well, some years ago I persuaded my family that we should not engage in any more drilling for oil and gas. And that was back before the energy crisis hit. And I simply said, let us go back and take out the books and look at the last 30 wells we participated in. All we are doing is losing money and we ought to quit it, just quit and swear that we will never go back into it, promise each other we will never have anything more to do with it.

All we are doing is losing money and someone comes around with these optimistic prospects, and by the time they get through we lose the money all over again.

So, we quit, we got out of it, we were cured of it and then subsequently some friend came along and had this fine prospect and he got us back into it, at least he got me back into it. So, I told one of my colleagues that I thought this thing sounded so good I was going to put some money into it if I wanted to. And he could have half of it.

So, he decided to take me up on that and so I reported to him a couple of weeks later that we now had a dry hole and he wanted to know more about it. And I said, if you want to, you can go down and see the hole. But, I will tell you right now that the man had reported to the State mineral leasing board down there that he had abandoned that well, and you can read it in the newspaper and save yourself some money.

So, he said, well, that seems awfully quick to me, a quick way of losing money. And I said, that is why we need the depletion allowance, that is what I have been trying to explain to you.

And there are a lot of good people who are looking for capital in this industry right now, if it is the way it was the last time, I was cured of investing in the oil industry, is that correct?

Mr. MILLER. Yes, sir, that is very correct.

Certainly a large number of the wells drilled by the independents are drilled with private investor capital and that capital is, as I said before in previous testimony, that investment capital is the most mobile thing in America. And when that profit potential is no longer available to those people that are contemplating that type of speculating investment, they will hold it to the sidelines, that money will not be available and we will not be able to sustain the momentum that we have achieved and we will not have the percentage that the Senator from Colorado, Senator Haskell, referred to earlier of the successful wildcats that we are now doing.

This investor capital is vitally important to a large segment of the independent industry.

The CHAIRMAN. I think that is one thing that people ought to understand. If anybody thinks the oil industry is all that profitable, they should meet the good, honorable people who are looking for capital now who would be glad to take them in as partners because it is a very risky, speculative thing. When you go out to drill a wildcat well you had better feel assured that the odds are about 80 percent that you are going to wind up losing money.

The fact that it is that way justifies a profit that exceeds what you make if you are going to build a generating powerplant. If you try to regulate this type of speculative activity as though it were an electric generating plant where an engineer can draw you a set of specifications and with the help of an architect they can have that thing constructed and guarantee you that electricity will come out the other end, provided you pour some fuel in the starting end, is just an entirely different thing.

As I have tried to say, it is just as though you are trying to make an eagle operate as though he were a squirrel or vice versa. They are just two different kinds of animals and to try to make one operate as though it were the other has necessarily got to fail. There is no way it can work and that is what you have been confronted with in the gas business.

And now they are trying to confront you with that in the oil end of it. Is that not about the size of it?

Mr. MILLER. Yes, sir, I fully agree.

The CHAIRMAN. Thank you very much.

We will meet again at 2:30.

[Whereupon, at 12:58 p.m., the committee recessed to reconvene at 2:30 p.m. the same day.]

AFTERNOON SESSION

The CHAIRMAN. Mr. Jerome J. McGrath, executive vice president, Interstate Natural Gas Association. We are pleased to have you, Mr.

McGrath. I will try to see to it that my colleagues are made aware of what you testify to. I try to keep them here but sometimes it is necessary for some of us to try to inform the others.

**STATEMENT OF JEROME J. McGRATH, EXECUTIVE VICE PRESIDENT
AND GENERAL COUNSEL, INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA**

Mr. McGRATH. Thank you, Mr. Chairman. We understand the commitments of the Senate.

My name is Jerome J. McGrath. I am executive vice president and general counsel of the Interstate Natural Gas Association of America, Inc., Washington, D.C.

INGAA is a national organization representing virtually all of the major interstate natural gas transmission line in the United States. Our companies account for 90 percent of all gas transported and sold in interstate commerce and all of our companies are subject to the jurisdiction of the Federal Power Commission under the Natural Gas Act.

We are greatly concerned, Mr. Chairman, with the provision in the House bill 6860, title IV, section 411, which appears on pages 77 to 80, which would levy a tax on the business use of natural gas, with certain stated exceptions, ostensibly with the objective of encouraging the conservation of this premium fuel. Our primary concern is that the tax would apply to the use of natural gas by pipelines as compressor fuel in the operation of their gas pipeline systems. Second, we question the desirability of such a tax, in any event as a conservation measure, in view of the artificially depressed wellhead price of gas today resulting from Federal regulations as well as the curtailment programs of the pipeline companies which are also under control of the FPC.

H.R. 6860 would amend subtitle D, miscellaneous excise taxes, of the Internal Revenue Code by adding two new subsections: Section 4991, which would impose a tax on certain business uses of natural gas, graduating from 4 cents per 1,000 cubic feet in 1977 to 18 cents per 1,000 cubic feet in 1980 or thereafter; and section 4992, which would define "Taxable Use" and also except certain uses from the tax. If this section is retained in the bill we would urge the committee to amend the House Bill by excepting the use of natural gas as a fuel in the transportation of gas by pipeline. This could be accomplished very simply by inserting on page 79 of the bill a new subparagraph (I) which would read:

"(I) in the transportation or gathering of gas by pipeline," and certain other conforming amendments would have to be made on lines 20 and 24 if this adjustment were to be made.

Although the House provision is written with the intent of collecting revenue at the business level, the fact of the matter is that it will result in a substantial tax on all natural gas consumers. The interstate pipeline companies have about 160,000 miles of transmission lines in operation today. The number of compressor stations on each system will vary from system to system and by the amount of gas being transported in each, but as a general rule a station is installed

about every 80 to 90 miles along the system and more than one line may feed into or come out of a particular station. As of December 31, 1976, there were over 1,000 compressor stations on major interstate lines spread across the country. These stations are necessary to maintain pressure in the pipelines to pump the gas from the producing fields to markets. For the most part, compressor stations are located in remote rural areas and they are entirely dependent on the natural gas being pumped through the line for their fuel. Indeed, few if any stations are equipped to burn any other fuel. As you can readily see, compressor stations are an integral part of a major long-distance pipeline operation and they provide the power for the most efficient transportation system operating in the United States today.

The excise tax on compressor station use of gas we believe is inappropriate and will unnecessarily penalize all consumers of natural gas who will have to share in the burden of paying this tax. The latest figures available to us indicate an annual usage of about 558 billion cubic feet of gas as compressor fuel on major interstate pipelines. If the excise tax is imposed as proposed, and assuming this amount of usage, we estimate the tax in 1977 to be \$22,320,000; in 1978, \$44,640,000; 1979, \$66,960,000; and in 1980 or thereafter, \$100,440,000. Actually, this impact is somewhat understated because it does not include compressors used by smaller pipelines or by intrastate pipelines, including field compressors.

Businesses which would have to pay the excise tax would face double taxation because the compressor fuel tax, as with other taxes imposed on regulated industries such as pipelines and local distributors, are passed on to consumers as part of the cost of doing business. Thus the business user would pay not only the tax on his use but his share of the pipeline tax on gas used in compressors.

Furthermore, such a tax would not achieve conservation objectives asserted in the House report. As I have indicated, compressor stations are scattered all over the country mostly in rural areas where, even if the alternative fuels could be used, it would be costly and difficult to convert the compressors to some other form of energy. A rather quick study has been made of the cost of converting compressor engines to other energy sources on an industrywide basis, that is using total installed horsepower of about 15 million horsepower. While these are very rough figures, they do serve to indicate the dimension of the problem. It must be borne in mind also that the alternate fuels that could be used are in short supply and are a good deal more expensive than natural gas, resulting in much higher operating costs. Our data shows:

First, to convert all compressors to propane, a fuel closest to natural gas in burning properties and characteristics, it is estimated to cost the industry and ultimately the consumer \$1 billion.

Second, to convert to oil it would cost about \$2.5 billion. Many units would have to be replaced entirely since they cannot be converted to oil.

Third, to convert to electric drive engines, practically all units that we are aware of would have to be replaced at a cost of about \$5.5 billion and additional generating capacity would have to be added by

the supplying power companies at a cost of about \$3.5 billion—or a total estimated impact for electrical-driven engines of about \$9 to \$10 billion.

These figures should be compared to the total investment of \$47 billion for all gas utility plants. Obviously, requiring substitution of other fuels or energy could have a serious economic impact on the gas industry and the customers it serves.

Now, these are very rough figures, Mr. Chairman, and they are based on 1973 data, but they are offered merely to give the committee some measure of the impact as we see it. In this regard, Mr. Chairman, I would also like to call your attention to a recent order of the Federal Energy Administration concerning the prohibition against burning oil or natural gas as the primary energy source in major fuel-burning installations. This order specifically excludes from its coverage "gas turbines and combined cycle or combustion engines." This order was issued April 16, 1975.

Finally, we believe the excise tax, and I believe there is a correction if I could note that for the record, Mr. Chairman. On the last line of our prepared statement on page 5, the word "Gas" after excise should be "tax," to read "Finally, we believe the excise tax on the use of natural gas to be a misdirected effort. Instead of placing a tax on natural gas, the Congress should be seeking ways to free the wellhead price of gas from the regulatory shackles with which it has been encumbered for over 20 years. The excise tax will increase the cost to consumers but it will not serve to generate 1 cubic foot more of supply. In some producing areas the tax for old or flowing gas will be higher than the price allowed by the FPC.

In the Hugoton gas field of Kansas, Oklahoma, and Texas, for example, the area rate for old gas is around 13 to 14 cents per 1,000 cubic feet. The tax would be 18 cents. If anything, this would be a disincentive to producers to develop new reserves.

As this committee is undoubtedly aware, the natural gas industry is faced with a serious shortfall in supply which has caused the interstate pipelines to impose ever deepening curtailments in service. Projections for next winter show a 45 percent increase in curtailments over last year. While it may be contended that the excise tax on business use of natural gas will discourage use of this fuel, we do not believe this will be the result, especially when you compare the cost of alternative fuels which are two to three times higher than gas in the industrial market. It should be pointed out also that as a result of the curtailment programs invoked by the FPC, many industrial users of gas are curtailed substantially during the winter months so that the compressor fuel tax would be carried by and large by the small users of gas who are otherwise specifically excepted by subparagraph (a) (2) (B) of proposed section 4992 of H.R. 6860.

In conclusion, Mr. Chairman, it is INGAA's view that the excise tax on natural gas usage will serve no truly beneficial purpose. It should not be enacted. We would urge the committee, at a minimum, to provide an exception from the tax for gas used in compressor stations for the gathering and transportation of gas to market.

We would be pleased to answer your questions and we appreciate the opportunity to submit our views on this important subject.

The CHAIRMAN. Thank you very much. I see you have a real problem here. I am going to instruct our staff to see to it that we consider the problems that you raised here when we are considering this bill. I can see how this tax can create a real problem for your companies, for example, because you have been proceeding under the assumption that from the very beginning that you could use some of the gas that you are shipping through your pipeline to move the gas.

Mr. McGRATH. That's right, sir, a very integral part of the operation.

The CHAIRMAN. Just like the fellow, if he has a gas well and he wants to drill another one, he expects to use gas from the existing gas well to provide the power to drill the second well.

Mr. McGRATH. That's right, sir.

The CHAIRMAN. Thank you very much. I see that you have a problem. I will try to see that we consider it and try to provide some answers to it.

Many thanks, Mr. McGrath. We will look into that.

Mr. McGRATH. Thank you, sir.

[The prepared statement of Mr. McGrath follows:]

TESTIMONY OF JEROME J. McGRATH, EXECUTIVE VICE PRESIDENT AND GENERAL COUNSEL, INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA

My name is Jerome J. McGrath. I am Executive Vice President and General Counsel of the Interstate Natural Gas Association of America (INGAA), Washington, D.C. INGAA is a national organization representing virtually all of the major interstate natural gas transmission lines in the United States. Our companies account for 90 percent of all gas transported and sold in interstate commerce and all of our companies are subject to the jurisdiction of the Federal Power Commission under the Natural Gas Act (15 USC 717, *et seq.*). Every one of the lower 48 states with the exception of Vermont is served in whole or in part with natural gas transported by one or more of our companies.

We are greatly concerned, Mr. Chairman, with the provision in the House Bill (H.R. 6860, Title IV, Sec. 411, pp. 77-80) which would levy a tax on the business use of natural gas, with certain stated exceptions, ostensibly with the objective of encouraging the conservation of this premium fuel. Our primary concern is that the tax would apply to the use of natural gas by pipeline as compressor fuel in the operation of their gas pipeline systems. Secondly, we question the desirability of such a tax, in any event as a conservation measure, in view of the artificially depressed wellhead price of gas today resulting from Federal regulation as well as the curtailment programs of the pipeline companies which are also under control of the FPC.

H.R. 6860 would amend Sub Title D, Miscellaneous Excise Taxes, of the Internal Revenue Code by adding two new subsections: Sections 4991, which would impose a tax on certain business uses of natural gas, graduating from 4 cents per 1,000 cubic feet in 1976 to 18 cents per 1,000 cubic feet in 1980 or thereafter; and Section 4992, which would define "Taxable Use" and also except certain uses from the tax. We would urge the Committee to amend the House Bill by excepting the use of natural gas as a fuel in the transportation of gas by pipeline. This could be accomplished very simply in inserting on page 79 of the Bill a new subparagraph (I) to read:

"(I) in the transportation or gathering of gas by pipeline." and by striking the word "and" on line 20, p. 79; changing the period (1) to a comma (,) after the word "products" on line 24 and inserting the word "and".

Although the House provision is written with the intent of collecting revenue at the business level, the fact of the matter is it will result in a substantial tax on all natural gas consumers. The interstate pipeline companies have about 160,000 miles of transmission lines in operation today. The number of compressor stations on each system will vary from system to system and by the amount of gas being transported in each, but as a general rule of thumb a station is installed about every 80-90 miles along the system and more than one line may feed into or come out of a particular station. As of December 31, 1973, there

were over 1,000 compressor stations on major interstate lines spread across the country. These stations are necessary to maintain pressure in the pipelines to pump the gas from the producing fields to markets. For the most part, compressor stations are located in remote rural areas and they are entirely dependent on the natural gas being pumped through the line for their fuel. Indeed, few if any stations are equipped to burn any other fuel. As you can readily see, compressor stations are an integral part of a major long-distance pipeline operation and they provide the power for the most efficient transportation system operating in the United States today.

The excise tax on compressor station use of gas is inappropriate and will unnecessarily penalize *all* consumers of natural gas who will have to share in the burden of paying this tax. The latest figures available to us indicate an annual usage of about 558 billion cubic feet of gas as compressor fuel on major interstate pipelines. If the excise tax is imposed as proposed, and assuming this amount of usage, it will result in the following impact on natural gas consumers:

ESTIMATED TAX IMPACT

Year	Proposed tax per 1,000 ft. ³	Revenue
1977.....	\$0.04	\$22,320,000
1978.....	.08	44,640,000
1979.....	.12	66,960,000
1980 or thereafter.....	.18	100,440,000

Actually, the tax impact is somewhat understated because it does not include compressors used by smaller pipelines or by intrastate pipelines.

Businesses which would have to pay the excise tax would face double taxation because the compressor fuel tax, as with other taxes imposed on regulated industries such as pipelines and local distributors, are passed on to consumers as part of the cost of doing business. Thus the business user would pay not only the tax on his use but his share of the pipeline tax on gas used in compressors.

Furthermore, such a tax would not achieve the conservation objectives asserted in the House Report. As I have indicated, compressor stations are scattered all over the country mostly in rural areas where, even if alternative fuels could be used, it would be costly and difficult to convert the compressors to some other form of energy. A rather quick study has been made of the cost of converting compressor engines to other energy sources on an industrywide basis, that is using total installed horsepower of about 15 million H.P. While these are very rough figures, they do serve to indicate the dimension of the problem. It must be borne in mind also that the alternate fuels that could be used are in short supply and are a good deal more expensive than natural gas, resulting in much higher operating costs. Our data shows:

1. To convert all compressors to propane, a fuel closest to natural gas in burning properties and characteristics, it is estimated to cost the industry, and ultimately the consumer, one billion dollars.

2. To convert to oil it would cost about \$2.5 billion. Many units would have to be replaced entirely since they cannot be converted to oil.

3. To convert to electric drive engines, practically all units that we are aware of would have to be replaced at a cost of about \$5.5 billion and additional generating capacity would have to be added by the supplying power companies at a cost of about \$3.5 billion—or a total estimated impact for electrical-driven engines of about \$9 to \$10 billion.

These figures should be compared to the total investment of \$47 billion for all gas utility plant. Obviously, requiring substitution of other fuels or energy could have a serious economic impact on the gas industry and the customers it serves.

Now, these are very rough figures and they are based on 1973 data, but they are offered merely to give the Committee some measure of the impact as we see it. In this regard, Mr. Chairman, I would like to call your attention to a recent order of the Federal Energy Administration concerning the prohibition against burning oil or natural gas as the primary energy source in major fuel burning installations. This order specifically excludes from its coverage "Gas turbines and combined cycle or combustion engines". See FEA Major Fuel Burning Installation Coal Conversion Report, Para. VII, Definitions, Subpara. 1 "Major Fuel Burning Installation", issued April 16, 1975.

Finally, we believe the excise tax on the use of natural gas to be a misdirected effort. Instead of placing a tax on natural gas the Congress should be seeking ways to free the wellhead price of gas from the regulatory shackles with which it has been encumbered for over twenty years. The excise tax will increase the cost to consumers but it will not serve to generate one cubic foot more of supply. In some producing areas the tax in 1980 will be more than the price allowed by the Federal Power Commission for old or "flowing" gas. In the Hugoton gas field of Kansas, Oklahoma and Texas, e.g., the Area Rate for old gas is 13-14¢/1000 cubic feet. The tax would be 18¢ by 1980. If anything, this would be a disincentive to producers to develop new reserves.

As this Committee is undoubtedly aware, the natural gas industry is faced with a serious shortfall in supply which has caused the interstate pipelines to impose ever deepening curtailments in service. Projections for next winter show a 45% increase in curtailments over last year. While it may be contended that the excise tax on business use of natural gas will discourage use of this fuel, we do not believe this will be the result, especially when you compare the cost of alternative fuels which are two to three times higher than gas in the industrial market. It should be pointed out also that as a result of the curtailment programs invoked by the FPC, many industrial users of gas are curtailed substantially during the winter months so that the compressor fuel tax would be carried by and large by the small users of gas who are otherwise specifically excepted by Subparagraph (a) (2) (B) of proposed Sec. 4992 of H.R. 6860.

It is INGAA's view that the excise tax on natural gas usage will serve no truly beneficial purpose. We would urge the Committee, at a minimum, to provide an exception from the tax for gas used by pipelines in their compressor stations for the gathering and transportation of gas to market. We would be pleased to answer your questions and we appreciate the opportunity to submit our views on this important subject.

The CHAIRMAN. Next we will call Mr. George H. Lawrence, senior vice president for public affairs of the American Gas Association.

Mr. Lawrence?

STATEMENT OF GEORGE H. LAWRENCE, SENIOR VICE PRESIDENT, AMERICAN GAS ASSOCIATION

Mr. LAWRENCE. Thank you, Mr. Chairman. I appreciate the opportunity to appear and to express the very serious concerns we have regarding H.R. 6860.

The gas industry has been gravely concerned for some time that the administration has placed far too little emphasis on the natural gas industry as a significant supplier of the Nation's energy requirements present and future, and we fear that such a policy is now also reflected in H.R. 6860, which essentially ignores the gas industry except to the extent that it would be used as a source of revenue as it replaces its business use taxes Mr. McGrath just referred.

H.R. 6860 was at one time widely heralded in the House of Representatives as the energy bill. In our opinion it misses the mark very widely both as to what it failed to include and what it does include.

First, Mr. Chairman, to what it failed to include, I would like to emphasize three points. One, we feel that this bill should have addressed the vitally needed capital incentives such as a permanent increase in investment credit, rather than leaving them to the vastly more complex and time consuming general tax reform proceedings now going on before the Ways and Means Committee. We, AGA, testified before Ways and Means on March 11 on this and we are preparing to testify again next week on July 22. And while we are not attempting to offer testimony on this subject before your committee at this time, we would respectfully recommend that this committee consider expanding

its review of H.R. 6860 to expedite the congressional decision on these vital issues, and if so we would be prepared to testify on very short notice on this subject.

A second point, an original draft of the Ways and Means bill and the committee task force reports in effect recommended that the well-head price of natural gas be deregulated and in anticipation of this that it at one time incorporated a so-called windfall profits tax, which was proposed in the form of an excise tax above a certain field price level.

Now if in this committee's judgment such an excise tax on the field price with an appropriate plowback provision to encourage exploration and drilling would in anyway expedite a Senate and congressional decision, which is now upcoming on deregulation of the field price of natural gas, we would most heartily encourage that it be included within the scope of the committee's consideration on this bill. We think that is the single most important issue facing the gas industry and really facing the country as far as solving this energy problem.

A third point that is missing from the bill; the original House version also contained a provision for a dividend reinvestment whereby energy utilities, gas and electric, could retain needed capital by issuing stock instead of cash dividends and postponing the income tax until the stock was disposed of.

Now this was an excellent concept and one which would provide our natural gas companies with additional capital without having to go into the financial market, and we would urge this committee to restore the dividend reinvestment provisions and make it available to all natural gas and electric utilities.

Second, as to what H.R. 6860 does include, we would mainly offer our strong objection to a use tax on natural gas which is discriminatory, unfair, and regressive and which makes no contribution whatsoever to improving gas supplies at a time when this is the single most important step that could be taken, in our opinion, toward domestic energy self-sufficiency.

And in support of this point, Mr. Chairman, I would like to tick off just a few facts. No. 1 is all too seldom understood that natural gas is right now our dominant source of domestic energy. When we lay aside imports it is by far the largest supplier of energy produced in the United States. And second, when we focus on the energy used by U.S. industry, its importance is even more significant. It accounts for over 50 percent of what industry uses and this is over 2½ times as what is supplied elsewhere. And if we get to the very critical point of supply—we speak about concern with limited capital and incentives for capital investment. That, gas is the most capital efficient form of energy that we have and this is a very seldom understood point but very important. Of a net capital investment of some \$50 billion, the gas industry provides over one-third of the total energy usage in the country. By comparison, the electric industry, with an investment of some \$132 billion, provides only about 10 percent compared with our one-third of the energy usage.

So if we focus on this very critical ratio of energy provided per capital dollar invested, the gas industry has a 9 to 1 advantage, but

this does not seem to creep into too many of the capital investment incentives that are offered. This in particular, by the administration.

We have a huge resource base—

The CHAIRMAN. I am not sure I understand that point. I would like for you to explain that to me again.

Mr. LAWRENCE. Yes, sir, I would be glad to.

We went into this because of our concern that the administration was making recommendations for specific investment credit and rapid amortization provisions for the electric industry only, and they were very concerned with their capital derivation problems. And yet we have, as I will point out in a moment, the same serious capital problems and we submit that at this time when we say we've got a capital shortage in this country to meet our energy needs and capital formation is a problem—Ways and Means is addressing it now. You are addressing it now, and so forth. But when compared with the electric industry, we have a tremendous advantage because with our investment in the ground now, pipeline and the facilities, valued at \$50 billion, we are able to provide over 30 percent of the energy, and yet the electric industry, with an investment of some \$130 billion plus—

The CHAIRMAN. They've got how much?

Mr. LAWRENCE. Over \$132 billion. They now account for about 10 percent of the total energy, nearly three times the investment for approximately one-third the energy produced.

So when we are speaking and when we relate the amount of energy that can be brought to the consumer per capital dollar invested in utility energy delivered facility, the gas industry has a 9 to 1 advantage over the electric industry.

The CHAIRMAN. Well, now you are talking about \$50 billion. You are just talking about the \$50 billion invested in pipelines or are you talking about the \$50 billion in the wells as well?

Mr. LAWRENCE. No, sir. In pipeline, transmission, distribution facilities, which is comparable to the investment in electric utilities because theirs does not account for all of the investment in coal or oil and so forth that is also burned to generate electricity.

The CHAIRMAN. I believe I'm getting your point. I did not get it at first. I think I get it now.

In any event, whether you are going their route or your route, in either event you would have to produce the base fuel. In other words, you would have to produce the coal or the gas or the oil in any event.

Mr. LAWRENCE. Yes, sir.

The Chairman. So that the investment in the primary fuel would have to be made anyway. But if I understand what you are saying, to get a given amount of Btu's or a given amount of energy to a customer going by way of delivering gas directly into the customer's establishment, it only takes \$1 for every 9 to do it by way of delivering gas into his home, for example, compared to what it takes in terms of investment to get it there through an electric powerline.

Mr. LAWRENCE. Yes, sir.

The CHAIRMAN. I never thought about it that way. Even though I have been vaguely familiar with these two industries for a very long time. Now you are saying your industry needs additional capital, as well as theirs.

Mr. LAWRENCE. Indeed. We are not knocking the capital incentives that the people proposed for them but we are just very perplexed that we seem to get excluded as to the urgency of why we would have those same capital needs, and especially in view of the efficiency that we get with the capital now.

The CHAIRMAN. That just proves why we hold hearings on these matters, because I must say that I have heard advocates of the two industries explain their problems year by year but that the first time it ever occurred to me that there is that much less investment required to get the energy into the place where you want it.

Now it had been explained to me that assuming that you are going to use gas and you are going to deliver it inside a home—for example, suppose you have the option as to whether to cook with natural gas or whether to use the natural gas beneath a boiler and generate electricity, that you would get three times as much mileage for a thousand cubic feet of gas by putting it directly inside the home and burning it in that range as you would if you put it directly into the home through a gas pipe and let them burn it in the range to heat it that way. Is that about your experience?

Mr. LAWRENCE. Yes, sir, about two-thirds of the Btu's that are utilized to generate electricity are wasted.

The CHAIRMAN. In other words, if you had your choice and you are worried about energy conservation, you would have no business using an electric range if the gas is available to be burned inside as a flame.

Mr. LAWRENCE. That's quite true.

The CHAIRMAN. Now how did the economics compare with regard to refrigerating with—for example, in terms of using gas for air-conditioning. How does that compare with the use of electricity?

Mr. LAWRENCE. I think the large, expanded commercial use of natural gas for home cooling and so forth has been a market that has not been sufficiently developed. We do not have either the efficiency advantage to that extent or the economics and I think perhaps part of it is an economy of scale. I am sure some of our research efforts that might have been ongoing in that direction, Mr. Chairman, and close that gap to where we could have capitalized on some of the efficiency in gas air-conditioning, I think has been a victim of the natural gas shortage. And we simply have not focused on it. But I do not think we have that same advantage that we have in heating.

The CHAIRMAN. I hardly thought it would be anything like that if you talk about gas air-conditioning, but I was led to believe that in my part of the country, for example, it is still cheaper to do air-conditioning using a gas unit than it is using an electric unit.

Mr. LAWRENCE. I think it is, sir, both by conservation as far as the economy of Btu's are concerned, and probably in Louisiana in the economy of dollars also. But I am really not sure I can quantify that to the extent that I can with electric space heating versus the cost of heating with gas. Even if we deregulate the field price and let it go to the free market level, electricity for space heating is still going to be 4 to 7 times what it would cost if you had to switch over to electricity.

The CHAIRMAN. Plus that you are just losing a tremendous amount of energy. I think that is even more important right now than the fact that you are wasting money.

Mr. LAWRENCE. Yes, indeed. These are some of the points, Senator, I think we have got to get across next week on the Senate floor when S. 692 and substitute amendments on deregulation are before the Senate.

The CHAIRMAN. Now when gas is piped into a home, is that sold on the same type rate structure as electricity, as it were, that the earlier units are sold at a higher cost and the last units are sold at the lower cost. Or is it sold at a constant rate?

Mr. LAWRENCE. I think in most jurisdictions there has in the past been a so-called block rate that did give certain economies to larger uses, but I think that has become very controversial in virtually all jurisdictions and I think it is being changed to the point where the larger user does not get the economies of block rate.

The CHAIRMAN. I am frank to tell you it seems to me if you are trying to encourage economy you ought to do more than just require a straight-line rate. You ought to require that they reverse the rate so that the early units come cheaply and the last units come very high.

Now if you do it that way, when a person economizes, he just, well he finds the economics are just twice as much of an advantage to put in storm windows and insulate his home as he does otherwise, doesn't he?

Mr. LAWRENCE. Yes, indeed, and I think all of these points are the subject of very diligent consideration by the various State commissions that regulate, and that very point you mentioned, we are giving a lot of consideration.

The CHAIRMAN. It seems to me that is so obvious. Frankly, the man that pointed that out to me, was an officer of one of the big gas-pipeline companies. He did not come in here as an advocate of it. He just pointed out as a simple fact of life that if you want people to economize, you ought to quit using rate structures that encourage waste.

And down in Florida they tell me that people used to use quite a bit of solar hot water heating and the power companies paid them cash payments to take the hot water heaters out and to replace them with electric units.

Now that we are short on energy, that seems like a very foolish thing to do. But not only did they pay them a cash bonus to take out their solar heating unit, but they also sold it on this kind of a rate structure where you charge a very low price for the last unit so the company is not making any money. You would think they would be losing money for the electricity they are delivering at that price. But they are selling more electricity, I guess they are cushioning an overall rate structure where the early units carried the burden of the cheap units at the far end.

Now I would just think it makes all the sense on earth that we ought to find a way at our level to encourage them to do what they failed to do by now.

Do you know of any State in the Union where the Public Service Commission has moved to discourage waste by restructuring that rate structure?

Mr. LAWRENCE. I am aware of some efforts I think in at least one State, but I think they did reverse themselves again on the so-called block rate that would provide the excessive charge for larger usage because it has certain complexities also.

Just very briefly, the history of the way we got into this sort of rate structure is of course we are fully regulated utilities at the distribution level, as are the electric companies and the rate to the consumer is based strictly on the cost of service. And of course, you get these so-called economies of scale. If you have a larger unit the cost per unit is less and that was reflected in the rates. But the thought began to change, of course, as we got to a point where there really was a major emphasis on conservation.

But I think also there are some real problems with the so-called block rates on the other end to actually encourage that. I would be glad to give you some literature on that.

The CHAIRMAN. I wish you would because to me it is so obvious I do not understand why we have not done something about it up till now, but go ahead, I appreciate it.

Mr. LAWRENCE. Well again, the reason for some of the facts that we are perplexed about, why solving the gas problem does not get quite the attention of the Congress and all of the Government, we believe we have a huge resource base of potential natural gas supplies. Just a final two points. Natural gas is the cleanest fuel, with no environmental concerns. It does not pollute air, land, or water. Finally, it is the most efficient form of energy, simply because it does not have to be transformed into electricity as does coal or oil. It does not have to be refined as does crude oil, and it is also the most efficient at the point of utilization.

We submit these are facts that Congress and the administration should face up to in this legislation. As I mentioned earlier, the gas industry is facing a financial crisis, at least equal to those of the electric utilities. And yet, the administration has repeatedly warned Congress of the urgent capital requirements of the electric industry only. I have attached here a study prepared by the Conference Board which shows that in 1974, the swing of capital investment in the electric industry has increased where as it is still declining for the natural gas industry. It is in the consumer's and the overall national interest that any price rise in natural gas to the consumer be devoted to developing new supplies, we submit, and H.R. 6860 is not a step in this direction. To the contrary it penalizes the gas incentive.

The CHAIRMAN. If you will pardon me.

Mr. LAWRENCE. Yes, sir.

The CHAIRMAN. All right, please go ahead, sir.

Mr. LAWRENCE. On the contrary, it seems that there has been a penalty to the consumer, apparently to encourage the consumer to shift to more expensive alternatives, particularly electricity. It seeks to force conversion of the industrial energy market to coal or electricity by increased taxes on gas and oil, with the higher proportion of the tax falling on the gas consumer. As we point out on the underlined portion on page 7, money paid by the consumer, that should be going into (a) exploration and drilling for new natural gas reserves, and (b) the development of highly capital intensive new supplemental and synthetic gas supplies, this money would go instead into the U.S. Treasury with no benefit to developing new supplies.

I stated earlier the use taxes imposed in the bill are discriminatory, unfair and regressive. They are discriminatory because they do not fall on all energy users. They are unfair because the consumer of elec-

tricity derived from oil and natural gas is exempt. And they are regressive and counterproductive because—and this point we were discussing earlier—when you generate electricity, two out of three Btu's of oil or gas used is wasted. Second, the added cost of the tax burden would preclude many consumers from investing in more energy-efficient equipment, which many industrial users are moving very rapidly toward; and finally, the cost of industrial goods manufactured in the United States would significantly increase because of this price increase.

AGA believes that H.R. 6860 fails to meet either the short-term or long-term energy requirements of this country, and these are briefly described in the prepared testimony, Mr. Chairman, at the bottom of page 9 and the top of page 10.

As to these goals, none of them is advanced by the excise tax on the business use of natural gas imposed in section 411, and we would recommend that it be deleted from the bill in its entirety.

At the very minimum we would urge that the exemption of title IV be expanded to eliminate certain double taxations on the users of SNG or natural gas.

In addressing SNG first, the gas industry must have access to feedstocks, particularly naphtha, for synthetic natural gas plants if we are to serve the essential short-term demands, both residential and industrial, of the energy market through the 1980's.

H.R. 6860 would impose a three-tiered tax increase on the price of synthetic natural gas to industrial users. Under section 112, import licenses are to be sold at public auction. Under section 121, import duties are imposed. In addition, in section 411, it has the business use on natural gas, the excise tax, to which Mr. McGrath referred and I referred, and this is a double taxation on the industrial user of synthetic natural gas.

Of course, in the transmission and distribution of natural gas, certain volumes are frequently used in the transportation process or storage process—for example, as compressor fuel. Such uses should certainly be exempt so as to avoid a double tax when the ultimate industrial consumer uses the natural gas. And, of course, Mr. McGrath gave several reasons for this, and we support that part of the point.

As a final point on this, we would note that where title IV imposes this tax on any "use as a fuel" in a trade or business with certain exemptions, a specific exemption is provided, through 1981, for fuels used in the generation of electrical power. We respectfully submit that gas and petroleum products consumed in the transmission and distribution of gas, or in the manufacture of SNG are, for such exemption purposes, fully comparable to fuels used in the generation of electric power. So again, we would urge as a very minimum that title 10, part I, be amended to provide an exemption from the industrial use tax for fuels used in the transmission and distribution or in the manufacture of SNG.

Title IV also provides specific exemption from the tax for uses in the textile and glass industries. We support these. While these are desirable, we would urge as a minimum that this be expanded and be applied to all other industrial users who have no other alternative. There are few available.

One final point, Mr. Chairman, concerns us. AGA has long encouraged the establishment of a so-called Energy Research and Development Trust Fund, and one is included in this bill. We support title III of the bill insofar as it creates and funds such a program and things that we are normally involved in. But we know there is a limitation on anyone who could serve as a trustee or director of that fund. It would preclude anybody who over the past 5 five years earned as much as \$2,500, or earned as much as \$10,000, I believe, in income, from any energy industry, or one who had as much as \$2,500 in stock in any energy industry. This would preclude virtually any consultant, and certainly those from academia or anybody who had any exposure to the industry whatsoever.

We think this is going astray, when you actually prohibit people who have some expertise and can make some contribution to this. They will certainly go through a valid confirmation process before this Senate to make sure that qualified, objective people serve on this Board. We think there is an undue limitation on people who can make a contribution.

The CHAIRMAN. In other words, you think the fact that a person knows something about what he is supposed to be doing should not necessarily disqualify him.

Mr. LAWRENCE. That is right, Mr. Chairman.

The CHAIRMAN. Thank you very much, Mr. Lawrence. I do believe I should vote on this bill that is presently being voted on. It is a bill apparently to establish domestic oil price ceilings. I think I would like to vote against it. I will be back as soon as I can go vote and come back.

Mr. LAWRENCE. Would you like me to stay, Mr. Chairman?

The CHAIRMAN. No, no thanks.

I have no further questions to ask you. But I have one more witness, and I will be back as soon as I can.

[A brief recess was taken.]

[The prepared statement of Mr. Lawrence follows:]

STATEMENT OF GEORGE H. LAWRENCE, AMERICAN GAS ASSOCIATION

Mr. Chairman, I am George H. Lawrence, senior vice president of the American Gas Association. I appreciate the opportunity to appear before this committee on behalf of the American Gas Association (AGA) and to express our serious concerns regarding H.R. 6860.

The American Gas Association is composed of 300 member companies providing natural gas transmission and distribution services to 160 million consumers in the 50 states. Natural gas is the principal source of energy for our Nation's stationary energy needs, that is to heat and cool our homes, schools, and public buildings, and to run our businesses and factories. Our member companies have some \$60 billion invested in the million-mile underground pipeline network which constitutes their transportation and distribution systems. This valuable national asset is our Nation's most efficient, dependable and least expensive energy delivery system and must be protected in establishing national energy policies.

A.G.A. has been gravely concerned that this Administration—through policies, language of communications and general attitudes of FEA, Treasury and Interior—has placed far too little emphasis on the natural gas industry as a significant supplier of the nation's energy requirements—present and future. We fear that such policy is now reflected in H.R. 6860 which includes undesirable Administration proposals not contained in the original Ways and Means Committee Draft Bill, H.R. 5005. H.R. 6860 essentially ignores the gas industry—except to

the extent we would be used as a source of the revenues to be raised by the tariffs, license fees and use taxes. The national interest demands that this policy be rejected.

H.R. 6860, entitled the "Energy Conservation and Conversion Act", was at one time widely heralded in the House of Representatives as "The Energy Bill". In our opinion, it misses the mark badly, both as to what it failed to include and what it does include.

First, as to what it failed to include, I would emphasize three points:

(1) This bill should have addressed the vitally needed energy capital incentives such as a permanent increase in investment credit, rather than leaving them to the vastly more complex and time consuming General Tax Reform proceedings. A.G.A. presented testimony on this at Ways and Means Committee hearings on this bill on March 11 and is scheduled to do so again at the General Tax Reform hearings on July 22. We would not attempt to offer this type testimony to the Committee at this time; however, we would respectfully recommend that the Committee consider expanding its review of H.R. 6860 so as to expedite Congressional action on these vital issues. If this Committee concluded to do so, A.G.A. could be prepared, and would welcome the opportunity to testify on very short notice.

(2) The original draft of the Ways and Means bill, in effect, recommended that the wellhead price of natural gas be deregulated. In anticipation of this, a so-called "windfall profit tax" was proposed in the form of an excise tax above a certain field price level and while it did not contain the necessary plowback provisions to insure additional drilling for natural gas, it was a step in the right direction. If, in this Committee's judgment, such a provision in this bill with the necessary plowback would expedite a Congressional decision on deregulation, we would urge the Committee to give it such consideration.

(3) The original House version also contained a provision for dividend reinvestment whereby a company could retain needed capital by issuing stock instead of cash dividends and postpone income tax thereon. This was an excellent concept and one which would provide our natural gas companies with additional capital without having to go directly into the financial market. We urge this Committee to restore the dividend reinvestment provision, and make it available to all natural gas and electric utilities.

Second, as to what H.R. 6860 does include, we would mainly offer our strong objection to a use tax on natural gas which is discriminatory, unfair and regressive, and which makes no contribution whatsoever to improving gas supplies at a time when this is the single most important step that could be taken toward improving domestic energy self-sufficiency.

Such a concept ignores the critical nature of natural gas to the nation's economy and is contrary to the goals of improving domestic energy self-sufficiency and stimulating the economy with minimum inflation impact and with optimum use of capital resources at a time when great concern is being expressed as to capital limitations. The following facts support this:

1. Natural gas is our dominant domestic energy source. It provides one-third of our nation's total energy requirements. However, when oil imports are eliminated, natural gas is our principal domestic source of energy, accounting for 41.1% of total U.S. energy production, compared with 30.6% for crude oil, 22.1% for coal and 6.2% for hydropower and nuclear.

2. Natural gas is the key to our economy. It provides over 50% of the energy used by U.S. industry, some 2½ times that supplied by the next largest source—coal, which accounts for only 22% including coal-generated electricity. If our nation's economy is to be stimulated and unemployment reduced, gas supplies must not be permitted to decline further—they must be increased.

3. Gas is the most capital efficient energy form. On a net capital investment of some \$50 billion, we serve some one-third of the nation's total energy needs. In contrast, on a total investment of 132 billion—nearly three times greater—the electric industry serves only 10% of our country's energy requirements. Thus, on the highly critical ratio of energy available per capital dollar invested, the gas industry offers a 9 to 1 advantage.

4. There is a huge resource base of potential natural gas supplies in the U.S. and a vast potential for supplemental gas supplies.

5. Natural gas is our cleanest fuel. Every other fuel, including uranium, requires expensive emission control devices to protect land, water or air environment.

6. Natural gas is our most efficient fuel. Delivered through a million mile underground pipeline network, 93% of the gas produced at the wellhead is utilized directly by the consumer. It does not have to be transformed as does coal or oil into electricity or refined as does crude oil. And, its utilization is more efficient than alternative fuels. For example, the gas-fired home furnace is 30% more energy efficient than its oil-fired counterpart. Further, two out of every three Btus consumed in generating electricity are wasted.

The Congress and the Administration must face up to the above facts. Rather than writing off the natural gas industry simply because it has a supply problem created largely by Government policies, both Congress and the Administration should strongly support the importance of continuing and improving the major role of natural gas in the economy.

The gas industry is facing a financial crisis at least equal to that facing the electric utility industry. The Administration has repeatedly warned the Congress of the urgent capital requirements of the electric industry. We are perplexed that it ignores the equally urgent needs of the gas industry. It is especially inexplicable that they would do so at a time when the ability of the electric industry to attract capital is rising, but availability of capital for the gas industry is declining. We attach as Appendix A the First Quarterly Survey of Utility Appropriations, prepared by the Conference Board, which shows a dramatic rise in the electric industry, and a disappointing decline in gas utility appropriations.

Substituting electricity to meet the 40% gas curtailments projected by many for 1985, would require a doubling of the existing capacity of the electric industry—at a capital cost of more than three times the electric's present investment of \$132 billion. This would be a totally unmanageable capital burden for our nation and, as noted earlier, a vastly less efficient use of our limited capital. The gas industry will require between \$100 and \$120 billion new capital over the next 10 years, predominantly to finance new supply resources such as gas from Alaska, coal gasification, LNG and SNG, as compared with \$27 billion of capital expenditures in the past 10 years. These additional capital requirements will, of necessity, be financed, in part, through higher rates to the consumer. Deregulation of field price is urgently needed to stimulate new supplies, and while the impact on the consumer will be substantially less than alternate sources of energy, the price to the consumer of natural gas and supplemental gas will have to rise. However, it is in the consumers' and the overall national interest that this price rise be directed to developing new supplies.

H.R. 6860 is not a step in this direction. To the contrary, it penalizes the gas consumer, apparently to encourage the consumer to shift to more expensive alternatives, particularly electricity. It seeks to force conversion of the industrial energy market to coal or electricity by increased taxes on gas and oil, with the higher tax falling on the gas consumer. Such an approach will merely fuel the inflationary fires and could contribute to more unemployment. But its longer term and most devastating effect is in relation to future gas supply and the financial capability of natural gas companies to continue rendering service. *Money paid by the consumer, that should be going into (a) exploration and drilling for new natural gas reserves, and (b) the development of highly capital intensive new supplemental and synthetic gas supplies, would go instead into the U.S. Treasury.*

The imposition of use taxes would be a severe blow to the industrial markets which are of significant financial importance to the gas industry. Loss of the revenues obtained from industrial sales would impair the capability of the natural gas industry to serve the energy requirements of the country. This Committee should recognize that the current rise in natural gas prices, and decline in natural gas availability is already accomplishing the purported conservation goals of H.R. 6860 to the extent those goals are appropriate. The growing natural gas curtailments are causing a voluntary shift to alternate fuels when such alternate fuels are technically and economically feasible. And the rising cost of natural gas is prompting the remaining natural gas consumers to invest in the equipment essential to minimize their use of this valuable resource.

The use taxes imposed in the Bill are inherently discriminatory, unfair and essentially regressive. Discriminatory because they do not fall on all energy users. Unfair because the consumer of electricity derived from oil or natural gas is exempt. Regressive and counterproductive because:

(1) to the extent electricity is derived from gas or oil, that consumer wastes 2 Btus of gas or oil for every Btu ultimately utilized, and does so free of taxation;

(2) the added cost burden of the tax would preclude many consumers from investing in more energy-efficient equipment, or other conservation investments which would permit him to reduce his consumption of natural gas or oil; and

(3) the costs of industrial goods manufactured in the U.S. would significantly increase, defeating the capacity of American industry to compete in both foreign and domestic markets, ultimately resulting in reduction of both our gross national product and gross national income, aggravation of balance of payments problems, and severe unemployment.

A.G.A. believes that H.R. 6860 fails to meet either the short-term or long-term energy requirements of this country. What America needs is a balanced energy policy that relies upon available technology for the short-term, and maintains our flexibility to move to alternate energy-resources as they develop. True conservation demands that the consumer be able to use the most energy-efficient systems available, and that our national policies do not destroy the industries that provide these services.

In the case of natural gas, we must stimulate domestic production by deregulation of natural gas and develop our Alaskan reserves. For the short-term, we must protect against gas supply distortions by development of supplemental gas supplies such as synthetic gas plants and LNG facilities to protect supply availability in selective critical market areas. For the long-term, we must move energetically to develop and perfect the technology for manufacture of pipeline quality gas from coal. In that way America could effectively utilize its vast coal resources without compromising our environment, endangering our health, or becoming excessively dependent upon foreign energy resources. Ultimately our national research efforts could hasten the day when hydrogen can be delivered through the present highly efficient, underground pipelines energy transportation system.

None of these goals are advanced by the excise tax on the business use of natural gas imposed in Section 411, and we recommend that it be deleted from the bill in its entirety.

At a very minimum we would urge that the exemption of Title IV be expanded to eliminate certain double taxations on users of SNG or natural gas.

Addressing SNG first, the gas industry must have access to feedstocks, particularly naphtha, for synthetic natural gas plants if we are to serve the essential short-term demands—both residential and industrial—of the energy market through the mid-1980's. These plants are located to serve the industrial Northeast and North Central U.S., where air pollution and other environmental restrictions and existing generation equipment dictates that electricity will continue to be primarily generated by oil-fired equipment over the next 5 to 10 year span. Forcing the home heating market to electric heating or home heating oil in this region *increases* our dependence on oil imports by 30% in the case of home heating oil, or 60% in the case of electricity generated from oil.

H.R. 6860 would impose a potential three-tiered increase in the price of synthetic natural gas to industrial users. Under Section 112, import licenses are to be sold at public auction. Undoubtedly the cost of such licenses will be reflected in the import product cost. Second, under Section 121, import duties are imposed—2% ad valorem on petroleum and 5% ad valorem on petroleum products, with authority to increase this by as much as 10% or \$1 per barrel, or to decrease it, but not less than 2%. (This would result in a petroleum import duty of approximately \$1.20 per barrel under present prices).

In additional, to the extent that the SNG output is sold for industrial use, it would be subject to the Industrial Use Tax established by Section 411. While it would appear that synthetic natural gas may not be construed as "natural gas" for the purpose of the industrial use tax, it would certainly, in the alternative, be taxed as "other petroleum products", which is also subject to an industrial use tax.

Therefore, in any event, there should be added to the list of exemptions to the business use tax of Section 411 on natural gas those SNG gaseous products derived from feedstocks subject to the import licenses and ad valorem taxes.

In the transmission and distribution of natural gas, certain volumes are frequently used in the transportation process or storage process—for example, as compressor fuel. Such uses should certainly be exempt so as to avoid a double tax when the ultimate industrial consumer uses the natural gas.

As a final point on this, we would note that where Title IV imposes this tax on any "use as a fuel" in a trade or business with certain exceptions, a specific

exemption is provided, through 1981, for fuels used in the generation of electrical power. We respectfully submit that gas and petroleum products consumed in the transmission and distribution of gas, or in the manufacture of SNG are, for such exemption purposes, fully comparable to the use of such products for the generation of electric power. A.G.A. urges Title 10, Part I to be amended to provide an exemption from the industrial use tax for fuels used in the transmission and distribution of gas, or in the manufacture of synthetic natural gas.

Title IV also provides specific exemption from the tax for uses in the textile industry and glass manufacturing industry. While such exemptions are desirable, we must point out that the exemption should be provided for all usages in manufacturing and processing of raw materials and finished goods, where the user has no alternate or the alternate is economically unacceptable, in addition to those in the textile or glass manufacturing industries. Thus, Congress in focusing on the problem, should expand its exemption to encompass all similar uses.

A.G.A. urges that the exemptions from the industrial use tax established for the textile industry and glass manufacturing industry in Title 10 be expanded to apply to all industrial users who have no effective alternative fuel availability.

A.G.A. urges that Title I of the Bill be amended so that petroleum products imported for use as SNG feedstocks are exempted from the import duties and import quotas as well as the import license fees, or in the alternative, we urge that a special classification for SNG operators be established similar to that created for small refiners and independent marketers in Section 112(b).

One final point concerns us. A.G.A. has long urged establishment of an Energy Research and Development Trust Fund. We support Title III of the Bill insofar as it creates and funds such a program. Title III, however, establishes a dangerous precedent of excluding essential industry expertise from the administration of the proposed "Energy Conservation and Conversion Trust Fund". Section 313(b) (1) (B) excludes from potential membership any person who for 5 years prior to his appointment had stock or other interest in energy related industries having a fair market value in excess of \$2,500 or who had received or accrued income in excess of \$10,000 from any energy related industry. This would deprive the Board of essential practical experience. It is particularly frightening when you focus on the fact that the Board is intended to have fundamental powers over the future direction of the energy services in the U.S.

A.G.A. recommends elimination of the limitation on membership on the Board governing the Energy Conservation and Conversion Trust Fund which excludes personnel with practical expertise.

APPENDIX A

THE CONFERENCE BOARD QUARTERLY SURVEY OF UTILITY APPROPRIATIONS FIRST QUARTER 1975

TOTAL APPROPRIATIONS

Appropriations for new plant and equipment by U.S. investor-owned utilities rose another 66% in the first quarter of 1975, to \$16.90 billion (seasonally adjusted). This was 5% higher than the previous record of a year earlier. It followed a major upturn of 104% in the fourth quarter from a third-quarter trough of \$4.99 billion. These two consecutive boosts in appropriations were attributable to the electric utility sector; gas utilities' appropriations leveled in the fourth quarter and declined 6% in the first quarter.

Cancellations, which had reached record levels in 1974, dropped 78% from their 1974 average quarterly rate, making way for a 188% rise in *net* appropriations between the fourth and first quarters—an even larger percentage rise than in the preceding period. Electric utilities again accounted for all of the change.

TOTAL EXPENDITURES

Utility capital expenditures in the first quarter of 1975 declined 6% from the previous quarter to \$4.48 billion. This was 2.4% below the year-ago first quarter and 9% below the record \$4.94 billion in the fourth quarter of 1973. Despite declines in 1974, expenditures set their annual record of \$19.02 billion in that year—6% higher than 1973 expenditures. Sustained by record net new appropriations together with the downdrift in expenditures, backlogs of unspent appropriations swelled 17% between January 1 and March 31, 1975, reaching a record

\$83.20 billion. Thus the backlog-spending ratio, which represents the number of quarters of capital spending the backlog would support at the current rate, rose to a record 18.6 continuing its steady rise since the mid-Sixties.

ELECTRIC UTILITY PLANS REBOUND

In the first quarter of 1975, investor-owned electric utilities renewed their plans for expansion with a 71% increase in capital appropriations. The record \$16.29 billion was 7% above the year-ago peak. Since project cancellations subsided to a more normal \$0.39 billion from the more-than \$2-billion average of the three preceding quarters, the unspent backlog as of March 31 stood at a new high of \$81.66 billion.

Several factors may have given the impetus for electric utility appropriations' sharp increase in the January-March quarter. In late March the Tax Reduction Act of 1975 gave utilities a 10% investment tax credit in place of the previous 4%. (In June 1975 President Ford has urged a 12% credit for utilities along with other tax incentives to encourage restoration of canceled plans for additions to electric capacity.) In the presence of a more favorable capital market, electricity rate relief, a diminished rate of inflation and less fear of another oil crisis, the recent burgeoning of appropriations is to be expected if future utility needs are to be achieved. Furthermore, plans for nuclear generation are on the rise—from last year's 6% of total existing generating capacity to an eventual 25%. The very high proportional cost of these nuclear plants contributes to increasing dollar amounts at the time appropriations are made. In terms of planned additions, the investor-owned segment expects to build 49% of its future expansion as nuclear capability.

In contrast to the rise in appropriations, actual expenditures (\$3.82 billion) were at a lower rate than in any quarter of last year. However, as the recently approved appropriations reach maturity, a rise in capital expenditures can be expected to ensue.

GAS UTILITIES TRIM INVESTMENT PLANS

After holding steady in the last two quarters of 1974, capital appropriations by gas utilities dropped to \$0.61 billion in the first quarter of this year—6% less than in the fourth quarter and 31% less than a year ago. It was 16% less than the average of quarterly appropriations over the past five years.

The gas companies' expenditures, though rising 14% from the preceding quarter, remained under the level of a year earlier, by some 10%. Between year-end and March 31, backlogs of unspent appropriations lost 5% and reverted to the rather low level of last September 30 (\$1.54 billion), which was the smallest backlog observed since mid-1971. The gas utility backlog-spending ratio was within its historic average range of 2 to 3.

The CHAIRMAN. Is Mr. Tom Love in the room? Mr. Love, we will be pleased to hear your suggestions.

STATEMENT OF TOM LOVE, PRESIDENT OF THE NATIONAL OIL JOBBERS COUNCIL

Mr. LOVE. Thank you, Mr. Chairman. I am president of Musket Oil Co. in Oklahoma City, and I am appearing here as president of the National Oil Jobbers Council. I want to thank you and the members of this committee for permitting me to appear before you today to offer the reaction of our 15,000 members to this critical legislation.

As you may know, the National Oil Jobbers Council is a federation of 42 State and regional trade associations whose members include approximately 15,000 independent petroleum marketers. Among these independents are marketers using major refiner brands, as well as many who use a regional or private brand. Collectively, these marketers wholesale or retail about 25 percent of the gasoline consumed in America, and they retail almost 75 percent of the home heating oil. In some

cases, they distribute one or both of these products on consignment, and they often market other petroleum products, including diesel fuel, lubricating oils, residual fuel oil, kerosene and liquified petroleum gas.

Wide geographical representation, a varied mix of products, and the independent small businessman's utter dependence upon the satisfaction of his customers, the American consumer, combine to make us particularly sensitive to the impact of this energy legislation.

Rather than review each element of the legislation, I should like to focus upon those points which most vitally concern our members. Our suggestions rest on the premise that free enterprise is a basically sound mechanism for resolving the Nation's energy shortage. Some Government activity is essential to enhance competition, to reflect environmental and social costs in the market, and to assure that fiscal and tax policies serve national goals. But, the basic solution should still come from the freely made choice of millions of consumers and thousands of independent businessmen.

Starting with this premise, we oppose the quota set forth in the legislation adopted by the House. In its place, we endorse standby authority requiring the President to restrict imports only to the extent to which domestic energy resources are not being fully utilized.

The import limits established by the House, while carefully thought out, are still arbitrary. They could create an artificial shortage so severe that the Government could not avoid rationing or at least continuing the present firm-by-firm allocation regulations. After 18 months of this type of detailed regulation, a majority of independent marketers and their customers are convinced that less specific authority which permits or even encourages use of the market mechanism is essential to their survival. Although a national emergency may require rationing or firm-by-firm allocation, it is highly undesirable to deliberately choose a policy which requires such a high degree of interference in individual supplier and purchaser decisions.

We suspect there is an even more basic reason for rejecting the quota. The American economy, when operating at nonrecessionary levels, is enormously productive in that it greatly enhances the value of the raw materials it utilizes. NOJC lacks the expertise to determine the precise magnitude of this enhancement, but we believe it great enough to justify paying today's cost for imported oil. If, for example, we can produce \$2 worth of GNP from \$1 of foreign oil and employ our people doing it, then we do not serve our national interest by importing less foreign oil than the amount required by a dynamic American economy. Even if that dollar of assets must be given to OPEC, we are still another dollar richer in national productive capacity. In other words, a quota must never become a constraint on energy supplies as long as someone is willing to pay the cost to use foreign oil productively.

The National Oil Jobbers Council is also unalterably opposed to all taxes, tariffs, duties, fees, supplemental fees, special fees and every other assessment on petroleum products which directly add to Government revenues. Higher prices serve only two functions. Within rather narrow limits higher prices reduce demand, and higher prices increase the incentive for exploration. But a tax on gasoline or a duty on imports of petroleum products aims at only the first of these two

goals. Because taxes and duties accrue to the Government, they do not serve as an incentive to exploration, and the consumer does not get what he is paying for.

Moreover, direct taxes on petroleum fail to recognize that the energy problem involves all fuels and forms of energy. If we use less natural gas then fewer industries will be forced to convert to oil. If we use less electricity, then utilities will need less fuel, reducing our need for oil both directly and indirectly by freeing natural gas and coal for other uses. And, of course, if we use less oil, we can directly reduce the level of imports. In short, we need to conserve all fuels and forms of energy, not just petroleum products.

Consider, too, that a duty makes oil even more expensive than competing fuels. This encourages false conservation by conversion. That would not be so serious if all the conversions were to an equally efficient use of coal, but in many cases that is impossible. For example, home heating oil users are most likely to convert to artificially inexpensive natural gas. The FPC places its highest priority on home heating, so with natural gas in extremely short supply, the result of home conversions to gas will be earlier interruption of industrial customers who will promptly apply to FEA for oil. They will be given that oil because FEA places a higher priority on industrial use than does the FPC. The net result is expensive conversions by homeowners with no reduction in imports. There may even be an increase in imports because most industrial use is far less efficient than residential use. Much the same is true of home conversions to electric heat because the electric utility would be forced to use several times more Btu's to generate the same heat.

We believe the House wisely struck the gasoline tax from this legislation, and we encourage the Senate to reject any efforts to revive that tax. At the same time, we would urge the Senate to go even further by removing the duty on all imported oil.

There is, however, one important tax which we believe should be added to this legislation. Our members favor the phased simultaneous decontrol of oil and natural gas prices. This, of course, necessitates price increases, but these increases will be small for petroleum products if they are accompanied by an end of the present \$2 supplemental fee on imported crude oil. What price increases do occur can be channeled directly into exploration and development of new energy resources with a windfall profits tax that confiscates revenues generated by decontrol which are not used for exploration or development. To assure that Americans as a class pay for no more than they get, the windfall tax revenues should be rebated evenly to all citizens. A variety of decontrol plans are under active consideration. We have grave reservations about many of these, but most of them require a windfall profits tax with a plowback provision. Hence, it is critical that such tax legislation be developed and incorporated in this bill.

Our members strongly support such measures as the automobile fuel economy standards set forth in section 212. Similarly, we believe that the tax credits for expenditures on installation of residential insulation and solar energy equipment are constructive. However, these incentives overlook the significant opportunity to encourage conservation with tax credits for improving the efficiency of the energy gen-

erating systems in the home where a large percentage of national fuel consumption occurs.

NOJC strongly urges inclusion of tax credits for improving the efficiency of conventional residential heating and/or cooling systems. By providing such tax benefits for upgrading the currently existing equipment, Congress could realize two objectives of critical importance to the American people.

First, the reduction of fuel consumption by efficiency improvements would greatly assist our energy conservation effort. While critics argue that consumption will be proportionately reduced as the price of heating a home rises, consumption of heating oil is already down 15 percent from the base year, 1972. The significant additional savings by homeowners must soon come solely from improvements in the burners themselves. Second, improvements in these systems would also result in lower fuel bills for the homeowner, thereby reducing the inflationary strain on households.

The language we suggest parallels a proposed tax credit authority for insulation and solar equipment, except in denying the credit for efficiencies gained by conversion to a heating or cooling system, using a different fuel or form of energy. Changes from one fuel to another make it difficult to calculate an efficiency improvement; but, more important, such conversions work against the national goals of conservation and reduced dependence on foreign oil.

Conversion to electricity is exceedingly wasteful because about half of our electricity is generated with natural gas or oil with a conversion efficiency of only 29.4 percent. Because direct oil or natural gas heat is so much more efficient than electric heat generated with those fuels, it would actually waste fossil fuels to convert to electricity.

Conversion to natural gas would jeopardize the stability of America's economy by disrupting the fuel oil market. Through diversion of new existing supplies of natural gas or oil to homes, industry would be deprived of the few precious supplies it still receives and would be forced to convert to more expensive alternative fuels. Such increased costs would result in reduction of manufacturing or production, employment cutbacks and increased wholesale prices. If the slowdown and cutback of supply occur, employee layoffs would follow and could well perpetuate the present recession and unemployment.

In view of the compelling need for greater fuel conservation, a tax incentive for improving the efficiency of conventional heating and/or cooling systems could provide the requisite stimulus.

In conclusion, let me thank you very much, Mr. Chairman. I will be happy to respond to any questions you may have.

The CHAIRMAN. Thank you. You have made some points here we should definitely consider when we mark this up. We do not want to pay people to convert to a more wasteful source of energy, but I think by the same token we should pay them to convert to a more efficient use of energy.

Mr. LOVE. Yes, sir. We would welcome that.

The CHAIRMAN. Which is the most efficient way to use energy? I think you covered that. Would you mind repeating it?

Mr. LOVE. Yes, sir. Natural gas and oil are the most efficient methods of space heat.

The CHAIRMAN. In other words, if you simply use it inside the house that is far more efficient than to use it to generate electricity inside the house?

Mr. LOVE. Yes, sir. Striking the more exotic forms of heat like solar, of the conventional sources of heat generation, the most efficient are gas and oil.

The CHAIRMAN. Do you have any experience, or have you observed firsthand, any encouraging solar developments with which you are familiar?

Mr. LOVE. No, sir, not to our knowledge, but that is outside of our area of responsibility and expertise.

The CHAIRMAN. I think we are going to have to look into that further because we think it has more potential than we thought previously, and I think we should definitely look into it and see what can be done to help. Thank you very much for your suggestion, and we will certainly consider them.

Mr. LOVE. Thank you, sir.

[The prepared statement of Mr. Love follows:]

TESTIMONY OF TOM LOVE, PRESIDENT OF THE NATIONAL OIL JOBBERS COUNCIL

As President of the National Oil Jobbers Council, I want to thank the members of this committee for permitting me to appear before you today to offer the reaction of our 15,000 members to this critical legislation.

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QUOTAS

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The import limits established by the House, while carefully thought out, are still arbitrary. They could create an artificial shortage so severe that the government could not avoid rationing or at least continuing the present firm-by-firm allocation regulations. After 18 months of this type of detailed regulation, a majority of independent marketers and their customers are convinced that less specific authority which permits or even encourages use of the market mechanism is essential to their survival. Although a national emergency may require rationing or firm-by-firm allocation, it is highly undesirable to deliberately choose a policy which requires such a high degree of interference in individual supplier and purchaser decisions.

We suspect there is an even more basic reason for rejecting the quota. The American economy, when operating at nonrecessionary levels is enormously productive in that it greatly enhances the value of the raw materials it utilizes. NOJC lacks the expertise to determine the precise magnitude of this enhancement, but we believe it great enough to justify paying today's cost for imported oil. If, for example, we can produce two dollars' worth of GNP from a dollar of foreign oil and employ our people doing it, then we do not serve our national interest by importing less foreign oil than the amount required by a dynamic American economy. Even if that dollar of assets must be given to OPEC, we are still another dollar richer in national productive capacity. In other words, a quota must never become a constraint on energy supplies as long as someone is willing to pay the marginal cost to use foreign oil productively.

GASOLINE TAX

The National Oil Jobbers Council is also unalterably opposed to all taxes, tariffs, duties, fees, supplemental fees, special fees and every other assessment on petroleum products which directly add to government revenues. Higher prices serve only two functions. Within rather narrow limits higher prices reduce demand. And, higher prices increase the incentive for exploration. But a tax on gasoline or a duty on imports of petroleum products aims at only the first of these two goals. Because taxes and duties accrue to the government, they do not serve as an incentive to exploration, and the consumer does not get what he is paying for.

Moreover, direct taxes on petroleum fail to recognize that the energy problem involves all fuels and forms of energy. If we use less natural gas then fewer industries will be forced to convert to oil. If we use less electricity, then utilities will need less fuel, reducing our need for oil both directly and indirectly by freeing natural gas and coal for other uses. And, of course, if we use less oil, we can directly reduce the level of imports. In short, we need to conserve all fuels and forms of energy, not just petroleum products.

Consider too that a duty makes oil even more expensive than competing fuels. This encourages false conservation by conversion. That would not be so serious if all the conversions were to an equally efficient use of coal, but in many cases that is impossible. For example, home heating oil users are most likely to convert to artificially inexpensive natural gas. The FPC places its highest priority on home heating, so with natural gas in extremely short supply, the result of home conversions to gas will be earlier interruption of industrial customers who will promptly apply to FEA for oil. They will be given that oil because FEA places a higher priority on industrial use than does the FPC. The net result is expensive conversions by homeowners with no reduction in imports. There may even be an increase in imports because most industrial use is far less efficient than residential use. Much the same is true of home conversions to electric heat because the electric utility would be forced to use several times more BTU's to generate the same heat. If the utility used oil, this result is absurd; but even if the utility used coal, that coal is wasted in that it could be used by industry to reduce industrial consumption of oil.

We believe the House wisely struck the gasoline tax from this legislation and we encourage the Senate to reject any efforts to revive that tax. At the same time, we would urge the Senate to go even further by removing the duty on all imported oil.

THE ALTERNATIVE

There is, however, one important tax which we believe should be added to this legislation. Our members favor the phased simultaneous decontrol of oil and natural gas prices. This, of course, necessitates price increases but these increases will be small for petroleum products if they are accompanied by an end of the present \$2.00 supplemental fee on imported crude oil. What price increases do occur can be channeled directly into exploration and development of new energy resources with a *windfall profits tax* that confiscates revenues generated by decontrol which are not used for exploration or development. To assure that Americans as a class pay for no more than they get, the windfall tax revenues should be rebated evenly to all citizens. A variety of decontrol plans are under active consideration. We have grave reservations about many of these, but most of them require a windfall profits tax with a plowback provision. Hence, it is critical that such tax legislation be developed and incorporated in this bill.

TAX INCENTIVES FOR IMPROVED BURNER EFFICIENCY

Our members strongly support such measures as the automobile fuel economy standards set forth in Section 212. Similarly we believe that the tax credits for expenditures on installation of residential insulation and solar energy equipment are constructive. However, these incentives overlook the significant opportunity to encourage consumers with tax credits for improving the efficiency of the energy generating systems in the home where a large percentage of national fuel consumption occurs.

NOJO strongly urges inclusion of tax credits for improving the efficiency of conventional residential heating and/or cooling systems. By providing such tax benefits for upgrading the currently existing equipment, Congress could realize two objectives of critical importance to the American people. First, the reduction of fuel consumption by efficiency improvements would greatly assist our energy conservation effort. While critics argue that consumption will be proportionately reduced as the price of heating a home rises, consumption of heating oil is already down 15% from the base year, 1972. The significant additional savings by homeowners must soon come solely from improvements in the burners themselves. Second, improvements in these systems would also result in lower fuel bills for the homeowner, thereby reducing the inflationary strain on households.

The purpose of Title II, Part III is to encourage fuel conservation through tax incentives; hence, we propose that the following provisions be added:

"A tax credit to provide for improvement, according to standards developed by the National Bureau of Standards and administered by FEA and HUD, in the efficiency of a residential heating and/or cooling system up to a total expenditure of \$2,000.

"Conversions from one fuel to another should be prohibited and the market shares of the small independents would be preserved.

"The qualified system expenditures should be those made after March 17, 1975 and before January 1, 1978, but only if the building was used as the owner's principal residence on March 17, 1975.

"The tax credit should be limited in the case of joint ownership, and the credit would be available to tenant stockholders in cooperative housing corporations and condominium owners."

This proposal parallels the proposed tax credit authority for insulation and solar energy equipment, except in denying a credit for efficiencies gained by conversion to a heating or cooling system using a different fuel or form of energy. Changes from one fuel to another make it difficult to calculate an efficiency improvement; but more important, such conversions work against the national goals of conservation and reduced dependence on foreign oil.

Conversion to electricity is exceedingly wasteful because about half of our electricity is generated with natural gas or oil with a conversion efficiency of only 29.4%. Because direct oil or natural gas heat is so much more efficient than electric heat generated with those fuels, it would actually waste fossil fuels to convert to electricity.

Conversion to natural gas would jeopardize the stability of America's economy by disrupting the fuel oil market. Through diversion of new existing supplies of natural gas or oil to homes, industry would be deprived of the few precious supplies it still receives and would be forced to convert to more expensive alternative fuels. Such increased costs would result in reduction of manufacturing or production, employment cutbacks and increased wholesale prices. If the slowdown and cutback of supply occur, employee lay-offs would follow and could well perpetuate the present recession and unemployment.

Finally, conversion from a gas or electric system to oil would increase demand for fuel oil and conflict with the national policy objective of conserving petroleum by reducing demand for foreign oil imports.

In view of the compelling need for greater fuel conservation, a tax incentive for improving the efficiency of conventional heating and/or cooling systems could provide the requisite stimulus.

In conclusion let me again thank the Committee for this opportunity to present our views. I welcome any questions you may have and I would be glad to provide whatever additional information we may have which the Committee may now or subsequently find useful.

The CHAIRMAN. That concludes today's hearings. The committee will meet again at 10 tomorrow morning.

[Whereupon, at 3:35 p.m., the committee recessed until 10 a.m., the following day.]

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ENERGY CONSERVATION AND CONVERSION ACT OF 1975

THURSDAY, JULY 17, 1975

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to notice, at 10:05 a.m. in room 2221, Dirksen Senate Office Building, Senator Russell B. Long (chairman) presiding.

Present: Senators Long, Talmadge, Ribicoff, Byrd, Jr., of Virginia, Gravel, Hathaway, Curtis, Dole, Packwood, and Brock.

The CHAIRMAN. The committee will come to order.

We are pleased to have as our first witness today Mr. Carl E. Bagge, president of the National Coal Association.

Mr. Bagge, you may proceed.

STATEMENT OF CARL E. BAGGE, PRESIDENT, NATIONAL COAL ASSOCIATION

Mr. BAGGE. I have a prepared statement with an accompanying exhibit A, Mr. Chairman, that I ask be incorporated into the record. I will attempt to summarize the principal points of that statement, if I may, sir.

My name is Carl Bagge. I am president of the National Coal Association whose members include the major coal producing and coal sales companies of the Nation.

We appreciate the opportunity to express our views on H.R. 6860, as well as other financial and tax-related subjects which impact on the American coal industry.

May I just for a moment address, in a general way, pages 1 through 4, in which we deal generally with the subject of coal's financial requirements.

The American coal industry's projected financial requirements are indeed staggering. Recent estimates put coal's capital needs at roughly \$20 billion to \$25 billion by 1985. For an industry with a current total capitalization of something close to \$5 billion, the magnitude of the task is indeed formidable. However, such financing levels can be met if the investment climate surrounding coal is strongly expansionary. And, of course, this has not been true for the coal industry in the past.

To rapidly expand the coal industry will require a significant concerted effort by industry, labor, and government alike, and for an industry whose productive capacity has remained stagnant for the past two decades such an effort will require the creation of an entirely

new expansionary climate, one predicated upon planned and orderly growth, and if there is anything the coal industry has not had, is planned and orderly growth. Our economic configuration has been one of boom and bust, expansion and contraction, much like a roller coaster. This has typified our industry in the past and has resulted in complete stagnation of our productive capacity for the last two or three decades.

The coal industry, for its part, is committed to doing all that it can to meet this huge growth in a rational and orderly manner in response to what appears to be a growing consensus to expand the American coal industry.

Recently the National Coal Association undertook a study of the coal industry's expansion plans through 1985, which is attached here as exhibit A. In order to try to establish for the members of this committee that we do indeed plan, based on certain assumptions, to double our productive capacity by 1985 and that we have indeed made these plans to do so, this exhibit is included. The study projects that additional capacity under construction announced or planned by our member companies by 1985 amounts to 534 million tons, which together with mines already under development in 1974 make a total of 577.8 million tons of added capacity available to the American public by 1985. This means a doubling, literally building an entirely new industry in the next decade.

I might say incidentally, it is unparalleled. Except for the early expansion of the railroad industry in this country, there is no precedent for any other basic American industry growing at an incremental rate of something like 8 or 9 percent incrementally per year. This is what we are being asked to do, what the coal industry is being asked to do under the concepts underlying Project Independence and the various reports of the Government at this time.

While this report is a tangible gage of the coal industry's commitment to expanding the Nation's energy supply base, it also underscores the essentiality of shifting the tax structure of coal to encourage expansion. Unless appropriate fiscal and financial incentives are implemented soon, the ability of the American coal industry to meet its commitments will be in question.

Now, I would like to briefly discuss, if I may, some of the particular aspects of H.R. 6860 that we would like to submit for the committee's consideration. The ultimate goals of H.R. 6860 are highly commendable. The coal industry supports greatly expanded research in the energy area. Equally important, we supported the stated aim of the legislation to reduce the U.S. dependency on foreign oil. However, the bill is deficient in several significant areas and unless amended, does not provide the treatment essential for an expanding coal industry, if we are serious about expanding the American coal industry and our supply base.

Let me deal, if I can, with four aspects of the amortization of qualified energy use property.

Among other things, section 189 provides for a 5-year amortization of qualified coal processing equipment, qualified coal pipelines and qualified deep mining equipment. Similar amortization would be allowed certain railroad equipment under section 423. These provis-

ions, Mr. Chairman, do not provide adequate relief for the coal industry and we urge that the bill be amended to correct and clarify certain deficiencies as outlined below.

The first issue we would like to bring to your attention, is section 421(b)(4), which concerns itself with coal processing equipment. There is no provision in existing law for differential treatment for depreciation of the cost of plants to convert coal to low-pollutant synthetic fuels. That cost must be recovered, for tax purposes, over the estimated useful life of the plant. While the depreciation guidelines do not contain a specific class for such plants, because we are talking about an entirely new industry, a possible clue to the useful life is provided by the guideline life of 30 years for a manufactured gas production plant. At present, therefore, there is little incentive for investment in these very expensive coal conversion plants.

The present wording of the bill refers to, and I quote, "any machinery or equipment—of a character subject to the allowance for depreciation—for processing coal into a liquid or gaseous state."

Now the two concepts there, Mr. Chairman, are a liquid or gaseous state. The American coal industry believes that the words "liquid" and "gaseous" tend to restrict the meaning of this section and the obvious intent of the Congress in passing this legislation and that it should be amended clearly to apply to all synthetic fuels, regardless of their physical characteristics, be they liquid, gaseous, or solid. The solvent refined coal process, which is one that is under active consideration now by the southern services, a system in the South, and by both the Gulf Oil Co. and by Sohio and a number of other companies should be in this so that we are talking about a low pollutant fuel and not just "gaseous" or "liquid" fuels, because what comes out of this is a solid fuel which may also have special application for small industry where they could not afford a pollutant removal plant, but they could use a solid fuel that has been cleaned through the solvent refining process. Indeed, other technologies may arise, but I think this is one change that ought to be made, and we are fully aware when we say that the House report has something to say about its intention, but we think this should be made explicitly clear.

The second thing I would like to point out that is important to the coal industry, Mr. Chairman, is section 421(b)(5), the "Qualified Coal Pipelines."

Coal slurry pipelines are increasingly being looked to in order to move the vast quantities of coal needed in the United States by 1985. While it has been proven feasible, the extremely high initial costs of land acquisition and construction have deterred the investment necessary to construct these systems.

You know, Mr. Chairman, the Black Mesa pipeline has been operating now at peak efficiency carrying 3 million tons of coal annually over 275 miles in Arizona. Longer lines are planned but there must be additional incentives to encourage the necessary capital expenditures. We fully support that provision without any suggestions for amendment.

The third aspect we would like to call to your attention is section 421(b)(7), qualified deep mining equipment. Here the intent is to provide incentives through the amortization provisions of the legis-

lation for deep mines only. We believe that this provision is far too restrictive and should be amended to cover all types of coal mining equipment. There is no rational distinction between the financial needs of the American coal industry, be they underground or surface coal mines. Furthermore, surface mining of coal is an essential element in our efforts to achieve the underlying objectives of H.R. 6860; namely, to achieve energy self-sufficiency. With 50 percent of our total coal production based on surface mining, we do not believe that the bill should be narrowed in scope, only to reflect increasing investment in the underground mining of coal. To differentiate between coal mining equipment used in surface mines versus underground mines is not sound public policy and equity demands that equal tax treatment be accorded all segments of the coal industry.

Therefore, we urge the committee that section 421 pertaining to "qualified deep coal mining equipment" be amended to include all coal mining by deleting the word "deep," and by deleting the final sentence of that subsection which specifically excludes property used in surface mining.

The final provision under the amortization concepts we would like to discuss with the committee and which we suggest consideration be given, is section 423 dealing with railroad rolling stock. While the bill does extend the benefit to some rolling stock owners, section 423 of H.R. 6860 does not include coal operators who own or would purchase rolling stock. And I might say, sir, that many of the smaller operators in the Midwest and in Kentucky and in Tennessee who have not been able to get equipment from various railroads, have gone out, because of the recent increased flurry and interest in coal, and purchased their own equipment. If we extend the same investment to all we then have another incentive provided to achieve these goals.

We strongly believe that coal operators should be afforded this tax treatment and urge that the bill be appropriately amended to extend the 5-year amortization provision to include rolling stock owned or purchased by coal companies.

Such treatment would provide coal operators parity with other private rolling stock owners; moreover, it would provide for a sound and essential tax incentive for expanding the Nation's tenuous rolling stock supply.

The existing guideline life for railroad transportation equipment is 15 years. If section 423 as we propose it be amended is adopted, permitting a 5-year writeoff, there will be added incentive for shippers and customers to purchase the new railroad rolling stock which the country so desperately needs, but which many railroads simply cannot furnish.

And I can say just parenthetically, that in talking with the Penn Central people and trying to build a consortium of the various operators in the States served by Penn Central, that if we had had this kind of a provision extended to the coal operators 2 or 3 years ago, I know, and I can testify of my personal knowledge, that there would have been a method, an incentive by which the smaller operators and larger operators who are unable to get equipment from the Penn Central and the bankrupt railroads in the East would have created such a consortium and secured their own rolling stock.

I would like to also express our concerns with other energy-tax-related proposals beyond 6860. There are two other major issues, Mr. Chairman, which we urgently want to bring to the committee's attention on behalf of the American coal industry because we think it is relevant. If you are serious about expanding the supply base of coal there are two urgent provisions which ought to be included either in this bill or enacted by this committee and the Congress.

The first one I would like to discuss, is beginning at page 11 of the prepared text, the evaluation point for coal processed into a low pollutant fuel.

Under present law if coal is processed to produce oil, gas, or solid low-sulfur fuel, such processing is considered beyond the valuation point for percentage depletion purposes. That is, the coal must be valued before it is converted to low-sulfur fuel. Existing law, however, does permit the processing of oil shale to the point where it is equivalent in value to crude petroleum.

Legislation recently introduced by Senator Hansen would permit, for percentage depletion purposes, processing of coal into low-pollutant fuel—liquid, gas, or solid. Thus, the same depletion valuation would apply to synthetic fuels from oil shale and synthetic fuels from coal. If coal is processed to remove pollutants, the valuation for depletion purposes would occur after such processing.

It is already provided, in section 613(c)(4)(A) of the Code, that processes to convert oil shale to the equivalent of crude petroleum through the retorting process shall be considered as taking place prior to the depletion "cutoff point." Such treatment increases the incentive for investment in shale conversion plants, since it increases the possible future percentage depletion deduction. Similar treatment, we believe, should be provided for coal which is converted to low-sulfur fuel, not merely as a matter of equity but, far more importantly, because the Nation needs additional sources of clean fuel, and commercial quantities of synthetic fuel from coal appear closer to reality than from oil shale.

Does that bell mean that I am through?

The CHAIRMAN. Yes, sir. We will read the rest of your statement, sir. I am going to ask that staff see to it that we consider all of your suggestions in the course of our executive meetings.

I want to ask you a few questions about your statement. Can you make available to us a schedule of the rate at which it is presently projected that coal production should be expanded to try to arrive at energy independence?

In other words, how much money is going to be needed year by year? You state that you need \$25 billion, I think, over a 5-year period. I think we would like to know on what basis, on about what schedule would you suggest that money be made available? We want to try to see that you have the money but we really need to look at the schedule, and I assume Mr. Zarb might have some suggestions as well.

I think we need to have a schedule of the amount of money that is needed, the amount of income that you have and the amount of income you are going to need to support that kind of investment.

[Mr. Bagge's response follows:]

Answer. In terms of 1974 dollars, we project our industry will need no less than \$20.339 billion, and probably more, in new financing through 1985. This

includes front end money for new production as well as projected requirements to maintain current production. Our breakdown on a yearly basis is as follows:

Estimated capital expenditures by year—1974 dollars

1975	-----	\$1. 565
1976	-----	1. 802
1977	-----	1. 952
1978	-----	2. 089
1979	-----	2. 066
1980	-----	1. 892
1981	-----	1. 766
1982	-----	1. 756
1983	-----	1. 745
1984	-----	1. 770
1985	-----	1. 846
Total	-----	20. 339

The CHAIRMAN. We also need to pass a strip mining bill, do we not, so additional leases can be let to strip mine more coal by surface methods, or do we?

Mr. BAGGE. Well, Senator, if you are asking me the question about strip mining—

The CHAIRMAN. Yes.

Mr. BAGGE. Frankly, Senator, I do not believe we need a strip mine bill in order to get Federal leases. I do not think that is true at all. The fact is that the Federal Government today on Federal lands has regulations governing the whole range of reclamation requirements that the industry has to comply with in order to get a lease, in order to get a permit, and there is a continuing review of the regulations.

Those Federal regulations are being changed right now. The Department of the Interior issued in a proposed rulemaking last November, which is now being updated, being tightened and being strengthened, and those regulations will cover all lands within the Federal domain.

The CHAIRMAN. Do I understand then that we can get by without a strip mining bill? In other words, under existing law that once the regulations have been drafted and agreed upon, that it does not require any congressional action to move forward in strip mining?

Mr. BAGGE. In my opinion, Senator, that is true. I think that the assumption that we have to create a whole new level of bureaucracy on the Federal level which is redundant to the States' efforts themselves is fallacious. In any event, in order to be a condition precedent to additional Federal leasing, I think is unsound policy, sir.

The CHAIRMAN. Well, with the political warfare of an unrestricted nature that is going on in the Congress these days, particularly in the Senate right now, I would not suggest that anybody seek any kind of legislation in the energy area that he does not absolutely have to have.

I would suggest we leave that at the bare minimum.

Mr. BAGGE. Senator, I respectfully submit that in my opinion we do not need a Federal strip mining bill, that the Federal Government has all of the authority to handle the leasing and the reclamation standards on its own land. The States are requiring, in the State of Montana, for example, on the Federal land, the operator has to comply not only with the Federal regulations that exist now, but with Montana State law as well. And I think it is an absurdity to say

that we cannot lease land, Federal lands that are urgently needed now, today, in order to make a logical mining unit, in order to make commitments to the gas industry so we can back up some of these synthetic projects we are talking about unless we have a Federal strip mine law and create a whole new bureaucracy which, in my opinion, would be redundant. I do not think that is essential at all.

The CHAIRMAN. Well, if that is the case then, at least we are that much further down the road. Do we need any more laws to see that environmental planning moves ahead step by step while other matters proceed? For example, I am being told that these environmental reports have not prevented us from opening new mines, strip mining, deep mining, or otherwise, but that there is a problem with the timing, that if you could make the environmental thing move along while you are acquiring your machinery, the other things, environmental concerns need not delay the day when you begin mining activities. Is that correct or not?

Mr. BAGGE. Let me just answer that question this way, Senator, by saying that we are completely stymied in the Powder River Basin today because of a court decision, the *Sierra Club v. Morton* case here in the District of Columbia Court of Appeals. The Department of Interior created over a 2-year period, to comply with the National Environmental Policy Act, an environmental impact statement. Now the extreme environmentalists, those who are not sympathetic to development at all, have used the procedural requirements or questions or ambiguities in the National Environmental Policy Act to secure from the District of Court of Appeals here in the District of Columbia Court an injunction that now frustrates all of the operators in the West who have created environmental plans, who have taken care of the infrastructure, who have secured leases, who are now waiting for a permit, secured the equipment and are ready to go. Now the Secretary of Interior is under an absolute prohibition to issue a mining permit. Now to say that the National Environmental Policy Act has not deterred production in the West; therefore, I respectfully submit, Senator, is wrong. It has. Now the question is does the 2 years of work that the Department of the Interior did—the Environmental Defense Fund is contending it was not broad enough. You have got to include even a larger area in order to rationalize what the environmental impact will be.

Well, if Interior goes back and spends another 2 years trying to embrace a larger area, the same group will come in and say, you have got to look at the entire West, and we will be stymied for another 2 years. We are stymied right now at least 5 years unless the Supreme Court overturns that opinion in the District of Columbia Court of Appeals, and I can testify, too, Senator, that there are many operators who have thrown in the towel and are giving up, which is precisely what a lot of those groups would like to see done. They are giving up because they are totally frustrated.

The CHAIRMAN. Well, now, do we need laws to remove some of the environmental impediments?

Mr. BAGGE. Indeed, we do. Indeed, we do, sir. We need laws to make the Clean Air Act rational and operative so we can secure the goals of clean air without shutting down and wiping out over 250

million tons of eastern production which is living on a day-by-day existence in the east today. We need laws to make the National Environmental Policy Act work. It is not working today. It shut us down in the West completely. We cannot get a permit today anywhere in the Powder River basin because of that litigation and we need laws to change the Court's opinion, the Supreme Court's opinion, in the non-degradation decision to clarify that. That is being marked up, I understand now, by the Public Works Committee of the Senate, but indeed we need laws to bring the fulcrum back into balance so we can achieve the goals, our conservation goals and our environmental goals in a more rational and orderly manner than we are doing now, Senator.

Those are the kinds of laws we need, not laws that will shackle the industry at a time we are being called upon to double our production as we are shackled today, sir. We are shackled in the East with an overzealous implementation of the Clean Air Act and we are shackled in the West in our planning because of an overzealous attitude toward strip mining and almost an hysterical, which I might say with all due regard, is outcropped in this very bill which gives the 5 percent amortization only to deep mines. There is no rational justification for giving it to deep mines only. It is madness to say we are going to extend it only to the deep mining segment of the industry. There is no conceivable rationale for that except the prejudice by certain Members of the Congress against the surface mining of coal.

The CHAIRMAN. Senator Packwood.

Senator PACKWOOD. Tell me about coal conversion and the costs and about this new process Batelle has patented which will economically take the sulfur out of coal.

Mr. BAGGE. There are a number of processes that are now under development. You know the Department of the Interior and the American Gas Association are jointly funding various high Btu gasification projects. I think we have five of those plants now either under construction or that are functioning for high Btu gasification. There is not any question but that we could do this today with the Lurgi technology. The Germans developed the Lurgi technology many years ago. We could go today to produce high Btu gas with Lurgi. There is no doubt about this. But we are trying to develop this and make it more sophisticated through the new processes. We have a process we developed in our own laboratory, for example, with a contract with the Office of Coal Research. That is high Btu. This can be achieved today. We can make liquids out of coal today by using the Fischer-Tropsch process that the Germans also developed. Maybe you have seen the ads in the Washington Post that Koppers has been running saying you could do it today. We could have done this 10 years ago.

Senator PACKWOOD. Is the only problem cost? The technology is there. You can meet the Clean Air Act standards but you cannot meet them cheaply, is that the situation?

Mr. BAGGE. No; that would be oversimplifying it, Senator. I think that there is a financial aspect, a financial dimension to this. We have got the technology to do that. If we use Fischer-Tropsch to liquify and we use the Lurgi to gasify, I think cost is a deterrent to those two processes. Now just looking at those two processes—

Senator PACKWOOD. In other words, those two processes will produce synthetic fuels or meet the standards but they are too expensive to be economically used in competition with gas or oil now?

Mr. BAGGE. That is true. It is going to be more costly than gas or oil now. That is right.

Senator PACKWOOD. But they will meet the Clean Air Act standards?

Mr. BAGGE. Indeed. You are converting a high pollutant coal into either synthetic high Btu gas or you are putting it into a liquid.

Now the Germans did it. The German war machine ran on coal 30 years ago. We can do it today if we have the will to do it, but there are economic deterrents.

Now at El Paso, I—

Senator PACKWOOD. What are the economic deterrents? I do not understand the process.

Mr. BAGGE. They are not just economic. Let me just say that El Paso Natural Gas was prepared to go in the Four Corners area, Farmington, with a coal gasification process. They had the coal reserves there ready to go and what held them up, at least the chairman of the board tells me, I used to regulate these fellows for 6 years in the Federal Power Commission and Howard Boyd told me that the reason it was held up was the water problem.

To serve the southern California market they have got to turn to coal. There is no question about this because the gas is being depleted. They have to turn to coal.

Senator PACKWOOD. Well, what is the water problem?

Mr. BAGGE. The water problem there was, at least as reported to me, the problem was that the permit when they finally went through all of the environmental impact analysis and all of that, that the water permit that was issued by the Department of the Interior was subject to the prior sovereign rights of the Indians and that without any certainty with respect to the amount of water that they could draw the whole plan became uneconomical.

So I say to you, Senator, it is not a technological problem. It is not only a financial problem, although the financial constraints do enter in, but in that specific case you could have had a high Btu commercial gasification project based on Lurgi existing technology today in the Farmington area to serve the consumers in southern California if they had gotten the water problem straightened out, but they did not.

Senator PACKWOOD. And El Paso said had they been able to get the water, they could have economically done it?

Mr. BAGGE. That is correct.

Senator BROCK. They were ready to make the investment?

Mr. BAGGE. They were prepared to make the investment. They spent 2½ years waltzing around with the Federal Power Commission, waltzing around with all of the agencies of the Government, and then they finally were stymied on the water. And we have got another big project out there to take care of the southern California market again, and that is the consortium that Pacific Lighting has put together with another major pipeline. We are hoping that one will be resolved favorably, but that is not a technical problem, that is not a financial problem, that is a water problem. That is a matter of resource problem. That is the constraint on that one.

Senator PACKWOOD. I have seen different figures. How much of the coal today, the coal leases are owned by oil companies?

Mr. BAGGE. Owned by oil companies?

Senator PACKWOOD. Yes.

Mr. BAGGE. I do not have that at my fingertips. I would say just the largest holder of coal reserves today is the railroad industry from the land grants they secured in the 19th century when they went West. They are the largest holder of coal reserves.

The oil-owned coal companies produce about 20 percent of our total production of coal today.

Senator PACKWOOD. Oil-owned coal companies produce about 20 percent of our current production?

Mr. BAGGE. That is correct.

Senator PACKWOOD. You do not even have a ballpark guess as to how much of the reserve?

Mr. BAGGE. I will supply it for the record, sir.

Senator PACKWOOD. Will you?

Mr. BAGGE. Yes. I do not have it at my fingertips.

[Mr. Bagge subsequently supplied the following response:]

We have been unable to locate specific information with respect to leased land. However, using the information published in the *Keystone Coal Industry Manual* we have determined that oil companies own, control or lease 7.2 percent of the demonstrated coal reserve base of 434 billion tons as defined by the Bureau of Mines.

Further information on this subject may be derived from a letter to the editor which appeared in the Washington Star-News last January by Robert R. Hurt, Director of Public Relations for the American Petroleum Institute. In his letter Mr. Hurt points out that:

"... Continental Oil Company, which owns the Consolidated Coal Company—the largest coal company owned by any oil company—controls only 2.4 percent of all known proved U.S. coal reserves." He further states:

"Exxon, 1.6 percent control of all known proved U.S. coal reserves; Occidental Petroleum, 0.8 percent; Kerr McGee, 0.7; Mobile 0.7; Gulf, 0.6; Sun, 0.5; Texaco, 0.4; Atlantic Richfield, 0.3."

Note that Mr. Hurt refers to "control" of coal reserves, which would include land owned. Thus, the land under lease should be a lesser figure.

Senator PACKWOOD. I have no other questions, Mr. Chairman.

The CHAIRMAN. Senator Byrd.

Senator HARRY F. BYRD, Jr. Thank you, Mr. Chairman.

Mr. Bagge, I am glad you put into perspective the surface mining controversy. Several witnesses have come before the committee with the impression that the surface mining legislation enacted by the Congress and vetoed by the President would increase the production of coal. Actually, it would decrease the production of coal; would it not?

Mr. BAGGE. Not only would it decrease existing production of coal, Senator, but even more importantly, that is tragic enough at a time we are being strained, our industry is straining to produce it, but in terms of the future it would so lock up, particularly in the American West, that resource because the underlying assumption of that legislation was to force the American coal industry underground as a matter of national policy. And for the alluvial valley prohibitions and through the hydrology provisions which cannot be met, they did not permit an engineering solution. In addition to which they so constrained the Secretary of the Interior's right to lease, they shackled him so far that he can only lease for methods other than strip mining purposes, which in my opinion and the opinion of our technicians whom we hired as consultants in this, was merely a variation on the theme of the Mansfield amendment. It would have been a shocking locking up of the resource that is urgently needed today.

We think that bill was a monstrosity.

Senator HARRY F. BYRD, Jr. Well, the President, in your judgment, was fully justified in vetoing that bill?

Mr. BAGGE. Indeed he was.

Senator HARRY F. BYRD, Jr. And the way that the energy problem has been helped is not by the bill itself but by the President's veto of the bill?

Mr. BAGGE. Of course.

Senator HARRY F. BYRD, Jr. For example, it would eliminate in the State of Virginia the annual production of 10 million tons of low-sulfur coal. Now how is that going to help the energy problem—to eliminate 10 million tons of low-sulfur coal in the State of Virginia, just one State out of the whole country?

Mr. BAGGE. Nobody believed us, Senator. We tried to tell this in the hearings. Nobody believed us. The press did not believe us but thank God for the President. He had the political courage to veto it and the Members of the House who sustained that veto. We think it would have been a national disaster. I think more and more people are beginning to realize it now.

Senator HARRY F. BYRD, Jr. I think so and I think also that the caravan that came from southwest Virginia and from Kentucky and from Tennessee, the coal miners, the truckdrivers, the families of those people who would be adversely affected—thousands of people being thrown out of work—when they came here to Washington, I think they served their cause well. They certainly handled themselves well. And I was very proud of my fellow Virginians who made that trip to Washington. I think they made a good impression on the Congress and I think the Congress today as a result of that trip, as a result of the President's veto, has a sounder view of that legislation. As you have indicated in your testimony, it would be very detrimental if we want to increase the production of coal and the consumption of coal at a time when we are running out of petroleum resources.

Mr. BAGGE. I could not agree with you more, Senator Byrd, and I applaud the efforts of your constituency that somehow got the attention of the Congress, because we tried and we could not, but that demonstration—apparently the only way that we can get our voices heard today is by using the same tactic that is used by the malcontents in our society, that is used by the extremists in our society. We have got to employ them ourselves to get the attention of the Congress and our Government.

But I applaud those people and I applaud your constituents who got the attention of the Congress on that issue.

Senator HARRY F. BYRD, Jr. I am very proud of the people of southwest Virginia. Coal is vitally important; it is the most important resource in that part of our State.

I notice in your presentation that you cite a report which has been prepared by your organization, which projects an increase in West Virginia's coal productive capacity of 71 million tons, Kentucky, 69 million tons, Illinois, 40.6 million, and Pennsylvania, 31.5 million tons. But I do not notice anything about Virginia in that.

Do you have any figures on Virginia?

Mr. BAGGE. That is an error. We should have put that in.

Senator HARRY F. BYRD, Jr. I want to get that on the record.

Mr. BAGGE. I apologize to you, Senator. I apologize profusely. The fact is that on page 3 of exhibit A we show that Virginia is going to have an increase by 1985 of 12.7 million tons based on our members' projections, a cumulative increase of 12.7. That is on exhibit A accompanying the statement, Senator.

Senator HARRY F. BYRD, Jr. Fine. I think it would be just as well if we put that in the record.

Mr. BAGGE. I would like to amend my statement and include, if I may, sir, for the record, the State of Virginia and put the tonnage in the text, sir.

Senator HARRY F. BYRD, Jr. I do not like to see Virginia left out.

Mr. BAGGE. It will not be. I apologize profusely.

Senator HARRY F. BYRD, Jr. Thank you, sir. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Curtis.

Senator CURTIS. To what extent have price controls on oil and natural gas discouraged the maximum utilization of our coal resources?

Mr. BAGGE. I was part of the process for 6 years as a member of the Federal Power Commission. I can personally testify, Senator, to the fact that by regulating the field price of natural gas, as we did in the Permian Basin, the first area pricing case at 16½ cents an MCF, by encouraging the use by the American utility industry of gas as a boiler fuel and by encouraging industry generally to use gas to raise industrial steam, we in the decade of the 1950's shoved coal out of the market; as a matter of national policy we did it. It was cheaper, it is still cheaper today to burn and flare natural gas under utility boilers and industrial boilers to raise industrial steam than it is coal because the price regulation on the field price of gas. As to oil, what we did in our zealous regard for the environment and also for the so-called cheap oil in the Middle East, we got 90 percent of the entire east coast utility industry, on Middle Eastern oil, "cheap oil," as a result of which the railroads went bankrupt because they lost the coal traffic and now we are trying to extricate ourselves from this. The industry declined. We have been at an absolute plateau of our production for the last 30 years due to erroneous governmental policies with respect to, as your question assumes, both oil and gas.

Senator CURTIS. I agree with you.

You referred to the large capital needs of the coal industry. Do you think the coal industry can raise the funds it needs?

Mr. BAGGE. The coal industry can raise the funds it needs if it is provided the kind of incentives that this bill attempts to provide for but with the amendments that I have attempted to articulate in these ideas I share with you. It is my belief, it is my conviction that the coal industry can, if it is not regarded as a marginal industry as the fire engine to be called in, as we have been treated in the past in a period of war or an Arab oil embargo, if we are given the decision to go, if we can grow in an orderly and responsible manner with incentives, we can generate the capital ourselves or go to the sources of capital to which we have to go in order to expand at this unprecedented rate.

Senator CURTIS. What factors, other than artificially low prices of oil and gas have precluded utilities from using coal to generate electricity?

Mr. BAGGE. You mean in terms of today, in converting today, in converting back to coal today?

Senator CURTIS. Yes.

Mr. BAGGE. Well, first of all the price. The government policies have encouraged the use of oil and gas, because of the pricing policies, ignoring coal. I think that the problem of supply, because of this the consequential effect has been that we have had a marginal industry. We are still a marginal industry really only in the periphery of the American energy spectrum to this day.

Senator CURTIS. We have the situation in my State where we are trying to build a large coal-burning electric generating plant.

Mr. BAGGE. Yes, sir.

Senator CURTIS. It is quite an operation. They are buying their own trains to haul the coal. They are going to build 36 miles of additional track. But the Sierra Club has moved in and caused various delays that have already cost the electric users of my State \$38 million, and if they run the full course of their delays, it is going to run \$100 million.

Is that one of the things that is causing the trouble?

Mr. BAGGE. Oh, indeed, indeed. When we tried to, in the middle of the embargo, Senator, I was attempting and our staff was attempting to plug in coal operators with utility presidents in New England because they could not get the oil. It is not only the organized malcontents and doomsayers and naysayers in the various organizations, it is our own EPA, the Environmental Protection Agency, that when we finally got the coal up to New England, sir, in the middle of the embargo when people were going to be cold that winter, and we were looking at a strike in our industry with the United Mine Workers, the EPA refused to permit its use, except on very short term when they did grant it, 30-day increments. The utility presidents that I worked with said, "Carl, we wound up buying 600,000 tons of West Virginia real estate which is sitting up here." They chartered the vessels. We dumped it at Hampton Roads. They wound up with a half million or 1 million tons of West Virginia real estate. The Environmental Protection Agency would not let them burn it even though it complied with the primary health standards.

So it is the right arm of the Government telling them to convert not knowing what the left arm is doing and we are still frustrated today. Here we have got the Federal Energy Agency telling the utilities to convert and EPA will not let them burn the coal.

It is madness, absolute madness.

Senator CURTIS. Now, I was in South Africa this spring. They are making between 13 and 17 percent of their gasoline needs from coal.

Mr. BAGGE. With American technology and American industry that built the plants.

Senator CURTIS. And they are in the process of doubling the facility so that they will have in excess of 25 percent of their gasoline needs made from coal.

Mr. BAGGE. Yes, sir.

Senator CURTIS. And they are doing it without a subsidy. They had a subsidy while the Persian Gulf oil was so low in price but now it is operating successfully. Could that be done here?

Mr. BAGGE. It not only could be done here, it should have been done here 20 years ago, Senator. That is American technology. The tragedy is that in South Africa; I talked to the people who were going over to erect still another liquifaction plant, that it is American technology, American industry that is putting it up in South Africa and we cannot build one in this country and I think that is tragic.

It should be done here, it should have been done here long ago. We could do it today.

Senator CURTIS. Is there an environmental problem involved there?

Mr. BAGGE. I am sure that some of these groups would find an environmental problem involved in almost anything. But, I am not aware of any rational environmental problem.

I look to my technical expert in terms of coal liquifaction. No. The tragedy, Senator, is these are Americans, putting up in South Africa these plants. Before they left they visited with us here about a month or so ago. They are going out to put another plant up and with tears in their eyes, Senator, these men are committed men, with tears in their eyes they are going to South Africa to do what we should have been doing here years ago.

And I am not overstating it. You know these are dedicated men, they are leaving their own country to go to South Africa to put in the technology that America has developed and we are not doing it here.

Senator CURTIS. Instead of having government by the people we have government by the fringe.

Mr. BAGGE. Yes, I agree, government by the fringe and sloganeering and imagery.

Senator CURTIS. That is all, Mr. Chairman.

The CHAIRMAN. Senator Gravel?

Senator GRAVEL. Mr. Bagge, you are turning this into a love fest.

Mr. BAGGE. I am grateful, let us keep it that way.

Senator GRAVEL. You spoke of securing some incentives. What has been the reaction in the last 90 days to the incentives that Congress gave you? Has there been any substantial activity in the coal industry since the first part of April?

Mr. BAGGE. I am not aware of any incentives that we have been given. The Congress has not been giving us incentives, Senator. Every action that has occurred in the last few years, that I am aware of, has been counterproductive.

Senator GRAVEL. And coal still competes with oil, does it not?

Mr. BAGGE. It does indeed and competes with gas for the utility market as well.

Senator GRAVEL. The Congress took away the depletion allowance of oil and gas and still left it at 10 percent on coal.

Mr. BAGGE. Yes, sir.

Senator GRAVEL. That gives you an incentive you did not have before in the marketplace since you now have a tax advantage of some support that you do not have in any other industry.

What have you done with that advantage since the first of April?

Mr. BAGGE. Let me say this; it was only in 1974 that our industry was profitable. In 1973, Senator, of the top 15 coal companies, 12 of them lost money. So, we have not been using; we have got, as you know, a 10-percent depletion on shale oil. One of the things I wanted to say here, but I did not, I never got a chance, the bell rang on me,

is we think in addition to computing the cutoff point for depletion, like oil shale, we should also have, if oil shale gets 15 percent we think the same rationale should apply to us, sir. But, it was not until 1974 that we were able to apply and utilize depletion because we were not profitable, generally speaking, as an industry until the year 1974.

Now, that has been an incentive, it has indeed, and it is on the basis of that incentive, Senator, that we can look to the future in 1985 and show to you the studies showing that we can and will double our production by 1985.

Senator GRAVEL. But, you do recognize from April that Congress gave you an incentive because it took the incentive away from your greatest competitor so that now you have an advantage.

Mr. BAGGE. We are grateful.

Senator GRAVEL. It is a real advantage.

Mr. BAGGE. We are grateful.

Senator GRAVEL. You should hang on to it dearly; there may be some forces in Congress that want to take yours away.

Mr. BAGGE. I understand that.

Senator GRAVEL. That incentive and the hope that the Congress might deregulate gas and oil which would cause the prices of those products to rise, would also affect you in the economic marketplace to make it economically more attractive to use coal vis-a-vis oil and gas.

Mr. BAGGE. Exactly, and that is precisely why we support the deregulation of gas and the deregulation of old oil. It is in our self-interest, too, but it will also provide more rational allocation of fuels for this country.

Senator GRAVEL. Good, so you are saying that through deregulation, we will permit the market mechanism to bring online alternate sources of energy that could rightfully take their place in the spectrum of energy supplied in this country.

Mr. BAGGE. Exactly, I agree with that completely. It will also encourage the development, as you are suggesting, of a synthetic fuel industry in this country.

Senator GRAVEL. Right, so we would not have to go to artificial incentives. In other words, all we have to do is just get the Government out of the price mechanism, and the marketplace will work things out so that these products would be sold at their value.

And this in turn would bring other products online to satisfy our energy needs.

Mr. BAGGE. That is a long-term view. But, in the short-term, sir, I would not want to demean in any respects, the amortization provisions that are before this committee in this bill. In the long-term view, you are quite right. But, we need incentives today to start gearing up our industry. That is why we are saying that these amortization provisions for rolling stock and for equipment and all of that are also essential.

Senator GRAVEL. How long do you think that should be on?

Mr. BAGGE. You mean the duration of that policy. At least long enough so that we have some evidence that there is, in fact, a true response.

I would say—let me put it this way—I think it should be on as long as the national interest requires it.

Senator GRAVEL. But, that is a very capricious thing. When we do things that are self-serving to elements of industry, they get in the habit of drinking up those subsidies, and they want to keep drinking it forever. Then they lobby against the change in the law. So, we cannot correct many of these loopholes that are well intentioned to begin with but become real abortions after they get going.

Mr. BAGGE. I would say that a 5-year term would be adequate, then take another look at it.

Senator GRAVEL. Could you supply anything for the record; if there has been a change, a flurry of activity, within the industry since April 1? I hate to keep going back to that, but you know, if you were not sensitive to the fact that you had an advantage, then maybe the rest of the industry is not particularly sensitive to the fact that there now exists a real advantage to them in terms of their former competitors or the present competitors.

Mr. BAGGE. I would be happy to do that, Senator, certainly.

[Mr. Bagge's response follows:]

Actually's this "reverse incentive" has had little immediate impact on the coal industry. This is probably because of the long lead time needed to open new mines. Further, removing oil's depletion does not necessarily result in a greater incentive for the coal industry. Even a direct incentive, such as increasing coal's depletion would not be reflected in new mine openings for at least two or three years.

Senator GRAVEL. But, I have got to say, in all candor, if there is anything that has given a new birth to our industry, it is in fact the recognition by Government in its various studies, beginning with Project Independence, the Dixie Lee Ray study, the R. & D. studies that recognize coal. It may be all rhetoric, but I must say that it has provided a new sense of urgency to my industry and has given us a new lease on life so we can have the kind of plans we are submitting to you here.

I think it transcends the depletion allowance, taking away the depletion from oil, it transcends that. It is a matter of attitude based on what they are reading and hearing and interpreting to be an evolving commitment to coal by the U.S. Government.

Senator GRAVEL. I think the commitment is just a realization that we have to satisfy energy needs and we are prepared to take whatever product will satisfy those needs, whether it is coal or geothermal or anything else. If you people find your place in the sun with that, so be it.

But, all we are interested in is getting energy at the proper market price.

Mr. BAGGE. Correct.

Senator GRAVEL. Thank you.

The CHAIRMAN. Senator Brock?

Senator BROCK. Mr. Bagge, you are a refreshing witness, and I appreciate your testimony.

Mr. BAGGE. Thank you, sir.

Senator BROCK. I hope you do not run for office in Tennessee anytime in the future.

Mr. BAGGE. I ran for office in Illinois once, Senator, and I learned the hard way, you cannot beat the machine.

Senator BROCK. I am trying to convince any potential opponents of that in Tennessee with less success so far.

I think, to follow up on Senator Gravel's question, depletion does not mean a hill of beans if you are not making a profit.

Mr. BAGGE. That is what I tried to tell him, as nice as I could.

Senator BROCK. I think he understands.

Mr. BAGGE. In 1973, we were not making a profit, and all this depletion did not matter, you know.

Senator BROCK. That is right. But conversely, if the marketplace were allowed to work out, the depletion would not be so crucial if you were in a fully competitive and profitable position. So, the coin does flip on both sides.

Let me ask you just a couple of questions. One of the things that has bothered me in the last couple of days, other witnesses have said, we could convert some of our utilities in the Northeast to coal and still comply with the new clean air standards. But, we cannot even get the coal to the Northeast because we do not have the rail facilities. Now, is that really accurate?

Mr. BAGGE. Well, if the utilities say they cannot do this, they cannot do that, and you know they have got problems, Senator.

Senator BROCK. Right.

Mr. BAGGE. If the utilities say they cannot, what we need to do is to say let us sit down now and make the plans that are essential to do it. Now, during the embargo we were working overnight in our shop trying to get fuel purchasing vice-presidents of utilities in New England who had never burned a single ton of coal in 30 years, who did not know a single coal operator, and we did serve the function of the catalyst to put them together, and they did burn coal.

And it was possible to charter vessels and bring it up there economically. And I might say, incidentally, at a price much cheaper than the price of imported oil since the oil price rise. If EPA would have let them continue to burn the coal that they were bringing in chartered vessels up from Hampton Roads—one utility system could have saved \$100 million a year just in fuel costs alone.

Senator BROCK. That is my whole point. There is no reason why we cannot use the Port of Boston, the Port of Norfolk, or Hampton Roads to get that coal up there. It might put a little burden on the rail system but the problem is more of governmental restraint than it is of market viability.

Mr. BAGGE. That is correct because they were frustrated in their efforts by the Federal Environmental Protection Agency. The States would permit it, and we are not talking about compromising human health, we are not talking about the primary health standards at all. And yet they were frustrated.

And then again, there is another dimension of the problem, Senator. When you are only given your permits in 30-day increments, how can a utility executive plan for coal, how can a producer? He has got to go on the spot market, as you know, and there are two markets. 80 percent of our coal is marketed in long-term contracts, it is that 20 percent of the spot that responds to the fluctuations of the prices.

And your own constituents, they went into the coal industry when the price was right and they will go back to working for the county

highway department when the price is wrong. That is where they are today because the spot market suddenly has zoomed down again to approach the long-term contract price. And so, the fellows are stuck with the equipment, now, it has again been the boom or bust.

And if I plead for anything, it is for some understanding. If we are serious about indigenous resource development and if we are serious about our place in that sun, as Senator Gravel put it, then we have got to attack the heart of the problem which is rational and orderly development in the public interest. All we are asking for is a fair price, a fair return, not outrageous prices that were experienced last year in the spot market by a few producers. This is not in the public interest.

But, the American consumer is going to be best served by rational and orderly development of the coal industry.

Senator BROCK. I might point out, for the benefit of some of my colleagues who are not in the TVA area, EPA has told TVA to put limestone scrubbers on its stacks now. It cost us \$1.2 billion to install them. The operating cost is \$220 million a year. There is obviously no increase in production as a result. But, the fascinating thing is that with \$1.2 billion worth of capital expenditure, \$220 million worth of operating costs, there is no reduction in ground level emission at all, zero.

And yet, the order is still being pressed, I just find that insane.

Mr. BAGGE. This is Government gone beserk. TVA has demonstrated compliance with continuous monitoring at the plant at Gallatin. They have documented it.

Senator BROCK. I know, why cannot we communicate that? I do not understand.

Mr. BAGGE. If you Senators cannot do it there is nobody left in our whole system to turn the levers of power on to change it. And you are asking me?

Senator BROCK. I think most of the members here would understand what we are talking about. You may be carrying, I hate to say it, but coals to New Castle with this particular argument.

Anyway, let me talk to you a little bit about research. We are doing some interesting work in my State, the Space Institute in Tullahoma on MHD, the process of direct conversion of coal to electricity through the heat process.

I do not know how deeply you all are in these various research efforts. I am sure you are very much involved and I wondered if you could comment on the adequacy of our Federal support in these basic fundamental long-term decisions.

Mr. BAGGE. I would be glad to.

Research is one of our missions at the National Coal Association. If I might say, a third of our budget goes to support our laboratory in Pittsburgh, the Bituminous Coal Research, Inc., which is our research arm, modest as it is, and a third of my dues goes to that.

I might say that I think we can throw billions of dollars at liquifaction, we can throw billions of dollars at gasification, we can throw billions of dollars at MHD, we can throw money at them which apparently we have the national will to do now.

You know, I was around these Halls of Congress trying to get the OCR, the Office of Coal Research budget from Appropriations Committee extended from \$52.3 million in fiscal year 1973 to \$100 million.

You know, you go from 50, the OMB had given them \$52.3 million, and they go from that to \$347 million now almost overnight because suddenly it is popular.

But, I want to say this, Senator, I think those efforts are adequate. We have now restructured the institutional apparatus now of Government with ERDA. I think under Dr. Seamans I was concerned about Seamans at first, I am still concerned about all of the AEC types they have got there. But, I think as I read their last report they submitted to the Congress here just 2 weeks ago, as I read that report there is a balanced commitment now to fossil fuel development.

I think we have done something in that area that I think is going to take care of itself. But, I think we fall short in the area of extraction technology, coal extraction technology. It has no sex appeal. You cannot pose with pictures pushing magic buttons. But, the winning of coal, as the British call it, the winning of the coal, which is a term I like better than production because it connotes a kind of a struggle against the elements; the winning of coal, that is an area that has been ignored. The Federal Government has not put a single dime into coal extraction technology except for the mine, health, and safety area where, when they passed in 1969, the Mine, Health, and Safety Act.

But, the Government has not put a dime until last year into coal extraction. And what has happened there, Senator, is that while the Department of the Interior a year ago went out and ballyhooed a 5-year plan that was going to be funded at a level of up to \$65 million in fiscal year 1975, they never followed through.

Instead of following the 5-year plan—we had some input into that—it was a rational plan which should have demonstrated new mining technologies—the level of funding for coal extraction in the Bureau of Mines, the Department of the Interior, is just at a plateau, at this time.

And I want to call that to your attention because it is not these exotic conversion things that are going wanting for funds. It is simple mining of coal because it has no appeal, it has no sex appeal and we have to do something to get a mining breakthrough. The so-called continuous miner we are using is only continuous 30 percent of the time. We have a logistical problem in the mines. It waits on this bulk handling of coal in the mines. The shuttle cars are what is retarding its full use.

We have to solve these problems, that is where the money is needed today because we are not going to have a new conversion industry unless we can extract the coal in a more efficient way.

Senator BROCK. Thank you very much, you have made my point.

Mr. BAGGE. Thank you, I did not know that was your point, Senator, I am delighted I hit the right button.

The CHAIRMAN. Senator Talmadge.

Senator TALMADGE. Mr. Bagge, I regret I was late and did not hear your testimony in chief. However, I have been tremendously impressed with your eloquence and your articulance in responding to questions.

Mr. BAGGE. Thank you, sir.

Senator TALMADGE. I have seen various statements that this Nation has anywhere from 300 to 800 years supply of coal. Which is accurate?

Mr. BAGGE. Which is accurate?

Senator TALMADGE. Yes, how much coal?

Mr. BAGGE. The answer to that, Senator, is that we don't really know how much coal we have got. We say there are 434 billion tons of coal in demonstrated coal reserve base in the United States, and 50 percent of that we say is recoverable with the present technology. That would take us to 300 to 400 years. But then the geologists tell us in addition to the demonstrated coal reserve base, we have got at least twice that.

And, of course, if we employ the mining technologies that they do in Europe, where they have to go two and three times as deep, we do not go that deep in the United States, we do not go for all of those thin seams, or seams that are difficult to mine, but we are talking about something that potentially could be enough, at the present rate of use, for 800 years, in my opinion.

The **CHAIRMAN.** May I interject at that moment, because I want to get this straight; you are presently providing about 18 percent of our energy needs with coal and at that rate we have enough for 800 years.

But, if you were providing 100 percent of our present energy needs with coal, you would have to divide that 800 by about 5, would you not?

Mr. BAGGE. Exactly. That is why I said under present levels of production, we are producing at a rate of about 600 million tons a year today.

Senator TALMADGE. The chairman has just asked my next question. That is about 18 percent of the energy needs of this country?

Mr. BAGGE. That is right.

Senator TALMADGE. What percentage of the energy needs of this country could coal and its derivatives supply?

Mr. BAGGE. I think that the figure that we used, based on the Project Independence study and based on the ERDA study that was submitted to Congress a week or so ago, is that we would, by 1985, be supplying up to 22 or 23 percent of the total energy use in the next decade. But that jump from 18 to 24 percent is a staggering jump. That is more than doubling our base.

Senator TALMADGE. It seems to me that as the energy crisis confronts us, we ought to accentuate the positive, which is our strength: coal, and make the greatest possible utilization of that that we possibly can.

Mr. BAGGE. Absolutely.

Senator TALMADGE. What percentage of the utilities now use coal for their fuel?

Mr. BAGGE. About 50 percent of the total fuel burn of the electric utilities is in the form of coal, Senator.

Senator TALMADGE. Is it increasing or decreasing?

Mr. BAGGE. I think there was a little increase, just a small increase, in last year compared to the year before. And that accounts, because of the gas, they cannot get the gas.

You see, a lot of the Texas utilities are now going into getting lignite for their incremental needs. I think there, most assuredly, as I read the EEI's projections for full utilization, there will be a tremendous increase in coal use for 1985, burned by utilities. Something on the order of 800 million tons, from 390 million tons.

Senator TALMADGE. Is it practical to mandate the utilities to use coal in lieu of petroleum or boiler fuel?

Mr. BAGGE. Yes, it is practical to mandate, Senator. I know the utility industry disagrees with that, but I have testified on several occasions before FEA that unless we give that extra push—I am a free enterpriser—I like to keep Government out of it as much as possible, but I do think this country is at war, and in a period of war, like this, when we are fighting the energy battle and we are talking about economic and national survival of our body politic, I think it requires some extraordinary measure. And I do not find offensive the fact that the FEA is now mandating the conversion to coal, because it is not going to happen unless there is some effort by Government to say, as a matter of national policy, that you ought to be doing it if you can.

Senator TALMADGE. Would it save the utilities money or cost them money to mandate them to use coal?

Mr. BAGGE. In my opinion, broadly speaking, some utilities can show that the conversion costs are going to exceed the useful life of the plant. It may be that in those situations you would not do it.

But, generally speaking, the cost, the fuel cost of coal is going to be at least 50 percent less, on an average, than the equivalent cost of oil.

Senator TALMADGE. How about natural gas?

Mr. BAGGE. Natural gas is still cheaper. You see, if they can get gas, that is still cheaper than coal.

Senator TALMADGE. It is in such short supply, that for all practical purposes it will not be available as boiler fuel very long, will it?

Mr. BAGGE. That is right. And my old colleagues at the FPC are not permitting it. And I noticed that some of the States, now, the State of Texas has got hearings on it, not permitting the use of gas in boiler fuel.

Senator TALMADGE. If my memory serves me correctly, it has not been but 2 or 3 years ago that EPA was mandating them to convert from coal to petroleum. Is that not correct?

Mr. BAGGE. That is absolutely right.

And I might say here is another one. The military establishment canceled all of the coal contracts and went to oil. This was just like 2 years ago. And then they had to switch it around, again, because GSA decided they are embarked on a another frolic and detour now. They want to go down another road. And then they came back to us and they wanted the same old contract for coal at the same price, the same terms and conditions which they had canceled on us.

Senator TALMADGE. Are we going to be able to mine this coal and deliver it as rapidly as it is going to be needed?

Mr. BAGGE. We will if we straighten out in the east coast our railroad problem. We will, if the Congress has got the courage to implement the Clean Air Act rationally. You will, if you permit the leasing of coal in the West. And you will, if you do not pass another strip mine bill that is going to shackle the arms of the industry and prevent the use of the vast coal reserves of the West, and as Senator Byrd said, frustrate the existing production in Appalachia and the Midwest. I think with those conditions we can.

Senator TALMADGE. What percentage of our coal that is mined now is exported?

Mr. BAGGE. Ten percent of our total production is exported. Now, when we talk about that, that includes Canadian export, which is about 18 million tons to Ontario Hydro which is all steam coal.

But apart from that export to Ontario Hydro of steam coal, which really comes back to us in the form of electric energy through the interties, in part, 95 percent of our total coal exported, is not a fuel, Senator, it is a chemical. The steel industry of the entire free world depends upon a certain amount of the unique characteristic, coking characteristics of American coal. They blend it with the Polish coal, South African coal, German coal. But they have to have a certain amount. I am not a technician. I cannot tell you why. But I can personally testify, because I have talked to the steel industry people in Europe, when I have been there and visited the mines and visited the steel industry, this is a chemical.

And those people who are asking you, the Congress, to block exports because we had an energy problem there last fall in the southeast, and those elements of the electric utility industry and the domestic steel industry that wanted to block exports, I do not think that that policy is in our national self-interest. Our coal, I am proud to say, is essential to the free world steel industry. And that is a chemical. It is not a fuel.

Senator TALMADGE. Thank you, sir. My time has expired.

The CHAIRMAN. Senator Dole?

Senator DOLE. I have only one question.

Assuming we do adopt some decontrol plan on petroleum and gas products in the next few years, what is going to happen to the price of coal? Is it going to go up?

Mr. BAGGE. The price of coal is going to reflect the inflationary experience of this society. There is no other way. But the fellows tell me what their continuous miner costs, they tell me what a CAT costs and the reclamation costs, and it is twice, three times the price. The price of coal is going to reflect that increase. That is right.

But, I deny emphatically to those who say that the price of coal follows the price of oil. That simply is not true. It simply is not true to say we are going to be exploiting the American public because of an increase in oil prices, that coal is going to follow. That is not true, and we can demonstrate that it is not true. We are under investigation right now by several agencies of the Government; the Wage and Price Stabilization Board and other agencies are looking into this. But, I must say, sir, that the price of coal has to reflect the increased cost of production, the increased cost of labor, the increased reclamation and environmental costs that are being imposed on us. But, I deny emphatically the fact that it is oil related.

Senator DOLE. The point is if we have a decontrol plan, it is going to be accompanied by a "windfall" profits tax. I would assume if the price of coal did follow that price, you might be confronted with the same issue of "windfall" profits.

Mr. BAGGE. We are well aware and we are sensitive to that fact, and the responsible coal operators in this country that I am proud to say I represent, Senator, are asking from the Government the kind of certainty that will permit rational and orderly growth and a reasonable rate of return with long-term contracts, not this roller coaster boom and bust which has characterized our industry before. If we get

the right policies and if you give us the incentives with the amendments that we are asking for here, Mr. Chairman and members of the committee, I think we are going to be able to do it. But, if we go on the way we have been going now, shackling us and compounding uncertainty and uncertainty, divesting Peabody from Kennecott Copper and taking another whole look at this oil control issue, oil and coal and all of that, and compounding—

Senator DOLE. We did not do the divesting. That was the Federal Trade Commission.

Mr. BAGGE. I know. But you may have the chance to fix that one up very shortly, I hope, in the Congress.

All I am trying to say is that the uncertainties that we have experienced and continue to experience are frustrating us. What we need is a big green light, and we are getting it in the form of a lot of rhetoric, and we love it. We love it. But that and 25 cents will get you a cup of coffee. When you go to the bank to try to fund a new mine, whether it is deep or stripped—

Senator DOLE. Where will that get you a cup of coffee?

Mr. BAGGE. I do not know. Maybe it is 30 cents now.

Senator DOLE. That is all I have, Mr. Chairman.

The CHAIRMAN. Thank you very much, Mr. Bagge. You have made a very fine presentation.

Senator TALMADGE. May I ask one question before the witness leaves?

I was intrigued by your statement about this gasification and liquification plant in South Africa. The Minister from South Africa was in my office a few weeks ago and we talked about that. He informed me that they were going to double their production there.

Now why is that economically viable in South Africa, and not economically viable in the United States?

Senator BAGGE. I wish I knew the answer to that question, Senator.

Senator TALMADGE. They are doing that with no subsidy.

Mr. BAGGE. I do not think they are doing it with my subsidy.

Senator BROCK. Would the Senator yield?

Senator TALMADGE. I will.

Senator BROCK. Is it not part of the fact that they are paying close to \$1 a gallon for gasoline; are they not?

Mr. BAGGE. Well, yes, of course. The South African economy is based on coal. That is 90 percent of their resource base, just like us. Just like us.

Senator BROCK. I understand that.

Mr. BAGGE. But they are doing something rational about it, and we have ignored this resource base all of these years.

Senator BROCK. But we are holding down the price of old oil and natural gas which makes it not economically feasible to develop alternative technologies. I think that is Mr. Bagge's point.

Senator TALMADGE. The Senator from Tennessee is probably correct. As I recall, the vice president of Exxon was before us yesterday, and he estimated that petroleum would have to cost, as I recall, about \$16 a barrel in order to make gassification and liquification economical.

Senator BROCK. The figures I have been given say \$14 a barrel. But that was late last fall, so it is probably up to \$16 now. We are in that range.

Senator TALMADGE. Thank you.

Mr. BAGGE. Again, I want to say it is America that is building those plants down there, Americans.

Senator TALMADGE. They are not using the old German process?

Mr. BAGGE. Well, it is based on that. It is based on Lurgi. But it is a Koppers Corp. variation on the theme of Lurgi, and it is Americans, and that is what I am trying to tell you—that they are doing it down there and we are not doing it here. In God's name, I do not know why.

Senator TALMADGE. Thank you very much.

Mr. BAGGE. Thank you.

[The prepared statement of Mr. Bagge follows:]

STATEMENT BY CARL E. BAGGE, PRESIDENT, NATIONAL COAL ASSOCIATION

My name is Carl E. Bagge. I am president of the National Coal Association, whose members include the major coal producing and coal sales companies of the nation.

We appreciate the opportunity to express our views on H.R. 6860, as well as other financial and tax-related subjects which impact on the coal industry.

I. COAL'S FINANCIAL REQUIREMENTS

The coal industry's projected financial requirements are indeed staggering. Recent estimates put coal's capital needs at roughly \$20-\$25 billion by 1985. For an industry with a current total capitalization of \$5 billion, the magnitude of the task is indeed formidable. However, such financing levels can be met if the investment climate surrounding coal is strongly expansionary.

America is an energy intensive nation. Domestic raw energy value in 1974 was approximately \$37.5 billion. This includes crude oil value at the wellhead of about \$22.1 billion, coal at the mine of \$8.9 billion and domestic natural gas at the well of \$6.5 billion.

The substantial figures highlighted above, however, do not begin to indicate the vital importance of energy, both in our national life and in our relative position in the world at large. For, it is evident that energy now occupies the central role in the rapidly unfolding dilemma of industrial America which, accustomed to unlimited natural resources, now finds itself dealing with growing fuel shortages. At stake is our ability to continue the social and economic progress which we have made over the past several decades and, more importantly perhaps, our ability to function in the world community as a stable and progressive force.

Energy, its supply and consumption, is no longer of parochial interest only to the energy industry. Rather, its importance has escalated and it must now occupy the immediate attention of those charged with the determination of national policy at the highest level. This fact is being underscored today in these hearings you have convened on this subject, Mr. Chairman.

Even if the discomfort and inconvenience caused by the Arab oil embargo has subsided, the uneasiness and concern among the American public about the adequacy and reliability of our energy supplies spawned by that crisis still remains.

Indeed, the imperative for creating incentives for domestic resource development is now clear. Either we develop our indigenous energy resources and thus regain national self-sufficiency, or we become increasingly dependent on foreign resources with the gravest possible consequences for our national security and our ability to promote the well-being of our own citizens, as well as to act as a responsible member of the world community.

The United States must now look to domestic sources for its energy. In this country, coal represents 80 percent of known recoverable U.S. fuel reserves, including uranium. From this vast supply base will logically come a significant increase in demand for coal.

Project Independence and energy plans formulated by Congress both project coal production attaining a level by 1985 of roughly double that of existing production. The vast majority of this coal will be consumed in its conventional form, while the remainder will be used as a feedstock for synthetic liquid and gaseous fuels.

To rapidly expand the coal industry to meet these needs will require a significant concerted effort by industry, labor and government alike. For an industry whose productive capacity has remained stagnant for the past two decades, such an effort will require the creation of an entirely new expansionary climate—one predicated on planned, orderly growth.

The coal industry, for its part, is committed to doing all it can to meet this huge growth in a rational and orderly manner. It cannot be overemphasized, however, that due to the long lead times involved, the longer we wait to create such a growth atmosphere, the more difficult and frantic such an endeavor will become.

Recently, the National Coal Association undertook a study of the coal industry's expansion plans through 1985 which is attached as Exhibit A. In doing so, certain basic assumptions were made in arriving at the coal industry's projected increased productive capacity. These included the following:

1. The Clean Air Act Amendments proposed by the Administration will be enacted.
2. Capital will be available for the projected expansion.
3. No unreasonable surface mining legislation will be enacted.
4. A viable federal coal leasing program will allow development of Western coal.
5. Realistic means of complying with the National Environmental Policy Act (NEPA) will allow energy development without undue delay or restraint.
6. Adequate transportation will be available.

If any of these assumptions prove to be incorrect, the figures arrived at in the NCA study would, of course, be overstated. Moreover, existing productive capacity could also be jeopardized.

The study projects that additional capacity under construction, announced or planned by 1985 amounts to 534.01 million tons which, together with mines already under development in 1974, make a total of 577.8 million tons of added capacity available by the end of 1985. The report shows that of this 577.8 million ton total, some 302.4 million tons will come from the West and 275.4 million tons will come from the Eastern U.S.

The greatest increase is expected to be in Wyoming, with ultimate capacity additions of 123.4 million tons by 1985. Also in the West, Montana is projected to have 57.3 million tons of incremental production, Utah 36.6 million, Arizona 27 million and North Dakota 21.9 million tons.

In the East, the report projects an increase in West Virginia's coal productive capacity of 71 million tons, Kentucky 69 million, Illinois 40.6 million and Pennsylvania 31.5 million tons.

While the report is a tangible gauge of the coal industry's commitment to expanding the nation's energy supply base, it also underscores the essentiality of shifting the tax structure of coal to encourage expansion. Unless appropriate fiscal and financial incentives are implemented soon, the ability of the coal industry to meet its commitments will be in question. As mentioned earlier, there are a number of other problems presently confronting the coal industry—air quality restrictions, implementation of the Coal Mine Health and Safety Act, Federal leasing moratorium, to name just a few. These like fiscal and financial issues, must also be resolved in order to guarantee the nation a stable and continuing supply of coal.

II. H.R. 6860

The ultimate goals of H.R. 6860 are highly commendable. The coal industry supports greatly expanded research in the energy area. Equally important, we support the stated aim of the legislation to reduce the United States' dependency on foreign oil. However, the bill is deficient in several significant areas and, unless amended, does not provide the treatment essential for an expanding coal industry.

A. Amortization of Qualified Energy Use Property

Among other things, section 189 provides for five-year amortization of qualified coal processing equipment, qualified coal pipelines and qualified deep mining equipment. Similar amortization would be allowed certain railroad equipment under section 423. These provisions do not provide adequate relief for the coal industry and we urge that the bill be amended to correct and clarify certain deficiencies as outlined below.

1. Coal Processing Equipment (Section 421(b)(4))

There is no provision in existing law for differential treatment of depreciation of the cost of plants to convert coal to low-pollutant synthetic fuels. That cost must be recovered, for tax purposes, over the estimated "useful life" of the plant. While the depreciation "guidelines" do not contain a specific class for such plants, a possible clue to the useful life is provided by the guideline life of 30 years for "manufactured gas production plant." It may be, however, that a much shorter life could be used under existing law, since the guideline life for chemical plants is only 11 years.

The supplies of natural gas and natural petroleum will, inevitably, be gone long before our huge reserves of coal are exhausted. Already prospective customers are being denied natural gas. The use of energy is growing, and air quality restrictions have resulted in an accelerated demand for low-pollutant fuels which is impossible to meet unless coal is converted to low-pollutant synthetic fuels in commercial quantities.

At present there is little incentive for investment in these very expensive coal conversion plants. The plants are estimated to cost on the scale of \$700 million or more. Should shortages of natural gas and petroleum become more acute, investors will give serious consideration to the construction of conversion plants.

The report of the House Ways and Means Committee accompanying H.R. 6860 clearly states that section 421 pertaining to "Qualified Coal Processing Equipment" is to apply to all synthetic fuels processed from coal. However, the present wording of the bill refers to ". . . any machinery or equipment (of a character subject to the allowance for depreciation) for processing coal into a liquid or gaseous state." (Emphasis added). We believe that the words "liquid" and "gaseous" appear to restrict the meaning of this section and that it should be amended to apply to all synthetic fuels—liquid, gaseous and solid.

2. Qualified Coal Pipelines (Section 421(b)(5))

Coal slurry pipelines are increasingly being looked to in order to move the vast quantities of coal needed in the U.S. by 1985. While it has been proven feasible, the extremely high initial costs of land acquisition and construction (as well as the lack of federal eminent domain power) have deterred the investment necessary to construct these systems. The Black Mesa Pipeline has been operating at peak efficiency carrying 3 million tons of coal annually over 275 miles in Arizona. Longer lines are planned but there must be additional incentives to encourage the necessary capital expenditures. A 60-month amortization period for these facilities would be an encouraging beginning.

With the anticipated demand for coal all segments of the transportation industry will be strained to the utmost. The slurry pipeline should not be viewed as a competitive threat to the railroads or the barge lines, but rather a welcome addition to the logistical capability of America's transportation industry to move ever growing volumes of coal from mine to market.

In a recent report by the National Academy of Engineering entitled *U.S. Energy Prospects: An Engineering Viewpoint*, the coal pipeline was discussed as it relates to the railroads. Based on projected coal production over the next decade, the NAE report said that railroads will have to buy 8,000 locomotives and 150,000 coal hopper cars to handle the increased traffic. The cost estimates for the necessary modernization and expansion of the railroads is estimated at \$4 billion a year of \$40 billion over the next ten years. In addition, the report states, 4 new coal slurry pipelines of 25 million tons per year capacity each and 60 new 2 million tons per year Eastern rail-barge systems and 70 new 3 million tons per year Western rail-barge systems, will be needed. Based on these projections, it appears that there will be all the coal the railroads, barges, and pipelines can handle.

3. Qualified Deep Mining Equipment (Section 421(b)(7))

A new deep mine costs \$25 or more per annual ton in initial expenditures before coal is commercially produced. This means that a medium-sized mine of 1 million tons of annual production has front end costs of about \$25 million. In addition it may be five years from the drawing board to when the mine is in full production.

Some of this cost is in acquisition of the coal. However, a much larger amount, perhaps \$17 million, is in depreciable capital costs that under present tax law must be depreciated over 8 to 12 years. This is an extremely long period when one considers that the expensive equipment may have an average useful life of

only about three years. For instance, a coal shuttle car which, according to Bureau of Mines (BOM) figures, cost \$59,000 in 1974, may last six or eight years. But a continuous miner, which costs about \$240,000 according to BOM, may last only one year. The five-year amortization period proposed in this bill would be much more equitable.

However, we believe this provision is too restrictive and should be amended to cover all types of coal mining equipment.

There is no rational distinction between the financial needs of underground and surface coal mines. Furthermore, surface mining of coal is an essential element in our efforts to achieve the objective of H.R. 6860—namely, to achieve energy self-sufficiency. To differentiate coal mining equipment used in surface mines versus underground mines is not sound policy and equity demands that equal tax treatment be accorded all segments of the total industry.

Therefore, we believe section 421 pertaining to "Qualified Deep Coal Mining Equipment" should be amended to include all coal mining by deleting the word "deep", and by deleting the final sentence of that subsection which specifically excludes property used in surface mining.

4. Railroad Rolling Stock (Section 423)

If, indeed, our industry can mine the coal in quantities to meet the projected demand, it must still be moved to market, and nearly 70 percent of coal production moves by rail. We are vitally concerned with the current posture of the railroads—particularly in the Northeast—and we believe that necessary incentives for both railroads and others to invest in railroad rolling stock should be enacted.

Unfortunately, many of the railroads simply do not have access to the capital necessary to maintain an adequate supply of transportation equipment. It is important, therefore, to stimulate investment in new rolling stock from any possible source—including shippers and customers. Section 184 of the Internal Revenue Code provides for a fast write-off for rolling stock, but unfortunately owners other than common carrier railroads are excluded from the benefit.

While the bill does extend the benefit to some rolling stock owners, section 423 of H.R. 6860 does not include coal operators who own or would purchase rolling stock. We strongly believe, therefore, that coal operators should be afforded similar tax treatment and urge that the bill be appropriately amended to extend the five-year amortization provision to include rolling stock owned or purchased by coal companies. Such treatment would provide coal operators parity with other private rolling stock owners, moreover, it would provide for a sound and essential tax incentive for expanding the nation's tenuous rolling stock supply.

The existing "guideline life" for railroad transportation equipment is 15 years. If section 423 as we propose it be amended is adopted, permitting a five-year write-off, there will be added incentive for shippers and customers to purchase the new railroad rolling stock which the country so desperately needs, but which many railroads simply cannot furnish.

Many essential commodities can be limited in their availability by the lack of transportation equipment. Coal is a prime example. Recurrent and persistent shortages of open-top hopper cars and locomotives have often forced many coal mines to operate only part time, even in periods when customers (primarily electric power utilities) were seriously short of coal stockpiles. For some commodities, alternative means of transportation might be available, but for bulk commodities like coal this is not the case and landlocked mines which do not have cars available cannot operate.

III. OTHER ENERGY-RELATED TAX PROPOSALS

Beyond H.R. 6860 there are other issues of fiscal policy and financial incentives that warrant this committee's consideration.

A. Valuation Point for Coal Processed Into Low-Pollutant Fuel

Under present law if coal is processed to produce oil, gas, or solid low-sulfur fuel, such processing is considered beyond the valuation point for percentage depletion purposes. That is, for percentage depletion purposes, the coal must be valued before it is converted to low-sulfur fuel. Existing law, however, *does* permit the processing of oil shale to the point where it is equivalent in value to crude petroleum.

Legislation recently introduced by Senator Hansen would permit, for percentage depletion purposes, processing of coal into low-pollutant fuel—liquid, gas or solid. Thus, the same depletion valuation would apply to synthetic fuels from oil shale and synthetic fuels from coal. If coal is processed to remove pollutants, the valuation for depletion purposes would occur after such processing.

Coal and oil shale constitute such a huge part of our total energy reserves that inevitably they must be used to satisfy future deficiencies in supplies of natural gas and oil. The conversion of these fuels to low-sulfur fuels should be encouraged to the extent possible because only when such conversion becomes a commercial reality will the United States be assured of an adequate supply of these precious fuels.

Congress has already provided, in Section 613(c)(4)(A) of the Code, that processes to convert oil shale to the equivalent of crude petroleum (retorting) shall be considered as taking place prior to the depletion "cut-off point." Such treatment increases the incentive for investment in shale conversion plants, since it increases the possible future percentage depletion deduction. Similar treatment should be provided for coal which is converted to low-sulfur fuel, not merely as a matter of equity but, far more importantly, because the Nation needs additional sources of clean fuel and commercial quantities of synthetic fuel from coal appear closer to reality than from oil shale.

In the absence of some unexpected scientific breakthrough, oil and gas from coal and oil shale will not supplant natural gas and petroleum—they will merely supplement them in the very difficult task of meeting future energy needs. This is true because the cost of producing oil and gas from coal and oil shale is higher than the current price of natural gas and oil. At some point in the future, the shortage of natural gas and oil and the increasing cost of finding new supplies will drive the price upward to a level where oil and gas from coal and oil shale will be competitive. At that point, the additional supplies represented by synthetic fuels will be badly needed. That point in time may be very close—already many prospective customers are being denied natural gas service because of lack of supply, and curtailments of industrial gas are growing each year.

Senator Hansen's legislation would also cover processing of coal to produce a low-sulfur solid fuel—a process currently in the research stage. This should be encouraged because many of the smaller industrial plants have need for solid fuel but are not large enough to warrant building a chemical plant to remove sulfur from the boiler stack. With the increasing demand for a clean environment, such plants may wind up with no source of energy unless industry is encouraged to invest in these processes.

B. Black Lung Trust

The second proposal I ask you to consider is technical in nature, and is actually an outgrowth of the federal black lung legislation which was enacted into law in 1969 and amended in 1972.

Under that law, coal producers must now pay black lung benefits to all coal miners that contract the disease. These obligations could continue for 50 or 75 years after a mine is closed, because the benefits apply to a miner's dependents. Estimates vary, but actuaries calculate it will require about \$1.35 to \$5.00 per ton of coal mined depending on the life expectancy of the mine, and the age complement of the work force to fund each claim.

If the operator elects to buy insurance, the premium rates run about \$7.80 for a strip mine up to \$25.00 for an underground mine for each \$100 of payroll. In purchasing insurance he pays regular premiums which, as a legitimate business expense, are deductible on a current basis. The problem with insurance, however, is that an operator can never be certain an insurance carrier will continue to renew a policy. If a risk proves too great for an insurance company, cancellation of coverage is not uncommon.

For the mine operator who chooses to self-insure and wishes to create an escrow or trust fund to insure past as well as future obligations, there is a unique problem.

Therefore, we propose that the operator be allowed to establish a tax-exempt irrevocable trust into which he makes payments. The payments into the trust would be deductible at the time of the contribution, rather than at the time the payments are made to the disabled miner or his dependents—which might be

50 or 75 years hence. Any income earned by the trust would be exempt from taxes and payments to the minor would be excluded from the miner's tax liability. The trust monies could also be used to fund other obligations due the employee such as workman's compensation. The corpus of the trust could never revert to the creator of the trust. It could not be used as a tax shelter device by the mine owner with the funds to be recaptured at a later date.

There are advantages to both the miner and the operator. First, the miner working in the mine today, should he qualify for benefits in the future, would know that his black lung disability compensation is being funded on a current basis. Irrespective of the future there would be money in the fund. The employer, funding on a current basis, would know how much his current obligation is, rather than wait 20 years from now when a claim is registered, at which time the money would hopefully be available.

Simply stated, we recognize the legal obligation to compensate the miner disabled by black lung. What we seek is a legal vehicle to carry the funds so that today's coal production pays for the obligations arising as a result of current production.

There is a very real problem that could arise in the future if these obligations are not currently funded. State public service commissions would have difficulty approving utility rate increases based on increased coal costs resulting from obligations incurred in years past.

Never in the history of the country has an industry been singled out in the manner of the coal industry with respect to the black lung legislation, and saddled with a financial obligation of this magnitude. I urge you to help us meet this requirement of the law in a reasonable manner.

IV. CONCLUSION

The nation's coal industry stands ready to do its part in putting the United States back on the road to energy self-sufficiency. Although coal presently supplies less than 20 percent of our energy, it constitutes more than 80 percent of the domestic economically recoverable fuel reserves. The timely and orderly development of this prodigious, indigenous energy asset is essential to achieving this vital national goal.

Fiscal policy and financial incentives are crucial in providing an expansionary climate for coal. The provisions we have discussed here today would go far toward restoring this essential ingredient in order to achieve energy self-sufficiency.

EXHIBIT A

This report summarizes expansion plans of the bituminous coal industry through 1985. Mines already under development in 1974 will, when completed, have a productive capacity of 43.79 million tons. The additional capacity under construction, announced or planned by 1985 amounts to 534.01 million tons, making a total of 577.8 million tons of added capacity available by the end of 1985.

(The cumulative figures for eastern mines should be discounted to allow for about 3 percent annual depletion of existing mines or 15 million tons per year; no such factor need be applied in the West, where nearly all operations will be new.)

The figures are subject to the following assumptions which would remove obstacles to industry expansion:

1. The Clean Air Act amendments proposed by the Administration will be enacted.
2. Capital will be available for the projected expansion.
3. No unreasonable surface mining legislation will be enacted.
4. A viable federal coal leasing program will allow development of Western coal.
5. Realistic means of complying with the National Environmental Policy Act (NEPA) will allow energy development without undue delay or restraint.
6. Adequate transportation will be available.

If the expansion indicated in this report is actually to take place, these assumptions must be transformed into accomplishments as soon as possible. Each assumption concerns a present major obstacle to coal production. Each week that they persist means a week's slippage—even complete loss—in attaining future production goals.

With stretched-out timetables in developing new production, inflation increases the cost of materials, capital becomes inadequate, and the whole intricate timetable is thrown askew.

NEW COAL MINES AND MAJOR EXPANSIONS OF EXISTING MINES PLANNED, ANNOUNCED OR UNDER CONSTRUCTION IN THE UNITED STATES; 1975-85

[In millions of tons]

Region and State	Ultimate capacity of additions ¹	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
EASTERN UNITED STATES												
Alabama:												
Incremental.....		3.55	3.45	2.95	4.60	1.50	0.50					
Cumulative.....	19.55	3.55	7.00	9.95	14.55	16.05	16.55	16.55	16.55	16.55	16.55	16.55
Illinois:												
Incremental.....		1.75	7.75	7.70	7.70	5.10	2.90	2.20	1.90	1.80		
Cumulative.....	40.60	1.75	9.50	17.20	24.90	30.00	32.90	35.10	37.00	38.80	38.80	38.80
Indiana:												
Incremental.....		2.80	2.70			1.00	1.00	1.00	1.00			
Cumulative.....	11.00	2.80	5.50	5.50	5.50	6.50	7.50	8.50	9.50	9.50	9.50	9.50
Kentucky, eastern:												
Incremental.....		3.80	6.80	5.10	3.40	3.20	1.00					
Cumulative.....	24.60	3.80	10.60	15.70	19.10	22.30	23.30	23.30	23.30	23.30	23.30	23.30
Kentucky, western:												
Incremental.....		3.10	2.80	3.00	4.30	6.00	5.40	6.00	2.60	3.60	4.20	1.00
Cumulative.....	44.40	3.10	5.90	8.90	13.20	19.20	24.60	30.60	33.20	36.80	41.00	42.00
Kentucky, total:												
Incremental.....		6.90	9.60	8.10	7.70	9.20	6.40	6.00	2.60	3.60	4.20	1.00
Cumulative.....	69.00	6.90	16.50	24.60	32.30	41.50	47.90	53.90	56.50	60.10	64.30	65.30
Ohio:												
Incremental.....		2.00	2.60	3.00	2.60	1.20	1.10					
Cumulative.....	14.20	2.00	4.60	7.60	10.20	11.40	12.50	12.50	12.50	12.50	12.50	12.50
Pennsylvania:												
Incremental.....		4.40	7.70	7.80	6.00	2.90	2.20	.10				
Cumulative.....	31.50	4.40	12.10	19.90	25.90	28.80	31.00	31.10	31.10	31.10	31.10	31.10
Tennessee:												
Incremental.....			1.00	1.10	1.25	1.00	.50					
Cumulative.....	4.85		1.00	2.10	3.35	4.35	4.85	4.85	4.85	4.85	4.85	4.85
Virginia:												
Incremental.....		.30	1.70	1.90	3.00	1.30	1.10	1.60	1.20	0.60		
Cumulative.....	13.70	.30	2.00	3.90	6.90	8.20	9.30	10.90	12.10	12.70	12.70	12.70
West Virginia, northern:												
Incremental.....		2.60	2.10	1.40	1.40	3.00	1.60					
Cumulative.....	13.20	2.60	4.70	6.10	7.50	10.50	12.10	12.10	12.10	12.10	12.10	12.10
West Virginia, southern:												
Incremental.....		5.45	7.80	8.26	8.60	6.70	4.10	1.30	1.60		1.50	1.50
Cumulative.....	57.80	5.45	13.25	21.51	30.11	36.81	40.91	42.21	43.81	43.81	45.31	46.81

West Virginia, total:												
Incremental		8.05	9.90	9.66	10.00	9.70	5.70	1.30	1.60	1.50	1.50	
Cumulative	71.00	8.05	17.95	27.61	37.61	47.31	53.01	54.31	55.91	55.91	57.41	58.91
Subtotal, eastern:												
Incremental		29.75	46.40	42.21	42.85	32.90	21.40	12.20	8.30	6.00	5.70	2.50
Cumulative	275.40	29.75	76.15	118.36	161.21	194.11	215.51	227.71	236.01	242.01	247.71	250.21
WESTERN UNITED STATES												
Arizona:												
Incremental		2.50	3.00	.60	2.20	5.30	5.20		3.90	1.80		
Cumulative	27.00	2.50	5.50	6.10	8.30	13.60	18.80	18.80	22.70	24.50	24.50	24.50
Colorado:												
Incremental		.15	.15	1.00	1.60							
Cumulative	2.90	.15	.30	1.30	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Montana:												
Incremental		6.80	5.00	6.00	8.00	14.40	4.30	4.00	1.00			
Cumulative	57.30	6.80	11.80	17.80	25.80	39.80	44.10	48.10	49.10	49.10	49.10	49.10
New Mexico:												
Incremental					3.00	5.00	3.00	2.60				
Cumulative	13.60				3.00	8.00	11.00	13.60	13.60	13.60	13.60	13.60
North Dakota:												
Incremental		3.00	1.00	.30	2.00	2.60	1.80	3.80	3.60	1.40	2.00	
Cumulative	21.90	3.00	4.00	4.30	6.30	8.30	10.10	13.90	17.50	18.90	20.90	20.90
Texas:												
Incremental		1.00	3.50	3.00	1.60	1.00	2.80	1.30				
Cumulative	16.70	1.00	4.50	7.50	9.10	10.10	12.90	14.20	14.20	14.20	14.20	14.20
Utah:												
Incremental		1.50	2.70	1.40	2.60	8.40	8.50	3.00	5.90	1.80		
Cumulative	36.60	1.50	4.20	5.60	8.20	16.60	25.10	28.10	34.00	35.80	35.80	35.80
Washington:												
Incremental		1.30	.30	.60	.40	.30	.10					
Cumulative	3.00	1.30	1.60	2.20	2.60	2.90	3.00	3.00	3.00	3.00	3.00	3.00
Wyoming:												
Incremental		5.40	17.70	21.20	22.20	21.80	15.50	5.50	3.50	3.00	2.00	2.00
Cumulative	123.40	5.40	23.10	44.30	66.50	88.30	103.80	109.30	112.80	115.80	117.80	119.80
Subtotal, western:												
Incremental		21.65	33.35	34.10	43.60	57.80	41.20	20.20	17.90	8.00	4.00	2.00
Cumulative	302.40	21.65	55.00	89.10	132.70	190.50	231.70	251.90	269.80	277.80	281.80	283.80
Total United States:												
Incremental		51.40	79.75	76.31	86.45	90.70	62.60	32.40	26.20	14.00	9.70	4.50
Cumulative	577.80	51.40	131.15	207.46	293.91	384.61	447.21	479.61	505.81	519.81	529.51	534.01

1 Ultimate capacity of new mines and expansions, including capacity that was added before 1975.

The CHAIRMAN. Next we will call Mr. James J. O'Connor, executive vice president of Commonwealth Edison.

STATEMENT OF JAMES J. O'CONNOR, EXECUTIVE VICE PRESIDENT, COMMONWEALTH EDISON CO., ON BEHALF OF THE EDISON ELECTRIC INSTITUTE, ACCOMPANIED BY AL NOFTZ, IMMEDIATE PAST CHAIRMAN, TAX COMMITTEE, EDISON ELECTRIC INSTITUTE

Mr. O'CONNOR. Thank you very much, Mr. Chairman.

My name is James J. O'Connor. I am executive vice president of Commonwealth Edison Co., which provides electric power to Chicago and to northern Illinois.

Today I appear on behalf of the Edison Electric Institute, and I have with me Mr. Al Noftz, who is immediate past chairman of the institute's tax committee.

The institute is the principal trade association for the investor-owned electric utility industry. We have about 198 members, and these members provide about 98 percent of the service provided by the privately owned sector.

We appreciate very much the opportunity to comment on H.R. 6860.

My comments this morning will be directed toward half a dozen different areas. First, comments on the legislation pending before this committee; second, the financial condition of the utilities; third, our demands for capital in the years ahead; fourth, the recommendations submitted by the president which arose out of the labor-management committee report; and fifth, additional tax proposals which would be of assistance to our industry, with particular emphasis on the employee stock ownership plan.

First, on the Energy Conservation and Conversion Act, I had an opportunity this morning to review the testimony that is going to be submitted later by the Independent Petroleum Dealers and by the New England oil people, and I think they deal quite forcefully and persuasively with many of the aspects about which we are concerned. So, I will not go into detail.

However, I would like to comment on three aspects of the bill which do trouble us, and that is title I, title III, and title IV.

The stated purpose of title I is to reduce the dependence of the United States on imported oil, and it would attempt to accomplish this by imposing quantitative restrictions on the amount of oil that could be used in this country. It would impose excise taxes as well on the use of that oil. In 1974, our industry used about 550 million barrels of oil. In many cases utilities have no choice, because as the Senator before mentioned, utilities were forced in many instances to convert from coal to oil in order to meet clean air requirements of various localities.

At the same time the bill provides or proposes that the conversion should take place within a period of 2 years, an abnormally short time in which to acquire the equipment and meet the requirements necessary.

Finally, and perhaps I think most importantly from our standpoint, is that the burden for title I would fall most directly on our consumer, who would have to share the cost. As all of us know, it is the consumer who is in the steady process of revolt at higher electric costs.

The second item in the bill that troubles us begins the subject of a rather lengthy discussion in the testimony you will hear later today, the establishment of an energy conservation and conversion trust fund. They attempted to do this by imposing an excise tax on the use of gas and oil. These funds would be then devoted to R. & D. expenditures in the 1980's.

Our concern with this is that the mechanism already exists, both through the Federal Government and under the auspices as well of the EEI, through its arm, which is our research arm, the Electric Power Research Institute, to carry on, we believe, the necessary research to delve into new ways to develop and encourage additional types of technology for the production of electricity.

So, once again, we feel that we have presented to us a duplicative process, one that can be done elsewhere, and one that most importantly imposes an unnecessary burden on our consumers.

In our industry, traditionally—I guess I am really moving into my second section, now, gentlemen, and that is the question of growth—we have had many scenarios painted for us, whether it is a question of no growth or very advanced growth due to substitution of electric power for other types of fuel. But, it seems to us that the most logical type of growth to anticipate is on the order of 5½ to 6 percent in the years immediately ahead of us. This is somewhat lower than the 7½-percent rate of growth that our industry has experienced traditionally.

One of the great problems that we have is trying to raise the money to finance this growth. Just 10 years ago, or 11 years ago, back in the early 1960's, we were able to finance all of our construction expenditures, or virtually all of them, through retained earnings or retention of cash flows that were available to us. Today we are only able to provide roughly one-third of our capital requirements from internally generated funds. The electric power industry is the most capital intensive industry in the country. In our industry, for example, in order to get \$1 of revenue, we have to put up \$4 in plant. You compare that with the auto industry which requires only 50 cents worth of investment to get \$1 of revenue, or roughly an 8-to-1 ratio. Even those industries which are traditionally considered to be quite capital intensive, the oil and steel industry, only require \$1 of investment to get \$1 of revenue.

It has been projected by the Federal Power Commission's Technical Advisory Committee that the construction expenditures for our industry in the privately owned sector alone over the next 15 years will exceed \$500 billion. This compares with roughly \$125 billion that we have had to spend over the last 15 years.

So, we are going to have to spend four times as much in the next 15 years as we have in the past 15 years. In order to finance these expenditures, it is going to mean that we are going to have to go to outside markets to raise about \$320 billion.

Most of us are aware of the tremendous delays and deferrals and cancellations that took place in the latter part of 1974 and early 1975 in the electric generating capacity. During that period, over 250 coal and nuclear powerplants were affected because of the financial crisis. To put that into perspective, that 250 plants represents about 40 percent of the presently installed capacity in this Nation by electric

utility companies. At the same time an important byproduct of these deferrals is that over 300,000 highly skilled laborers were affected by the deferral and cancellation of these projects.

There have been submitted to Congress several proposals by the labor-management committee which we wholeheartedly endorse. I would like to touch briefly on them, if I may.

First of all, we strongly believe that in order to restore the financial integrity of the utilities, it is going to be necessary to continue to have more rate increases, as undesirable as they may be. But, from a practical standpoint, there is no alternative.

In the labor-management committee there are recommendations for a dividend reinvestment program. This is of great importance to us because in the next few years we are going to have to go to the common market to raise about \$3 billion of new equity money for each year, and we think that there could be made available a mechanism by which our existing stockholders could return their cash dividends to purchase stock and have a tax on those dividends deferred until the time of disposition of the stock.

Why is this important? It is important because just 10 years ago our stock was selling at roughly two and a half times the level that it was in September 1974, and even with the recent upsurge in the market today, in the last few months, the value of the utility stocks is only about one-half of what it was 10 years ago. So, we regard the dividend reinvestment proposal as one of the most important aspects to help to restore and provide attractiveness to electric utility stocks.

Second, there has been a proposal placed before Congress to raise the level of investment tax credit to 12 percent, to have it apply indefinitely, and to make it applicable to qualified progress expenditures. Once again, we thoroughly endorse this proposal to provide the needed incentive to construct electric power facilities.

Third is a proposal pending which calls for an extension of the provision for a rapid writeoff, or a 60 month writeoff of pollution control facilities. We think this is also a very important provision. It has been estimated by the FEA that during the period of 1975 through 1983, our industry will have to spend between \$15 and \$25 billion on pollution control facilities alone. We do have one concern with respect to that proposal and the rapid writeoff applies only to pollution control facilities installed on plants that were in service as of December 31, 1968. We think that is unfair since rapidly changing environmental requirements will cause us to retrofit the plants that have been placed in service after that date, and that provision should be applied to those plants as well.

In addition, we endorse and strongly recommend that consideration be given to approval of the 60-month amortization of fuel converting facilities, those facilities that are converted from oil and gas to coal. It has been anticipated that the FEA will require or order the conversion of 11 million kilowatts of capacity from oil and natural gas to coal. This amortization provision would be extremely helpful to us in helping us to get the cash we need to provide for these expenditures.

Finally, there are some additional proposals that I might briefly touch upon. Many companies, in our industry particularly those in the East Coast and up in New England and a few out in the Far West, cannot take advantage of the investment tax credit because they no

longer pay taxes. It has been suggested that these companies should be given the opportunity, as have the banks and certain other financial institutions, certain segments of the transportation industry, to go back to a period beyond 3 years, and more than 5 years forward to cover the net operating losses, and to have an opportunity to take advantage of this critical source of funds that has been made available to others. We strongly recommend that the committee consider that proposal.

We would like to propose that the carryback, carryforward period be extended from the present 3 years back to 10 years back, and from 5 years forward, to 7 years forward.

In addition, some companies cannot take advantage of the credit. We would like to suggest that there be consideration given to the refunding of unused investment tax credits. I guess, gentlemen, that this leads into the discussion of the employee stock ownership plan.

Virtually every company in our industry is giving active consideration to the implementation of adopting such a program. We recognize, however, the importance of this being tied in to some sort of investment tax credit incentive for those companies that cannot any longer take advantage of investment tax credit because they are in a negative tax situation, unless there is some refundability of unused credits and such a program could not be provided for.

So, we urge that the committee actively consider this proposal.

Again, we thank you very much for the opportunity to present our views to you. We will be happy to try to answer any questions that you might have.

The CHAIRMAN. You have made several points on which I want to comment. I permitted you to run a few minutes beyond your time, because I wanted you to say it on the record. What should be done in the case of an industry which needs a credit to acquire new facilities and which is entitled to a credit but does not have the profits to take advantage of the tax credit. It would seem to this Senator that we ought either to give you a very long carryback, or else we ought to do what we did with regard to the earned income credit or the work bonus—just say it is a refundable tax credit.

It does not seem to make any sense to me to say that those who need it the least will get it and those who need it the most will not get it. That is one point you are making here.

Mr. O'CONNOR. Absolutely, Senator. And I think one of the reasons why these companies are in trouble today, the so-called financial invalids of our industry, is that during the periods of the 1960's, where industry generally was given the full 7 percent, utilities were given 3 percent. It was not until the early 1970's that we were raised to the 4-percent level, considerably below the level that was given all other industries. And had these companies that are so weak today had the opportunity 10 years ago to take advantage of the increased credit, perhaps they would not be in the position that they are.

So, we think there is a certain amount of equity in providing for an extended carryback period which would help these companies which are in the deepest trouble.

The CHAIRMAN. Mr. Stanley Surrey and others believe that we should amend the tax code to describe anything that is an incentive to business to do something as a tax expenditure. Perhaps we should do just exactly that.

I have never been misled about what the investment tax credit was. It is a tax advantage given a taxpayer because we want to encourage him to do something. It is the use of the tax system to make, you might say, to encourage him to do something that we think is very much in the public interest. I do not see that that need be tied to the condition that he is making a profit at that moment.

It seems to me that, in doing so, we are excluding those who need it the most, and that does not make any sense to me.

Mr. O'CONNOR. I agree completely with that.

The CHAIRMAN. If you are going to do that, you ought to do it for these companies which are providing essential services. I am intrigued with the idea. It seems to me that we ought to persuade, cajole, coerce if need be, companies like yours to reverse their rate structure, so that you no longer are encouraging people to waste energy; you are encouraging them to save instead of waste.

As far as I am concerned, if it can be done in such a way as to increase your income rather than reduce your income, that is all right with this Senator. But I do not think that this Nation can any longer afford utility rate structures that encourage people to waste energy.

Now, what suggestions can you give me along that line?

Mr. O'CONNOR. I think you will find in most jurisdictions of the country today that the commerce commission or the regulatory bodies are flattening out the rate structures. They are not inverting them, Senator, because it would be such a tremendous gyration and such a tremendous shock. It would be, I would think, an inequity to those customers that had installed capacity, or have taken service on the expectation that they would not be forced darn near into oblivion because of the complete upset in the rate structure.

The CHAIRMAN. Let us just take an ordinary household bill such as mine, and apply it to that. Let us assume I am paying \$100 a month for power, and that I am paying—well, let us just take your rate. About what do you charge for the beginning units in a home?

Mr. O'CONNOR. You are talking about 2½ cents, 2¾ cents per kilowatt-hour.

The CHAIRMAN. What do you charge for the final units, when you get past a certain amount?

Mr. O'CONNOR. You get to 1.7, 1.8 cents per kilowatt-hour.

The CHAIRMAN. Now, let us assume I am consuming that way, and that I am paying \$100 a month. Suppose you change my rate around, so I am still paying you \$100, but you have reversed the rate so that the expensive units come last rather than the expensive units come first.

Now, applied to such an individual case, could it be done that way?

Mr. O'CONNOR. I think one of the difficulties, Senator, is we have found many of our lower-income customers are some of our largest users of electricity, because they do not have an opportunity to sufficiently insulate their homes. They live in poor conditions. They supplement their heating requirements with electric space heaters, and they find out that there is no parallel, as one would assume, between the amount of usage and the amount of income that an individual has. I think that would be one difficulty.

The CHAIRMAN. Well, that brings me to point No. 2. We ought to find a way—and I do not see why we could not work right through the utilities—in which the banks will loan the money to insulate those homes and work with the utilities to insulate those homes, paying the utilities to charge a flat amount on the bill to help pay the cost of insulating the homes and pay them to collect through their billing process and pay it into the banks. In the long run, people would pay less for energy, not more, because they would have insulated homes. Now, if we can put together a package that helps to meet the energy crisis, why can we not structure it so that nobody loses, everybody gains?

Mr. O'CONNOR. I think the other thing, Senator, on that point alone, is that some companies have attempted to do this. And the difficulty arises in compelling the customer to assume this cost, even though it is a string of expenses over a period of time. I think the broadest experience has been had by the Michigan Consolidated Gas Co., where they had a system of working with the banks to cover the cost of insulation, and in turn had slightly higher electric bills over a period of time.

Now, we ourselves, at our company, are looking into a program similar to that, and I think in the near future, we will probably embark on something like that. I know of other companies who are doing the same thing. The most difficult thing is to get the consumer, who stands in the long run to benefit the most, to accept this as an important thing in his budget, and something that he wants to do.

The CHAIRMAN. Well, that is what concerns me about voluntarism. We have not gotten anywhere with voluntarism. In New England, they are using 20 percent less fuel oil, because the price went up; and in some areas, where the cost of the new energy is of concern, people are finding ways to economize on it. As long as you just get the same service for the same price, people are not the least bit interested in changing their lifestyle.

I find myself asking if this is a genuine national emergency, why do we not forget voluntarism and start telling somebody you either have got to do it, or else? One thing we could do is to put a big tax on energy waste, and say, "All right, this tax applies to any rate structure that encourages a waste of product." In this way, I think the utility commissions would start moving to change the rate structure.

We could say, "You do not get the investment tax credit unless you do this," and your people would be looking them up.

Mr. O'CONNOR. Senator, I think there is not a utility company in the country that advocates waste. I know that it happens. We do everything in our power to try to prevent it by telling people how they can best conserve, and how they can use more efficient equipment. I think you have to go back to the origin of the rate structures that we have, and it is a rate structure that is based primarily on the cost of rendering that service. And I think that when you have a system where you are delivering more kilowatt-hours to a residence, and particularly to an industrial customer where you have the economies of scale operating for you, the plain fact of the matter is it costs you less to serve a large customer than it does to serve a smaller customer.

The CHAIRMAN. I can recall how all of this happened, too. It happened when you had surplus energy, and everybody was trying to persuade the public to use more. I would drive down the highway from Baton Rouge to New Orleans and see big signboards with three little birds—"Electricity is cheap, cheap, cheap. Use more of it."

And every time you would pick up a magazine, there would be an ad saying that if you go from here to there, and you do not call the family and tell them, and ask about everybody's health, and tell them that pop is fine, that you are a heel.

We now have a situation where we need to be conserving energy, and we ought to try to get people to try to reverse all those kinds of habits. And I do not know how we are going to do it, unless we start with this thing of reversing utility rates. We have got to do business on a different basis. The Congress is considering a bill to stop building these monster automobiles to try to increase fuel economy, and I do not know why we should not also be asking utility companies to reverse their rates.

The Standard Oil Co. testified that they used to leave the lights on all night in all of their buildings, because in the long run, it was cheaper. The fluorescent tubes would last longer, and the starters on those tubes would last longer, if you did not switch it on and off. And so, it was cheaper just to leave the lights burning 24 hours a day than it was to turn them off, from their point of view. There was no point in bothering with it, and they were wasting fuel left and right in their refineries.

Now they have stopped that practice. They are going to save 15 percent of the fuel they use in that operation. Now, if they can do it, why should we not be putting the pressure on other people to do it?

Mr. O'CONNOR. I think that is what is being done, Senator. I think you would find that most every facility has a load consultant, where they are going around to their industries and telling them the way they can conserve, and telling them how they can more efficiently use the machinery they have, and save on load. And we are finding that that is what has been happening. I think the effort is there, and I think the bigger dividends, in this respect, are to be achieved in the commercial and industrial sector, rather than the residential sector; because they count for two-thirds of our total usage.

The CHAIRMAN. The industrial sector?

Mr. O'CONNOR. The industrial sector accounts for about a third, and the commercial about a third, and the residential sector about a third. There you are dealing with a smaller number of customers with a greater stake in the final outcome.

The CHAIRMAN. We do not need any more explanation about all of the difficulties. What we need are some answers. I would appreciate it when you have a chance to think about it, if your people would send us some suggestions how we might go about persuading customers—or making them, if they have to do it—use less energy.

Mr. O'CONNOR. We would be happy to do it.

The CHAIRMAN. Thank you very much. Senator Packwood?

Senator PACKWOOD. Mr. O'Connor, you are opposed to the quotas in the House bill on imports?

Mr. O'CONNOR. Yes.

Senator PACKWOOD. If this Congress, as a matter of policy, is going to decide it must cut imports—and I think we should—how do you suggest we go about doing that?

Mr. O'CONNOR. Well, sir, our concern, as I mentioned, is we, unlike most companies, have an obligation to provide service regardless. Many other industries cut back on their supplies during tight money times. They cut back on their expansion during tight money times, or if the demand for product goes down.

We, on the other hand, are obliged to continue to provide service regardless. And in order to do that, we have to be assured of a continual and reliable source of fuel supply. And it is our judgment that the import quota which has been suggested would diminish our ability to provide a reliable supply of electric service to our customers, because it threatens the markets we have established, and it also takes away from those companies which oftentimes have no other opportunity—

Senator PACKWOOD. Let me interrupt you. I understand that. How do we cut the imports?

Mr. O'CONNOR. Well, sir, I am afraid that one of the suggestions that has been made is that, in this instance, certain exceptions should be made for electric utilities, which have such a strong responsibility to meet the service. I do not have a good answer as to how the import levels can be cut.

Senator PACKWOOD. Do you think they should be cut?

Mr. O'CONNOR. It has been suggested that—I think they perhaps should be cut, Senator, but I would be less than honest with you if I told you I could answer your question.

Senator PACKWOOD. I am not sure I can, either. There is no palatable alternative. Quotas are abhorrent. We can raise the tariff \$3, \$4, \$5, \$6, \$7; and finally, it would get to a place where imported oil was so expensive, we would burn more coal or something, and that is abhorrent also.

But it is also abhorrent to be 40 or 50 percent dependent upon a source of energy over which we have no control.

Mr. O'CONNOR. On that I could not agree more, and I think some of the suggestions we have advanced would help to make our industry, which can use nuclear power and can use coal, have an opportunity to substitute that type of fuel for imported oil. And that is one of the reasons why I think it is so important that we—

Senator PACKWOOD. Do you generate all of your electricity with oil?

Mr. O'CONNOR. In our case, no, sir. Sixty percent is generated with coal, 30 percent with nuclear power, and 10 percent with oil and gas.

Senator PACKWOOD. In your experience, could electric utilities reasonably easily convert to coal if they are now using petroleum?

Mr. O'CONNOR. It would be in certain instances very difficult, primarily because of the environmental requirements.

Senator PACKWOOD. Not so much because of the cost of conversion, or the access to coal, but simply the requirement that it must be burned cleanly, and it cannot be done at the moment?

Mr. O'CONNOR. The cost to convert, too, sir, because of the pollution control equipment if you do convert to coal.

Now, the planned program for the installation of scrubbers is estimated to cost about \$3 billion, and that is about 30,000 kilowatts.

Senator PACKWOOD. I am curious. How do you burn your coal now? Do you meet these standards when you are burning it?

Mr. O'CONNOR. We meet it by bringing in 9 million tons of coal from the Far West, from Wyoming and Montana, which has replaced coal which formerly came from Illinois.

Senator PACKWOOD. Is that very low sulfur coal you are bringing in?

Mr. O'CONNOR. Yes, sir, 0.6 percent sulfur coal.

Senator PACKWOOD. So you can meet the standards doing it?

Mr. O'CONNOR. We can meet the standards in most of our areas by doing it. But there are other generating stations that are outside of the metropolitan area, and they use the Illinois coal.

Senator PACKWOOD. But if you were generating in Boston, it is not practical to bring in coal from Wyoming?

Mr. O'CONNOR. If you are generating from Boston, if you are generating in New York City, I see no alternative but to use either low-sulfur coal or gas or oil.

Senator PACKWOOD. Thank you. I have no other questions, Mr. Chairman.

The CHAIRMAN. Thank you very much. Senator Byrd?

Senator HARRY F. BYRD, Jr. Thank you, Mr. Chairman. Mr. O'Connor, how quickly can utilities such as yours convert from oil to coal?

Mr. O'CONNOR. The question was asked, how quickly could we convert from oil to coal? I think, Senator, when we converted back—I am taking one plant as an example. We converted one of our metropolitan stations in the late 1960's, due to pressure from the environmental movement; we converted that from coal to oil, and I think it took us about 18 months. In order to go back to coal, we would have to first find out what the schedule for deliveries might be. But it is my expectation it would take considerably longer today than 18 months to return to coal because, in addition to the simple process of providing conveyor belts and rail facilities, the barge unloading facilities that would have to be adjusted, in addition to that, we would have to install very expensive pollution control equipment. And the question of delivery of that equipment, as well as the time to install that equipment, which may average about \$100 a kilowatt—which, incidentally, is the same we were paying for a whole plant: \$100 a kilowatt. It could take a good deal longer than 2 years or 3 years, so it could take us quite some time. But until we actually went out and solicited bids, and until we determined, through our environmental agencies—local, regional, and national—what might be permitted, it is very hard to tell. But my estimate is we are probably talking 4, 5, maybe 6 years.

Senator HARRY F. BYRD, Jr. Four to 5 to 6 years to reconvert to coal?

Mr. O'CONNOR. And to meet the environmental requirements.

Senator HARRY F. BYRD, Jr. Yes.

Mr. O'CONNOR. Yes, sir. And these are the facilities that are convertible; these are the facilities that at one time were able to burn coal. Now, a boiler is a very mysterious animal, and certain facilities that were built to burn only oil would have a much more difficult time in adapting to a new source of fuel. And I think the process would be much longer and much more costly than it would, say, be in our case for our one plant.

Senator HARRY F. BYRD, Jr. So, what has happened is that the Government, in effect, forced you to convert from coal to oil—

Mr. O'CONNOR. Yes, sir.

Senator HARRY F. BYRD, Jr. [continuing]. In the 1960's, and now, in the 1970's, the Government is going to force you to convert from oil to coal.

Mr. O'CONNOR. Yes, sir, in the industry, generally, that is what has happened.

Senator HARRY F. BYRD, Jr. So, another way of phrasing it, I guess, is that the Government is a major factor in the plight or the condition that the utilities find themselves in today.

Mr. O'CONNOR. There is no question about it, Senator. The enormously shifting requirements that are being placed on utilities by the Environmental Protection Agency—as the Senator mentioned earlier, the Senator from Tennessee, to spend \$1 billion-plus in installation costs and have operating costs in excess of \$200-and-some million annually and achieve no improvement whatsoever in ground level concentrations of sulfur is a huge mistake, and this is oftentimes what we are being required to do. There are plants around this country, including a couple of ours, that can very easily meet the clean air standards on the ground, which is where people live and where they breathe, but the Environmental Protection Agency is saying, we do not care about the ground; we want to know what the emissions levels are going to be at the stack. And the utility industry answers and they say we can use intermittent control devices or we can have a control system, where, during periods of downwash or what-have-you, we can shift to an alternate fuel that is cleaner. And EPA says it does not make any difference.

So, in answer to your question. Senator, you are correct.

Senator HARRY F. BYRD, Jr. So, the consumers are paying for the government regulations, which are becoming greater and greater all of the time.

Mr. O'CONNOR. Certainly.

Senator HARRY F. BYRD, Jr. The utilities do not pay for it; private business does not pay for it. It is the consumer who pays for it.

Mr. O'CONNOR. That is exactly right.

Senator HARRY F. BYRD, Jr. And, as I see it, the more regulation Government puts on, the more the consumer is going to pay.

Mr. O'CONNOR. That is absolutely right, Senator.

Senator HARRY F. BYRD, Jr. It is correct, is it not, that the only place that the utilities can obtain funds, obtain revenue, are from the consumers, the people who use the product?

Mr. O'CONNOR. That is right.

Senator HARRY F. BYRD, Jr. And the more your costs go up, the more the cost to the consumer will go up.

Mr. O'CONNOR. And it is an alarming trend, too, Senator, because I think we in the industry have been very proud of the fact that over the years we have been able to keep prices down, despite what people today might think, as to "what have you done for me lately." The fact of the matter is, in most areas that price of electricity today is only, on a per kilowatt hour basis, about 20-percent higher than it was in 1950, despite all of these changes and all of the increases in the cost of fuel. But it is going to go much, much higher; and how high it goes will depend in large part on what the Government decides to do with us.

Senator HARRY F. BYRD, Jr. It seems to me that the more Government controls we get, the more Government regulations we get, the worse off everybody is, and the higher the cost is to the consumer and to the individual citizen. I do not think we can run this great big country here in Washington. I think the more we try to run it out of Washington, try to make all of the decisions here, the worse it is going to be for the individual, for the consumer and for everybody.

Thank you.

Mr. O'CONNOR. Thank you.

The CHAIRMAN. I have another question.

I was in North Carolina a few days ago and some air came in from the northwest, and it was obviously carrying a heavy haze, so you could not see as well as you could prior to that time. The local newspaper said that it was pollution being blown in from the Chicago area.

How much sacrifice or compromise with the atmosphere do we have to make if we have to call upon utilities such as yours to go back to coal? In other words, how much additional pollution or additional haze in the air is entailed in putting these utilities back on coal?

Mr. O'CONNOR. It depends, again, Senator, on what requirements go along with putting them back on coal. If the Environmental Protection Agency is willing to, itself, sacrifice something, then the cost of the pollution at the ground level will probably not be substantially heavier than it has been. But at the stack level, where the emphasis had been directed, there would be considerably more pollution than there has been.

For example, in Chicago, they would be burning Illinois coal that has about 3.5 percent sulfur content in it. If they are burning the far western coal, it has got 0.6 or 0.7 percent. You are talking about an increment of maybe five times as much sulfur. And when you are talking about pollution from powerplants, you are normally talking about sulfur dioxide and particulate matter, which is dust. Now, the dust we are pretty well able to control. Most of our new units are equipped with facilities that take up 99 percent of the dust from those stacks, and they are clean. But it is a question as to how much emphasis is going to be put on the removal of sulfur oxides from stack gases, and that is the rub today.

If the Environmental Protection Agency would determine that we are required to meet only the ambient standards at the ground, rather than those at 500 feet, then the job would not be that much greater. But if they are going to require, as they have been, that you must meet the standards at the stack level, then the job will be very tough.

The CHAIRMAN. Now, when you make such a requirement based on the use at the stack rather than at the ground, who is going to be bothered by the pollution at the stack?

Mr. O'CONNOR. That is what we have been saying, Senator; nobody.

The CHAIRMAN. Maybe a pigeon, but not likely a human being. He is on the ground, he is not at the stack.

Mr. O'CONNOR. That is correct.

The CHAIRMAN. I am sure they would contend that you are spreading the pollution out over a larger area—

Mr. O'CONNOR. By dispersion.

The CHAIRMAN. Yes, by dispersing it; but if I understand correctly, your argument is that that does not make much difference because at the ground level the pollution is so minute it would not make any difference.

Mr. O'CONNOR. It is not a threat to public health at the ground level; that is correct.

The CHAIRMAN. I see.

Thank you very much.

Senator HARRY F. BYRD, Jr. Mr. Chairman, could I ask one question for clarification?

As I understand your testimony, you feel it will take from 4 to 6 years to convert your plant?

Mr. O'CONNOR. Yes, sir, and that is a guess; but I think that is about right.

Senator HARRY F. BYRD, Jr. Now, take a plant that had not previously been using coal and had been converted to oil, but had always used oil. How long would it take to convert such a plant?

Mr. O'CONNOR. That might be very difficult. In the first instance, it might not even be possible, because the boiler, which is such a large part of the capital investment, might not be suitable for adapting to a new fuel; but in many instances where there is that opportunity, I would think, and again, this is a guess, sir, and I am not a technician, my guess is it will take anywhere from 5 to 8 years, because it costs today, to construct a power plant, in the conventional fossil-fired facility, it takes about 5 years at a minimum. And if you are taking a boiler that is not accustomed or is not equipped to burn oil and you are completely redoing it, you have to anticipate that the time frame will be about the same.

Senator HARRY F. BYRD, Jr. If a company were building a completely new plant, what would the timespan be in that regard?

Mr. O'CONNOR. If you are building a completely new plant today or a fossil-fired plant, which is coal or oil, starting from scratch, you have to plan on a minimum of 5 years. If you are building a nuclear plant today, we figure 8 to 10 years is the time frame. But it is often much harder to convert a plant than it is to start from scratch, because you are trying to retain as much as you can of the old structure and work in a much more confined area and pull out the old system and install the new one. So, that is why my guess is on the same order as it would take to build a new plant.

Senator HARRY F. BYRD, Jr. Thank you, sir.

Mr. O'CONNOR. Thank you.

[The prepared statement of Mr. O'Connor follows:]

STATEMENT OF JAMES J. O'CONNOR ON BEHALF OF EDISON ELECTRIC INSTITUTE

My name is James J. O'Connor. I am Executive Vice-President of the Commonwealth Edison Company which provides electricity to Chicago and the northern one-third of Illinois. Today I appear on behalf of the Edison Electric Institute. The Institute is the principal national association of investor-owned electric light and power companies in this country. Its 198 member companies serve some 98 percent of customers served by the investor-owned electric utility industry. We appreciate the opportunity of commenting on the "Energy Conservation and Conversion Act of 1975" (H.R. 6860).

H.R. 6860 covers several aspects of our nation's energy situation. We wish to comment on Titles I, III, and IV because these parts of the bill adversely affect our ability to supply electricity in compliance with air quality regulations at a reasonable cost and do not result in assisting the nation to reach its energy goals. We would also like to comment on the recent recommendations of the President's Labor-Management Committee. Additionally, we want to make further suggestions for amendments to H.R. 6860 which would, if enacted, aid in the attainment of the required electrical energy supply and provide incentives for the conservation of oil and natural gas.

TITLE I—IMPORT TREATMENT OF OIL

One of the principal purposes of Title I is "to reduce the dependence of the United States on foreign oil. . . ." We feel, however, that the manner proposed in the bill can result in hardships for the electric utility industry and its customers without realization of the stated purpose.

Section 111(a) would impose quantitative restrictions on the amounts of petroleum and petroleum products which may be imported. Section 112 would establish an import licensing system based on competitive bidding. Section 121(a) would impose a 2% ad valorem duty on imported crude oil and a 5% ad valorem duty on imported distillate fuel oil and residual fuel oil. Section 121(a) would allow for an increase in these duties, but Section 121(b) would not permit an increase of the duty on distillates and residual oil before the end of the two-year period beginning on the date of the enactment of the proposed legislation.

The net effect of these provisions would, almost assuredly, cause an increase in the price of fuel to many electric utilities and the possibility of a shortage of fuel for utilities which must depend upon imported fuel oil as their main source of fuel. Electric utilities used about 550 million barrels of oil as boiler fuel for electric power generation in 1974. A significant portion of this was imported.

The quota system would have the effect of raising prices by some unpredictable amount as imports are bid upwards under the competitive bidding system. The bill anticipates that these price increases plus the ad valorem tax will dampen demand for imported oil. This pricing corrective system, however, is not applicable to the electric utility industry. Many utilities must continue to rely on foreign crude and residual oil despite price increases because it is the only fuel available which they can burn in an environmentally acceptable manner. Even if some utilities could convert from the use of imported oil to coal, the bill does not provide a sufficient time period in which to make the conversion. Depending upon the design of the boiler, the availability of coal and coal-handling equipment and environmental requirements, to name a few factors, conversion time can take longer than two years. Moreover, with the difficulty of acquiring capital funds in order to meet the costs of converting, the period of time could be even further stretched out.

The demand for residual and distillate fuel oil will also increase as the supply of natural gas decreases and as FPC curtailment orders restrict the amount of natural gas which can be utilized as a boiler fuel.

Because many electric utilities have, in the near term, no other choice but to continue to depend upon imported oil and because the consumer would have to bear the higher costs brought about by the quota and licensing systems, we strongly urge your Committee to reject both proposals.

TITLE III—ENERGY CONSERVATION AND CONVERSION TRUST FUND

This Title of the proposed legislation would establish an energy conservation and conversion trust fund. The monies for this trust fund would be supplied by, among other taxes, the excise taxes imposed on petroleum and petroleum products under Section 411 of the bill.

All the basic energy technologies upon which research and development would be carried out under this Title are already the objective of government programs sponsored, or to be sponsored, by the Energy Research and Development Administration, and, as they relate to the electric utility industry, by the Electric Power Research Institute. In view of these on-going programs, there is serious question as to whether a separate means of funding energy projects should be carried out as anticipated by H.R. 6860. Such a course of action could lead to duplication and a waste of valuable technical and capital resources.

In view of the established government and industrial energy R&D programs, the Edison Electric Institute recommends that the trust fund not be established and that the funding of government energy R&D projects be carried out through the normal authorization and appropriation processes. Furthermore, the excise taxes on utilities to fund this research would be paid for by electric utility customers who are already confronted with increasing costs of electric service.

TITLE IV—ENCOURAGING BUSINESS CONVERSION FOR GREATER ENERGY SAVINGS

Section 411 of this Title would, with certain exceptions, impose an excise tax on the business use of oil and natural gas. While generating facilities utilizing

these fuels which were in operation, under construction, or under a binding contract to construct prior to January 1, 1976, would be exempt from these taxes until January 1, 1982, those facilities contracted for subsequent to December 31, 1975 would not be exempt from these taxes.

Utilities are striving to decrease their dependence on oil and natural gas. To the extent possible, we are planning to use coal and nuclear power plants to meet future electric generating needs. Environmental restrictions and other problems in the mining, transportation and use of coal make it difficult to utilize coal in many instances. Construction of nuclear plants is hampered by financing and regulatory difficulties.

In view of this, some utilities may be forced to utilize oil and gas as principal sources of fuel. Since these utilities will have little choice in the selection of their fuel, it is inequitable to tax the use of fuel for these purposes. The imposition of the tax will not encourage conservation or non-use of oil or natural gas, but simply increase the cost of electricity to many consumers.

A further inequitable situation would result from the enactment of Section 432 of the proposed bill. This provision would deny eligibility of the investment tax credit for electric generating facilities fueled by oil and gas placed in service after April 17, 1975, subject to certain "grandfather" exceptions. Again, there will be instances when utilities will not have the choice as to their fuel supply, and thus it seems improper that their customers should bear the burden of the extra expense resulting from the loss of the tax benefit.

CAPITAL NEEDED TO MEET ELECTRIC ENERGY GROWTH DEMANDS

A recent Edison Electric Institute study concluded that under conditions of moderate economic growth, electric energy consumption over the next 25 years will grow at an average rate of 5.3 to 5.8 percent per year. -

The electric utility industry has encountered difficult problems in raising the capital necessary to finance the power plants and associated facilities required to supply this anticipated growth in electric energy consumption. The problems encountered result from drastically increased costs; particularly the costs of new generating, conversion and environmental equipment and the capital required to finance them, and an inability to obtain prompt authorization for increased rates to cover these increased costs. For some companies this has led to inadequate "coverage" of interest and dividends which, under indenture covenants, limits or prevents the sale of senior securities. Despite improvement since the first of the year, market prices of many electric utility stocks are still below book value so that the sale of additional common stock, which dilutes the book value of existing shares, is difficult.

In 1964, electric utilities were able to finance 64 percent of the total funds needed for expansion and for replacing worn out plant and equipment through internally generated funds (retained earnings, depreciation and deferred taxes). In 1973, this source of capital had dropped by almost one-half to the level of 33 percent, thus forcing electric utilities to rely more heavily on expensive open market financing.

The electric utility industry is by far the most capital-intensive industry in the country. For every \$1 of revenue, \$4 must be invested in plant facilities. In contrast, the steel industry, generally considered to be capital-intensive itself, needs only \$1 of investment for every \$1 of revenue.

In a study concluded late last year by the Technical Advisory Committee on Finance to the Federal Power Commission, it was estimated that the electric power industry's construction expenditures will increase from the annual rate of \$16½ billion in the first half of the 1970's to about \$23 billion in the last half of the 1970's. Over the next fifteen years, the investor-owned industry's construction expenditures are expected to total in excess of \$500 billion; this is compared with expenditures of approximately \$125 billion over the last fifteen years. The figures do reflect the effects of moderate inflation. As a result, our financing needs from outside sources will increase proportionately. The investor-owned electric industry will have to raise approximately \$320 billion in the outside market over the next 15 years.

The difficulties experienced by most electric utility companies in raising money have been the principal reason for deferrals and cancellations of new generating facilities. Since the beginning of 1974, close to 250 coal and nuclear units aggregating over 200 million kilowatts have been deferred or cancelled. This is equal to roughly 40% of the total present installed generating capacity. It is estimated that the projects deferred or cancelled involve more than 800,000 jobs annually.

Deferrals and cancellations have an immediate relationship to unemployment and the current economy. Even more important are the implications for the national economy in the near future, if there is then a significant shortage of electric power. In all likelihood there will be shortages if action is not taken promptly to restore the project schedules.

Without question, the principal solution to this problem is adequate and expeditious authorization for rates to cover increased costs and attract new capital. However, changes in the Internal Revenue Code are a necessary concomitant in the overall capital picture.

RECOMMENDATIONS OF THE PRESIDENT'S LABOR-MANAGEMENT COMMITTEE

The President's Labor-Management Committee has recommended a number of changes in the Internal Revenue Code that would help resolve our industry's financial problems and thus stimulate construction of urgently needed electric facilities.

We strongly endorse their recommendations and urge early and favorable consideration by your Committee and Congress.

DIVIDEND REINVESTMENT

One of the principal recommendations of the President's Labor Management Committee concerns the issuance of stock dividends by electric utilities under qualified reinvestment plans with no current income tax payable by the stockholder participating in the plan.

This proposal is of considerable importance to the industry. Our industry's needs for new common equity financing are expected to be \$3 billion a year during the next five years. These requirements are 50% higher than those in each of the past 5 years.

The dividend reinvestment program would assist materially in making utility stocks more attractive. By September, 1974, the average utility stock was trading at about 40 percent of its level ten years earlier. Even with overall market conditions improving somewhat in recent months, the utility stocks today are valued at only slightly more than one-half their values in 1964. The dividend reinvestment proposal would permit a stockholder of an electric utility to elect to receive a stock dividend under a qualified reinvestment plan in lieu of a cash dividend without having to pay current income taxes. We strongly favor this proposal because the primary effect of dividend reinvestment would be to provide much needed equity capital.

The proposal results only in a deferral of ordinary income taxes. Taxes will be recouped by Treasury at ordinary income rates when the stock is disposed of by the shareholder. Hence, there is no permanent loss of tax revenues to Treasury.

INVESTMENT TAX CREDIT

We support the recommendation that the investment tax credit be increased to 12 percent for electric utilities, that it apply indefinitely and continue to be applicable to qualified progress expenditures. Also, the additional credit should be normalized.

There is a need for assurance that the credit will be allowed for an indefinite period. This is premised on the long lead time now necessary for the construction of large generating plants and transmission lines. On the average it takes over five years to put a coal-fired plant in operation and ten or more years for a nuclear plant. Large amounts of capital are tied up during these extended periods and serve to strain the financial position of the utility. Allowance of the investment credit at the 12% rate would provide important capital funds, reducing the amount of new security issues required.

Also the investment credit should be based on the full amount of qualified progress expenditures with no transition adjustments. This will reduce the lag between incurring the expenditure and realizing the credit.

AMORTIZATION OF POLLUTION CONTROL AND FUEL CONVERSION GENERATING FACILITIES

The Institute also agrees that the existing provision for 60 months' amortization of pollution control facilities be extended and that 60 months' amortization of fuel conversion generating facilities be permitted.

Pollution Control Facilities

Controlling and eliminating pollution is still an important challenge facing our nation. Government makes and enforces regulations, but it is private industry that must make the dollar investments to install the devices and retrofit the facilities to control and eliminate pollutants. Such facilities are for the benefit of the general public and are non-productive from the standpoint of the production or conservation of electrical energy. Costs are inevitably higher to retrofit an existing plant than to provide pollution devices on a new plant. Expenditures for pollution control add nothing to the efficiency of production; they do, in fact, detract from efficiency. FEA estimates that air and water pollution control expenditures by the electric utility industry will range from \$14 to \$25 billion between now and 1983.

AMORTIZATION-POLLUTION CONTROL FACILITIES

With respect to pollution control facilities, the proposal relative to 60 months' amortization requires that such facilities be added to a plant that was in operation on December 31, 1968. Additional environmental requirements since 1968 necessitate modification of facilities on plants placed in operation after 1968, as well as additional modifications to pre-1969 plants. Accordingly, to maximize the effectiveness of this proposal, it should apply to pollution control facilities added to all plants placed in operation prior to July 1, 1975.

EMPLOYEE STOCK OWNERSHIP PLANS

We suggest that should this Committee adopt any additional investment tax credits with respect to Employee Stock Ownership Plans, then any such credit for contributions to an ESOP should be specifically provided for, and should clearly be in addition to other changes enacted. Our recommendation concerning a refundable investment tax credit particularly lends itself to the Employee Stock Ownership Plan; as without such a refundable provision, the employees of many companies in poor financial positions would not benefit from the applicability of such programs as would the employees of an electric utility which is able to use investment tax credits.

TREATMENT OF UNUSED INVESTMENT TAX CREDITS

There are electric utilities which cannot use investment tax credits because of existing limitations. Since these utilities must also finance needed facilities to meet the public's demands for electricity, means must be found to service them to utilize the investment credit. The Institute recommends that with respect to any additional investment tax credits that unused credits be refundable.

Alternatively, we recommend that consideration be given to extending the carryback and carryover periods for utilizing investment tax credits.

INVESTMENT TAX CREDITS—AMORTIZABLE PROPERTY

Much emphasis is placed on 60 months' amortization of property as a tax incentive, and properly so. However, it should not be overlooked, that if the investment tax credit is denied to that portion of property qualifying for 60 months' amortization as is the case under existing law, such amortization will, in most cases, not be elected by an electric utility taxpayer.

In consideration of the time value of money, an electric utility taxpayer will normally elect an accelerated method of depreciation, with an ADR tax life and the investment tax credit in lieu of amortization and no credit. It is believed that amortization provisions would be more widely used if the investment tax credit would be applicable to property with respect to property for which amortization is claimed.

NET OPERATING LOSS CARRYBACK AND CARRYOVER

The net operating loss provisions should be modified to extend the periods for which a net operating loss can be carried back and carried over by electric utilities. The net operating loss carryback and carryover periods for electric utilities are presently three and five years, respectively.

It is important to point out that electric utilities with the most severe financial problems do not now have taxable income. For many of these companies, the existing incentives in the Internal Revenue Code are of little or no significance since they cannot be utilized within the specified carryback and carryover periods. Incentives would be of aid to these companies if the carryback and carryover provisions were extended.

Congress has recognized the special needs of particular classes of taxpayers and has provided several modifications to the general rule with respect to net operating losses. For example, a ten-year carryback period is provided for "financial institutions" and "A Bank for Cooperatives" and a carryover period of seven years is provided for "regulated transportation."

We recommend that an amendment to the Code be made to provide for a ten-year carryback and seven-year carryover of net operating losses for electric utility companies. We also suggest that consideration be given to permitting the electric utility taxpayer to elect an increase in the carryback period of it is willing to give up an equivalent carryover period.

Fuel Conversion Generating Facilities

Recent orders of the Federal Energy Administration requiring the conversion of 11,316,000 kilowatts in a number of existing electric power plants from oil and natural gas to coal illustrate the predicament in which the industry and its customers are caught. Customers of these utilities ultimately must pay for the cost of converting from one fuel to another as well as for the pollution devices that will be necessary because the change to coal is mandated. The recommendation relative to 60 months' amortization would have a substantial effect in reducing the cost to the industry and its customers and in promoting the formation of capital.

DEPRECIATION

In view of the long lead time necessary to bring major generation and transmission facilities into operation, the Institute also agrees that qualified progress expenditures included in the rate base should be eligible for tax depreciation. Also, we agree that to obtain this tax benefit such depreciation should be normalized. The combined effects of additional tax depreciation and qualified progress expenditures in rate base will add materially to the cash flow of an electric utility.

COMMENTS CONCERNING ADDITIONAL CHANGES NEEDED IN THE INTERNAL REVENUE CODE

In addition to those proposals recommended by the President's Labor-Management Committee, which we firmly endorse, the Institute proposes for your Committee's consideration additional tax proposals which would be of significant assistance to investor-owned electric utilities.

The CHAIRMAN. Thank you very much, sir.

Next, we will call Mr. F. Perry Wilson, chairman of the board of Union Carbide Corp.

I might announce at this point we are going to hear Mr. Wilson and his associate, and then we will have a break for lunch and will come back at about 2 o'clock.

Senator HARRY F. BYRD, Jr. Mr. Chairman, before Mr. Wilson starts, may I make a brief statement?

The CHAIRMAN. Yes, indeed.

Senator HARRY F. BYRD, Jr. Mr. Wilson, may I say to you I would like to be here for your testimony. I shall read it, but I have a speaking engagement in the historic city of Alexandria and I must leave to make that; otherwise, I would certainly be here for your statement.

Mr. WILSON. I understand, sir.

STATEMENT OF F. PERRY WILSON, CHAIRMAN OF THE BOARD AND CHIEF EXECUTIVE OFFICER, UNION CARBIDE CORP., ACCOMPANIED BY ERNEST S. ROBSON, JR., VICE PRESIDENT, ENERGY AND MATERIALS MANAGEMENT, MONSANTO CO.

Mr. WILSON. Mr. Chairman, members of the committee, my name is F. Perry Wilson. I am chairman of the board of Union Carbide Corp. And I have with me today Ernest S. Robson, Jr., who is vice president of energy and materials management for Monsanto Co. I am speaking, however, on behalf of the 23 independent petrochemical companies comprising PET, the Petrochemical Energy Group. These companies produce the major share of petrochemicals produced in the United States. We are basically consumers of oil and natural gas, not producers. We are the customers of the oil and gas industry.

Now, Mr. Chairman, with your permission, and in the interest of conserving the committee's time, I will condense certain segments of my summary statement.

The CHAIRMAN. We will print the entire statement in the record as you have it here.

Mr. WILSON. Thank you, sir.

Virtually all petrochemicals are derived from crude oil or natural gas. Without crude oil and natural gas derived raw materials, which we call feedstocks, we cannot make petrochemicals. We urge this committee to recognize that the use of petroleum for feedstock is different from the use of petroleum as fuel, so that whatever policy on fuels is selected, there will not be an unintended consequence on feedstock use. Petroleum is so valuable, we should not just burn it up.

Let me outline some of the major categories of petrochemicals.

First, synthetic rubber. Today, 78 percent of the Nation's rubber used, for example, in tires, irrigation piping and plumbing is petrochemical based.

Second is plastics and coatings. Our Nation requires more than 29 billion pounds of plastics each year to meet its needs. Petrochemical-based resins make up 75 percent of paints and coatings. Home insulation, transportation materials, electrical wire coatings and plywoods all depend upon synthetic resins.

Third is textiles. While less than 1 percent of U.S. petroleum demand is used as raw material to make synthetic fibers, almost 60 percent of the textiles produced in the United States are dependent upon petrochemicals.

Fourth is agricultural chemicals. Ammonia from natural gas forms the backbone of the Nation's fertilizer industry. Pesticides and herbicides also come from petrochemicals.

The petrochemical market encompasses a broad list of uses, everything from antifreeze and hydraulic fluid for cars to key ingredients for detergents and aspirin.

The importance of these products to our economy and our everyday lives is illustrated by the size of the U.S. petrochemical industry, which directly employs more than 390,000 people, with annual sales running at \$41 billion.

Despite its size, the petrochemical industry requires only a small percentage of the Nation's shrinking petroleum and natural gas pro-

duction. Only 4 percent is used as petrochemical feedstock. The bulk of the oil and gas hydrocarbons, some 64 percent, are burned in stationary boilers. Some 32 percent are burned as transportation fuels.

The committee is considering three areas of key interest to PEG: conservation, import tariffs and quotas, and conversion to alternate fuels.

As you work on conservation, you have the wholehearted endorsement and commitment of PEG. PEG companies are actively cutting their fuel consumption. We do not need more taxes or regulation to make us conserve. The rising cost of fuels gives us plenty of incentive. At Union Carbide, for example, our intensive energy conservation programs saved the equivalent of more than 2.8 million barrels of oil in 1974. And this is representative, I think, throughout this industry.

But regardless of the policy toward industrial fuels, it must be recognized that there is no significant conservation or conversion potential for petrochemical feedstocks. Thus, we support the intent of title IV in H.R. 6860 to apply excise taxes only upon fuel uses. Similarly, however, imports of petrochemical feedstocks should not be subject to tariffs.

In any conservation strategy, the difference between petrochemical feedstocks and fuels must be recognized. Taxes or tariffs on use of petroleum as petrochemical feedstocks would have the opposite effect of that intended. While such a tax might ultimately reduce the use of oil, when applied to petrochemical feedstocks, it will harm the Nation's balance of payments, increase unemployment, and encourage the importation of petrochemical-based products costing 5 to 20 times more—thus further contributing to inflation.

If the industry is required to pay taxes on feedstocks, imported or domestic, its positive contribution to the U.S. balance of trade will diminish, if not in time disappear. Petrochemicals contributed about \$3.7 billion to our trade balance in 1974. The chemical industry operates on a world scale, in fiercely competitive world markets. Since petrochemical products have very high value they are imported and exported across every nation's borders.

U.S. chemical companies do not dominate the world market. Of the largest ten chemical companies, only three are headquartered in the United States.

In this connection, it is worth noting that the major petrochemical producing countries of Western Europe do not impose any quota, tariff or tax on the use of petroleum as a petrochemical feedstock. There are no tariffs on the imports of crude oil, naphtha, or other feedstocks and no excise taxes are imposed by any country in the European Economic Community on the use of petroleum as a feedstock. Some of those countries do, however, impose some excise taxes on the use of petroleum as a fuel.

Section 111(d) of H.R. 6860 would exempt petrochemical feedstocks from import quotas, and we urge the committee to continue such an exemption. We are a manufacturing nation. It does not make sense to tax raw materials.

Let there be no doubt, we look to domestic natural resources first for our supply of feedstocks. We do not wish to rely on foreign suppliers any more than you wish the United States to be dependent on foreign

sources. The Emergency Petroleum Allocation Act of 1973 recognizes the necessity of providing feedstocks primarily from domestic sources. Yet, like the Nation as a whole, we cannot secure all needed feedstocks from domestic sources. For the incremental volumes, unless and until domestic production is dramatically increased, we need access to foreign supplies.

As we point out, to restrict access to feedstocks does not affect conservation or conversion; it would simply reduce production of petrochemicals, cut jobs and jeopardize the balance of payments.

We believe that it makes no sense to restrict imports of petrochemical feedstocks at \$11 to \$12 per barrel at the risk of encouraging imports of petrochemical products at \$100 to \$140 per barrel.

Exempting feedstocks from tariffs or quotas will not result in the exportation of refining capacity. Nor will such an exemption distort import patterns, causing a shift from crude oil to petroleum products. Less than 20 percent of the industry's feedstocks are derived from imports, and much of these imports is crude oil which is further processed into petrochemical feedstocks by domestic refineries. By comparison, the nation as a whole has become nearly 40 percent dependent upon petroleum imports.

Too, exempting feedstocks from import quotas is consistent with existing oil import and allocation policy, and allows all feedstock materials to be imported without compelling other high priority users to reduce fuel usage beyond the conservation and quota levels set in H.R. 6860.

The goal of conversion to coal is of particular interest to PEG, since it touches on a broad philosophy we believe this Nation should adopt, a philosophy of preferred use of resources which encourages the highest and most beneficial use of natural resources.

In this era of energy management, consideration of the alternate energy sources for each market is very vital. Earlier I referred to three main markets for our oil and gas: Stationary fuels, transportation fuels and petrochemical feedstocks. Only stationary fuels have immediate and useful potential for conversion. There are now no feasible substitutes, however, for petrochemical feedstocks derived from oil and gas.

Throughout my remarks, I have pointed out that petrochemical feedstocks are different from fuels. The administration and Congress have already recognized this distinction through the Emergency Petroleum Allocation Act of 1973, the Federal Energy Administration Act of 1974, Presidential Proclamation No. 4341, in existing tax laws, and in H.R. 6860, for example. Regardless of the final makeup of this committee's energy legislation, we would recommend that this distinction be maintained and strengthened.

If taxes or tariffs are imposed, petrochemical feedstocks should not be taxes, unless we want to damage a major contributor to our economy, our employment and our balance of trade, aggravate inflation and sacrifice the production of products for which there are no substitutes.

If quotas are imposed; the petrochemical feedstock imports should be exempted for the same reasons. Encouraging domestic petrochemical capacity means jobs, dollars, and favorable trade balances.

The philosophy of preferred use of resources should receive, in our opinion, prompt consideration. Rapid conversion of large stationary fuel consumers to coal or nuclear power will preserve petroleum and natural gas for critical use in homes, transportation, and petrochemicals.

And as a final personal comment, while petrochemicals are valuable and versatile to the United States today, their promise for the future is even brighter. I would ask that you consider that future promise in developing and reaching a much needed consensus on national energy policy.

Thank you.

The CHAIRMAN. I want to ask you one question, Mr. Wilson. I am not at all unsympathetic to what you are saying here, but you are contending that in order to compete in the world market, you need to get your energy as cheaply as the world market is getting its energy. But are you not getting quite a bit of natural gas and old oil at a price that is substantially below the world market price for energy?

Mr. WILSON. Senator, I was not referring to energy, I was referring in particular to the feed stocks.

The CHAIRMAN. I would think you may be benefiting from some old contracts, and even from some so-called intrastate gas, where they are holding it down by a Federal Power Commission regulation, either the old contract or the Federal Power Commission regulation.

Are you not getting a lot of your energy and even feed stock at a good price because of the old oil control, or because of the regulation on the old contracts in the Federal Power Commission regulation of gas?

Mr. ROBSON. Yes, sir, Mr. Chairman. Our contracts, some of which were signed a number of years ago that are still in effect, as those contracts expire, however, those rates are being renegotiated upward.

Secondarily, I think, our concern is for the supply, as we look today and to the future. It may be that something that is low price, non-existent, is not as important to us as something that is worth the money and in good supply.

Mr. WILSON. Senator, I think just to add to that, this is a fleeting situation. Because the old contracts are rapidly being depleted. The old sources are rapidly being depleted.

This is a temporary situation. We are looking at it from a long-range standpoint. But, we feel that from a long-range standpoint that we are going to have to compete with the possibility, if there are taxes or tariffs imposed for the raw material use, not the energy use. I think from that standpoint we ought to be treated like anyone else.

The CHAIRMAN. Let me just get this straight in my mind, now. To produce the products that you produce, you require both fuel as energy and you also require fuel as a feed stock into a final product such as paint or plastics.

Now, I would gain the impression that when you take your old contracts into account, and you take into account the old oil that is flowing into your plants, that, for the time being you must be on balance at a competitive advantage against people who are having to pay world market prices for energy.

Mr. WILSON. We cannot deny that, Senator, temporarily.

The CHAIRMAN. Now, in your case, as I understand it then, would relate to the fact that further on down the road, if you are having to pay world market prices and a tariff on top of that, that you would be at a competitive disadvantage against those same people.

Mr. WILSON. That is exactly right.

The CHAIRMAN. I see. Thank you very much.

Senator Packwood.

Senator PACKWOOD. It looks to me like your problem on imported feed stocks is much more one of making sure you have access to them in cost. You are not making any argument that petroleum which is imported as fuel or anything else should be exempt; you are simply saying the feed stocks.

Mr. WILSON. That is right.

Senator PACKWOOD. And the Arthur D. Little report on oil import records indicates that the entire petrochemical industry only imports about 215,000 barrels a day, about 3 percent of our total imports for feed stocks. And that 215,000, if I look at your statement, you import only about 20 percent of your feed stocks, anyway. The other 80 percent is domestic, so that, I think you made a very good case. You are simply saying we have nothing else we can use as a basic raw material. We cannot use wood or coal at the moment.

Mr. WILSON. Right.

Senator PACKWOOD. And you are such an insignificant part of our imports that I think your case is well made.

Let me ask you one last question. On page 9 of your statement, you say, "There are, however, now, no feasible substitutes for petrochemical feed stocks derived from oil or gas." And then you go on to say "If research on coal and so forth is accelerated," Are synthetic derivatives from coal possible derivatives, or are they simply the wrong chemical makeup and could not be used as a feed stock, no matter what?

Mr. WILSON. No, Senator; it is very possible that in the future we will be able to use coal as raw material.

Our point is that it is going to take, I would think, somewhere in the neighborhood of 20 years to get to this point, a tremendous amount of research and development work. A great deal of work is going on at the present time. You heard it alluded to a number of times this morning in this area.

And I would suspect that by 1990, 1995, we will probably be at the point of being able to use the byproducts of coal or the conversion of coal for some of these products.

Now, in the meantime, work is already going on, synthesis gas, to make such products as maybe ammonia and ethylene glycol.

Senator PACKWOOD. Let me say again, I think your case has been well made that if we cut all our imported petroleum feed stocks we would not change our energy problem. We would do terrible damage to the industry with no gain at the other end.

Mr. WILSON. That is the point. Yes, sir.

Senator PACKWOOD. I have no other questions.

The CHAIRMAN. Senator Dole.

Senator DOLE. Briefly, do you support H.R. 6860? You spoke only about the exemption in that bill. Is that where you limit your support?

Mr. ROBSON. No, sir. We would support the bill, as it came down,

H.R. 6860, and I think Mr. Wilson and I were only trying to add emphasis to certain points that particularly would impact our industry and the economies and markets that we serve, Senator. So that we are not against the bill in any shape or form. We are for the bill as it is written, because our industry is consistent to the point that this Nation must get on with a very difficult job. We need policy and direction and green lights in order to survive for the future, so that prompt action is one of our pleas.

And, while H.R. 6860 might not satisfy a lot of different little requirements, we think that it is certainly worthy of support today.

Senator DOLE. As I recall, of the witnesses who have testified, many have been in favor of that particular proposal. But in any event, I assume there will be some changes and modifications.

As I understand, the thrust of your statement is if there should be a quota proposition, then there ought to be a petrochemical or feed stock exemption as is contained in H.R. 6860.

Mr. ROBSON. That is right.

Senator DOLE. Now, I just want to ask a couple of questions on decontrol of natural gas.

We are concerned about fertilizers. You are concerned about fertilizer. I assume you support deregulation?

Mr. WILSON. We certainly do.

Mr. ROBSON. Of new found gas, Senator, we certainly do.

Senator DOLE. If that does not happen, if we do not have deregulation, do you have any guess on how long we are going to be faced with a shortage of fertilizer?

Mr. ROBSON. I could answer to this extent. According to my recollection, the Nation's reserve of natural gas in total, the reserves are in the range of 10 to 13 years of use. I believe that is correct. And, without incentive to develop additional resources, we can see nothing but that continuing decline in the resources, and that decline, again according to my recollection, our decline in reserves started about 1970 or 1971, if my memory serves me correctly.

So, yes, sir, we would look to a number of plant curtailments, many of which we have already been warned about for this coming winter; and in some cases, as your probably are well aware, there was an ammonia plant in Ohio that was notified that beginning November first, its gas supply to that ammonia plant would be curtailed by 60 percent.

Senator DOLE. Do you believe that the message of the real, critical need for action is finally getting through to the American people? I note the most recent Harris Poll indicates that decontrol or deregulation in some form is favored by a plurality of Americans.

Mr. WILSON. I think it is beginning to get through to the American people, Senator, but not as broadly as I would like to see it.

Senator DOLE. When you have a curtailment in Kansas in the height of winter, and they turn off the gas supply at the local school, that gets the point across. Children go to school with their mittens on and make CBS news. It was an object lesson for that part of our State about the necessity of doing something.

Now, many would blame the gas companies or other suppliers of a conspiracy, or whatever you might dream up. But nonetheless, it was a fact there were curtailments throughout Kansas and the Midwest,

and there will probably be even more this winter. As far as I can tell we have not done much yet in the Congress.

Mr. ROBSON. I would add, Senator, I think we are concerned that there is not a conservation effort in the American public. Certainly I speak from personal opinion. Let me state that, and I think the chairman alluded to this when he said at some point in time you have just got to set about with a program of action, and if you cannot cajole, you might have to coerce. I do not think the American public is as truly concerned in a conservation ethic as we think is going to be vital to this country. I speak as a citizen.

Senator DOLE. I think you would agree that they would accept sound legislation.

Mr. ROBSON. Yes, sir. And Senator, I am afraid, you know, we have been fortunate in the last couple of winters. I am afraid that if we get a severe snap in weather this winter, this coming winter, your point is going to be emphasized in spades.

Senator DOLE. Then I think the American people will ask what we have been doing in the Congress, or whatever. But, my feeling is there is a better understanding now in the Congress than there has been, and perhaps something will happen now before the end of the year.

That is all I have, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Mr. WILSON. Senator, I have one comment that I would like to make.

You asked a question about whether we support—I believe you asked the question about whether we support 6860. I am speaking personally and for my company. We support the bill as it treats petrochemicals. However, I really do not believe that quotas are the right answer. When you come right down to it, the development of indigenous resources, conservation, and reduced gasoline consumption through market forces are really, I think, the best answer.

Senator DOLE. I would like to clarify that I did not know your position. I was frankly surprised when you said you supported it.

Mr. ROBSON. Let me be the one who said we supported it. I am certainly speaking as a company representative when I said that, and I should be very careful to make that clear in the record, that there are 21 other companies in this group. I can speak for Mr. Wilson's company and my own and a few more. But let me correct the record, Senator.

Senator DOLE. Thank you.

The CHAIRMAN. Thank you very much for your presentation here. I think you have made a good point.

Mr. WILSON. Thank you, sir.

[The prepared statement of Mr. Wilson and Mr. Robson, plus the accompanying booklet follow:]

TESTIMONY BY F. PERRY WILSON, CHAIRMAN OF THE BOARD AND CHIEF EXECUTIVE OFFICER, UNION CARBIDE CORP., NEW YORK, N.Y. AND ERNEST S. ROBSON, JR., VICE PRESIDENT, ENERGY AND MATERIALS MANAGEMENT, MONSANTO CO., ST. LOUIS, MO.

SUMMARY STATEMENT

Mr. Chairman, members of the Committee, my name is F. Perry Wilson. I am Chairman of the Board and Chief Executive Officer of Union Carbide Corporation. With me today is Ernest S. Robson, Jr., Vice President of Energy and Materials

Management for Monsanto Company. I am speaking, however, on behalf of the 28 independent petrochemical companies comprising PEG, the Petrochemical Energy Group. These companies produce the major share of petrochemicals produced in the United States. We are basically consumers of oil and natural gas, not producers. We are the customers of the oil and gas industry.

Virtually all petrochemicals are derived from crude oil or natural gas. Without crude oil and natural gas derived raw materials, which we call feedstocks, we cannot make petrochemicals. We urge this committee to recognize that the use of petroleum for feedstock is different from the use of petroleum as fuel, so that whatever policy on fuels is selected, there will not be an unintended consequence on feedstock use. Petroleum is so valuable, we should not just burn it up.

What are petrochemicals?

Let me outline some of the major categories of petrochemicals.

1. *Synthetic rubber.* Today, 78 percent of the Nation's rubber used, for example, in tires, irrigation piping and plumbing is petrochemical based.

2. *Plastics and coatings.* Our Nation requires more than 20 billion pounds of plastics each year to meet its needs. Petrochemical-based resins make up 75% of paints and coatings. Home insulation, transportation materials, electrical wire coatings and plywoods all depend upon synthetic resins.

3. *Textiles.* While less than one percent of U.S. petroleum demand is used as raw material to make synthetic fibers, almost 60 percent of the textiles produced in the United States are dependent upon petrochemicals.

4. *Agricultural chemicals.* Ammonia from natural gas forms the backbone of the Nation's fertilizer industry. Pesticides and herbicides also come from petrochemicals.

The petrochemical market encompasses a broad list of uses—everything from antifreeze and hydraulic fluid for cars to key ingredients for detergents and aspirin.

Size of petrochemical industry

The importance of these products to our economy and our everyday lives is illustrated by the size of the U.S. petrochemical industry, which directly employs more than 390,000 people with annual sales of \$41 billion.

Despite its size, the petrochemical industry requires only a small percentage of the Nation's shrinking petroleum and natural gas production. Only 4 percent is used as petrochemical feedstock. The bulk of the oil and gas hydrocarbons, some 64 percent, are burned in stationary boilers. Some 32 percent are burned as transportation fuels.

The Committee is considering three areas of key interest to PEG—conservation, import tariffs and quotas, and conversion to alternate fuels.

Conservation of energy

As you work on conservation, you have the wholehearted endorsement and commitment of PEG. PEG companies are actively cutting their *fuel* consumption. We do not need more taxes or regulation to make us conserve. The rising cost of fuels gives us plenty of incentive. At Union Carbide, for example, our intensive energy conservation programs saved the equivalent of more than 2.8 million barrels of oil in 1974.

But regardless of the policy toward industrial *fuels*, it must be recognized that there is no significant conservation or conversion potential for petrochemical feedstocks. Thus, we support the intent of Title IV in H.R. 6860 to apply excise taxes only upon fuel uses. Similarly, however, imports of petrochemical feedstocks should not be subject to tariffs.

In any conservation strategy, the difference between petrochemical feedstocks and fuels must be recognized. Taxes or tariffs on use of petroleum as petrochemical feedstocks would have the opposite effect of that intended. While such a tax might ultimately reduce the use of oil, when applied to petrochemical feedstocks, it will harm the Nation's balance of payments, increase unemployment, and *encourage* the importation of petrochemical-based products costing 5 to 20 times more—thus further contributing to inflation.

The chemical industry operates on a world-scale in fiercely competitive world markets. Since petrochemical-derived products have very high value, they are imported and exported across every Nation's border.

If the industry is required to pay taxes on feedstocks, imported or domestic, its positive contribution to the U.S. balance of trade will diminish. If not disappear. Over the past 10 years, petrochemicals have every year given our

Nation a favorable balance of trade of over \$1 billion. Petrochemicals contributed about \$8.7 billion to our trade balance in 1974.

U.S. chemical companies do not dominate the world market. Of the largest 10 chemical companies, only three are headquartered in the U.S. The other seven companies are based primarily in Western Europe where the chemical industry has undergone rapid expansion in the last 20 years. Petrochemical expansion outside the United States is still continuing at a fast pace. From 1971 to 1974, the number of new petrochemical projects in the world increased 45 percent. But only 10 percent of this construction is in the U.S., the remainder is going on in developing nations plus Japan and Western Europe.

In this connection, it is worth noting that the major petrochemical producing countries of Western Europe do not impose any quota, tariff or tax on the use of petroleum as a petrochemical feedstock. For example, there are no tariffs on the imports of crude oil, naphtha or other feedstocks and no excise taxes are imposed by any country in the European Economic Community on the use of petroleum as a feedstock. Some of those countries do, however, impose some excise taxes on the use of petroleum as a fuel.

Why can't we cut petrochemical use?

My comments on conservation would not be complete without answering the question, "Why can't we just cut out all those petrochemical-based products and go back to natural materials?" Well, it is simply not possible for our highly developed economy to "return to the good old days."

Take textiles, for example. To return to natural materials would require the planting of 16 million new acres of cotton. That's an area nearly the size of South Carolina. And the acreage would have to be taken from food production. Petrochemical-based fibers are presently used to make more than 90% of our carpets and 80% of our blankets.

Can we go back to natural rubber? Not unless we want all of our rubber coming from the Far East, exposing the U.S. to future embargo of another critical material produced abroad.

Solutions to the world food crisis would be crippled if we attempted a return to natural fertilizer. There simply is not enough animal waste or fish meal to do the job. Without petrochemically-based fertilizers, herbicides and pesticides, it is estimated that food production would be cut back by 40% and food costs would skyrocket 50-75 percent.

Quotas

Section 111(d) of H.R. 6860 would exempt petrochemical feedstocks from import quotas, and we urge the Committee to continue such an exemption. We are a manufacturing nation. It doesn't make sense to tax raw materials.

Let there be no doubt: we look to domestic natural resources first for our supply of feedstocks; we do not wish to rely on foreign suppliers any more than you wish the United States to be dependent on foreign sources. The Emergency Petroleum Allocation Act of 1973 recognizes the necessity of providing feedstocks primarily from domestic sources. Yet, like the Nation as a whole, we cannot secure all needed feedstocks from domestic sources. For the incremental volumes, unless and until domestic production is dramatically increased, we need access to foreign supplies. Look at naphtha, for example. It is more abundant and relatively less costly elsewhere in the world than it is in the United States. This is a result of differences in the demand for various refinery products which leads to different patterns of refinery operation. In the United States, gasoline is the largest and most important refinery product and virtually all the naphtha produced by U.S. refineries is further processed into gasoline. This is not the case in most other parts of the world. Fuel oil is a more important product than gasoline and refineries have a surplus of naphtha. This fact, plus its chemical characteristics have made it an important and useful petrochemical feedstock. But, as we point out, to restrict access to feedstocks does not effect conservation or conversion, it would simply reduce production of petrochemicals, cut jobs and jeopardize balance of payments.

At the heart of the exemption is the future ability of the petrochemical industry located in the U.S. to meet the demand for petrochemicals both here and abroad. If it cannot, either because domestic feedstock supplies are not available or because the industry cannot compete with foreign producers for incremental imported feedstocks, then the U.S. runs the risk of crippling a major positive contributor to U.S. trade balances, of exporting jobs and petrochemical capacity and increasing its dependence upon imported petrochemicals.

We believe that it makes no sense to restrict imports of petrochemical feedstocks at \$11 to \$12 per barrel at the risk of encouraging imports of petrochemical products at \$100 to \$140 per barrel.

It is not just the petrochemical industry that would be affected by restrictions, taxes or tariffs on feedstocks—it is the plastics industry in New England, the textile industry in the Southeast, the farmbelt, the automobile industry, the pharmaceutical industry—and many others. Independent studies indicate that a sustained decline in feedstock supplies of only 15 percent could result in the loss of 1.8 million jobs in the U.S. economy—and a loss of \$70 billion annually in domestic production value.

Exempting feedstocks from tariffs or quotas will not result in the "exportation of refining capacity." Nor will such an exemption "distort import patterns," causing a shift from crude oil to petroleum products. Less than 20% of the industry's feedstocks are derived from imports, and much of these imports is crude oil which is further processed into petrochemical feedstocks by domestic refineries. By comparison, the nation as a whole has become nearly 40% dependent upon petroleum imports.

Too, exempting feedstocks from import quotas is consistent with existing oil import and allocation policy, and allows all feedstock materials to be imported without compelling other high priority users to reduce fuel usage beyond the conservation and quota levels set in H.R. 6860.

Conversion to coal

The goal of conversion to coal is of particular interest to PEG, since it touches on a broad philosophy we believe this Nation should adopt—a philosophy of "preferred use of resources," which encourages the highest and most beneficial use of natural resources.

In this era of energy management, consideration of the alternate energy sources for each market is vital. Earlier I referred to three main markets for our oil and gas—stationary fuels, transportation fuels and petrochemical feedstocks. Only stationary fuels have immediate and useful potential for conversion.

Stationary fuels

Stationary fuels used to provide power or heat have only one technical requirement—and that is the amount of BTU's of energy available. The energy can be supplied from coal, nuclear power—even from municipal trash. We endorse the Congressional intent that all electrical power plants on oil or gas be converted to coal. No new technology is required, and indeed many power plants already have the capability to switch to coal. Of course, massive capital investment, with economic incentives, will be needed—plus further clarification on air pollution controls.

It's no news that nuclear power also offers an alternate for electrical generation.

Thus, stationary fuels do have the most immediate substitutes for petroleum and natural gas.

Transportation fuels

If you look at transportation fuels, you will find substitution more difficult, but possible.

Petrochemical feedstocks

There are, however, now no feasible substitutes for petrochemical feedstocks derived from oil and gas. If research on coal is greatly accelerated, if economies-of-scale can be achieved, if capital and other problems are solved, coal might be a competitive source of petrochemical feedstocks at some future date.

Conclusion

Throughout my remarks, I have pointed out that petrochemical feedstocks are different from fuels. The Administration and Congress have already recognized this distinction—through the Emergency Petroleum Allocation Act of 1973, the Federal Energy Administration Act of 1974, Presidential Proclamation No. 4341, in existing tax laws, and in H.R. 6860, for example. Regardless of the final make-up of this Committee's energy legislation, we would recommend that this distinction be maintained and strengthened.

If taxes or tariffs are imposed, petrochemical feedstocks should not be taxed—unless we want to damage a major contributor to our economy, our employment

and our balance of trade, aggravate inflation and sacrifice the production of products for which there are no substitutes.

If quotas are imposed, the petrochemical feedstock imports should be exempted for the same reasons. Encouraging domestic petrochemical capacity means jobs, dollars, and favorable trade balances.

The philosophy of "preferred use of resources" should receive prompt consideration. Rapid conversion of large stationary fuel consumers to coal or nuclear power will preserve petroleum and natural gas for critical use in homes, transportation and petrochemicals.

And a final personal comment: while petrochemicals are valuable and versatile to the U.S. today, their promise for the future is even brighter. I would ask that you consider that future promise in developing and reaching a much needed consensus on national energy policy.

Thank you.

ENERGY POLICY AND PETROCHEMICALS TESTIMONY BY F. PERRY WILSON, CHAIRMAN OF THE BOARD AND CHIEF EXECUTIVE OFFICER, UNION CARBIDE CORP., NEW YORK, N.Y., AND ERNEST S. ROBSON, JR., VICE PRESIDENT, ENERGY AND MATERIALS MANAGEMENT, MONSANTO CO., ST. LOUIS, MO.

Mr. Chairman, members of the Committee, my name is F. Perry Wilson. I am Chairman of the Board and Chief Executive Officer for Union Carbide Corporation. With me today is Ernest S. Robson, Jr., Vice President of Energy and Materials Management for Monsanto. We appear today on behalf of PEG, the Petrochemical Energy Group, an ad hoc group of twenty-three independent petrochemical companies.¹ We produce the major share of U.S. petrochemical intermediates which are the building blocks for a practically endless list of consumer and industrial products—products essential to meet the nation's food, clothing, housing, transportation and health needs.

Virtually all petrochemicals are derived from crude or natural gas. Thus, we are pleased to have this opportunity to testify. While petrochemicals are versatile and essential to the U.S. today, their promise for the future is ever brighter. This is especially true as the economy returns to full production and full employment, and as we seek to achieve an energy policy independent of foreign influence. I would ask that you consider that future promise in developing and reaching a much needed consensus on energy policy.

What are petrochemicals?

Petrochemicals, as distinguished from inorganic chemicals, are chemicals derived from petroleum. Some key petrochemicals include ethylene, propylene, benzene, ammonia and methanol. From these intermediate chemicals, the industry and its customers manufacture a host² of products which fall into five categories.

First, there's synthetic rubber. Today 78 percent of the nation's rubber is synthetic.

The next category is plastics. Our nation requires more than 20 billion pounds of plastics each year to meet needs in food processing, communication, transportation, housing and many other industries.

Or let's consider fibers. Man-made fibers account for 60 percent of all fibers in clothing. Ninety-three percent of our carpeting and 80 percent of our blankets are made from synthetic fibers.

Agricultural chemicals are the fourth major area. Synthetic ammonia is the backbone of the nation's fertilizer industry. Pesticides and herbicides are also made from petrochemicals.

The last major petrochemical market encompasses an almost endless list of uses—the hydraulic fluid in our cars, key ingredients for detergents, refrigerants for air conditioners, even the aspirin we take for pain and fever.

¹ Borg-Warner Chemicals; Celanese Corporation; Chemplex Company; Dart Industries, Inc.; The Dow Chemical Company; E. I. du Pont de Nemours and Co., Inc.; Ethyl Corporation; Firestone Tire & Rubber Company; Foster Grant Company, Inc.; The B. F. Goodrich Company; Goodyear Tire & Rubber Company; Hercules Incorporated; Monsanto Company; National Distillers & Chemical Corporation; Nipro, Inc.; Olin Corporation; Oxirane Corporation; Petro-Tex Chemical Corporation; PPG Industries, Inc.; Publicker Industries, Inc.; Rohm and Haas Company; Texas Eastman Company, Division of Eastman Kodak Company; Union Carbide Corporation.

² See "Petrochemical Flow Sheet." (Table I)

The petrochemical industry

The importance of our industry to the economy is illustrated by its size. The U.S. petrochemical industry currently employs more than 390,000 people in 1,900 plants with annual sales of \$41 billion.³ As one measure, the industry provides almost three times the jobs as the U.S. petroleum refining industry, nearly 50 percent more capital investment, and more than double the value added.⁴ Looking at the size another way, the petrochemical industry's value added contribution to the economy nearly equals the paper industry or the primary steel industry.⁵ Our commercial activity is spread over a large part of the nation, with the heaviest concentration of petrochemical employment found in the South Atlantic, Mid-Atlantic, Gulf Coast and Northeast parts of the United States.⁶

Despite its size, the petrochemical industry requires only a small percentage of our shrinking petroleum and natural gas resources.⁷ In the U.S., the bulk of these hydrocarbons, some 64 percent, are burned in stationary boilers. In total, some 32 percent of U.S. oil and gas goes into transportation fuels, while only 4 percent is used as petrochemical feedstocks.⁸

Thus Union Carbide and the petrochemical industry have a unique dependence on the decisions this Congress will reach as it moves to make this nation more self-sufficient in energy.

In looking over the Energy Conservation and Conversion Act of 1975 (H.R. 6860) in preparation for this hearing, I noted three areas of key interest to PEG—i.e., conservation, oil import quotas and conversion to other fuels.

Conservation of energy—Feedstock versus fuel

Petrochemical manufacturing requires large amounts of fuel, as does, for example, the production of aluminum, paper, petroleum products and steel. Specifically, the petrochemical industry currently takes less than 1 percent of the nation's oil consumption, approximately 2% of its coal and less than 5 percent of its gas for fuel.⁹ We do not ask for any special consideration here, although we expect to be treated no worse than any other manufacturing industry.

But it should be recognized that there is no significant conservation potential in the use of oil and gas as feedstocks.

The only way our industry can reduce feedstock consumption is to reduce production, at the expense of jobs, positive trade balances and our ability to meet the increasing demand for petrochemicals.

Why can't we cut petrochemical use?

My comments on conservation would not be complete without answering the perennial question, "Why can't we just cut out all those petrochemical-based products and go back to natural materials? Wouldn't this help the energy crisis?"

Answering the last question first, it wouldn't help much, if at all. Total elimination of the feedstock and fuel requirements of the petrochemical industry would add up to less than 6 percent of the oil and gas consumed in the U.S. in 1974.

More important, it is simply not possible or desirable for our economy to "return to the good old days." Take man-made fibers, for example. They are widely used in home furnishing, clothing, automobile tire cord and other consumer products. To completely return to natural materials would require the planting of 16 million new acres of cotton. That's an area nearly the size of South Carolina. And this acreage would have to be taken away from food production. It should be noted that while only 1 percent of U.S. petroleum demand is used for feedstocks and fuel to make synthetic fibers, almost 60 percent of the textiles produced in the United States are made from petrochemical-based fibers.

³ See "Estimated 1974 Employment" and "Estimated 1974 Sales." (Tables IA & IB.)

⁴ "The U.S. Petrochemical Industry." (Tables IIIA and IIIB.)

⁵ "Petrochemicals Compared to Other Manufacturing." (Table IV)

⁶ "Geographical Distribution of Petrochemicals." (Table V)

⁷ In 1974, the U.S. petrochemical industry used less than 3 percent of the U.S. natural gas and approximately 5 percent of the petroleum for feedstock. Yet, natural gas and natural gas liquids constitute approximately 60 percent of the industry's feedstocks, while crude oil and petroleum products constitute almost 40%. (See Tables VI and VII.)

⁸ See attached "Preferred Use of Resources" discussed below.

⁹ "1974 Chemical Industry Energy Requirements Compared to National Energy Inputs and Industrial Demand." (See Table VII.)

The bulk of our synthetic rubber goes into tires.¹⁰ Can we go back to natural rubber? Not unless we want all our rubber coming from the Far East as it did before World War II. Today this would expose the U.S. to future embargo of another critical material produced in other nations. Equally important to mankind, the acreage required for enough rubber trees to meet our total needs could be better used to raise food in the Far East for minimum life support of some three million people.

Congress has already focused on the shortages of petrochemicals for agricultural uses—i.e. fertilizers, herbicides, and pesticides. Solutions to the world food crisis would be crippled if we attempted a return to natural fertilizers. There simply is not enough animal waste, fish meal or other natural sources to provide the massive fertilization required to raise food production. Elimination of pesticides would further cut farm efficiency.¹¹

According to the U.S. Department of Agriculture the average American family eats about 2.5 tons of food a year: 694 pounds of meat and fish; 598 pounds of fruits; 1,136 pounds of dairy products; 1,154 pounds of vegetables; 592 pounds of grain products; and 349 pounds of poultry. Variety, quality and labeling information have improved; quantity is about the same. And today's average food bill is only 17 percent of disposable income, vs. 23 percent in 1951.

These statistics reflect the ability of the American farmer to maximize yields with new technology, including crop chemicals. Without chemical crop protection, annual losses would far exceed the \$14 billion now lost to insects, weeds and disease. Prices would soar; quality and supply would diminish.

But note that such achievements come only through high capital and investment costs. The development of a typical crop protection chemical takes six years and a \$12 million expenditure, excluding production facilities.

So what about plastics? Couldn't we just cut out plastic hoola hoops and swizzle sticks and save a lot of energy? Not really. The vast majority of plastics and resins are used in packaging, construction, communications, transportation, appliances and other major markets.¹² The natural materials they replace are often less efficient or economic—and are also becoming short in supply. Over 75 percent of our plastic packaging, the most frequently criticized use, goes for packaging of basic foods. Thanks to this protective packaging, the waste experienced in getting U.S. food from the farm to the consumer is 50 to 66 percent less than in other countries. This puts money in the pocket of the consumer and maximizes farm production.

Thus, we support the conclusion reached in H.R. 6860 (Title IV—Business Conservation and Conversion Measures) that the feedstock use of oil and gas should not be subject to a business excise tax designed to reduce consumption.

Reducing imports

Turning specifically to Title I of H.R. 6860, I next want to comment on the use of oil import quotas and tariffs to lower our dependency on imported petroleum. We strongly support this goal. However, as I have shown with the business use tax, any import tariff program, if applied to petrochemical feedstocks, is likely to have the opposite effect of that intended. Tariffs may reduce the importation of oil, but not without having a serious adverse impact on petrochemicals, harming the nation's balance of payments, increasing its unemployment and encouraging the importation of foreign oil, not in barrels, but in shiploads of

¹⁰ "End-Use Patterns for Petrochemicals." (See Table VIII.)

¹¹ As the U.S. Senate Committee on Agriculture and Forestry has reported:

"The Committee further acknowledged that expansion of existing U.S. nitrogen production capacity is essential if U.S. requirements for nitrogenous fertilizers are going to be met. The extent to which this goal will be achieved, of course, will be almost totally dependent upon increased supplies of natural gas being made available to this industry for this purpose.

Farm chemicals.—American farm producers have increasingly and very effectively utilized herbicides, insecticides and fungicides to protect and increase farm output. It is estimated by some USDA scientists that the use of pesticides alone has accounted for at least 20 percent in farm output since 1940. Other agricultural experts indicate that use of herbicides has reduced cultivation by 50 percent on 160 million acres of agricultural land in the United States, which in terms of fuel means a savings from 94 to 170 million gallons of fuel depending upon the type (gasoline, diesel or liquid petroleum gas) used for cultivation.

Evidence presented to the Committee regarding the future availability of these essential farm chemicals, especially during the immediate years ahead, suggest that critical shortages of some of them could very well develop." (Report No. 93-1138, Sept. 5, 1974, p. 45.)

¹² "End-Use Patterns for Petrochemicals." (See Table VIII.)

petrochemicals and crates of petrochemical products. This would be due to a number of factors.

First, let me talk about balance of payments. The chemical industry operates on a world-scale in world markets, in contrast to most fuels. Since petrochemical-derived products have very high economic value, they are imported and exported across every nation's border. U.S. chemical companies no longer dominate the world market. Of the top 10 chemical companies, only three are headquartered in the U.S.¹³ The remaining companies are based primarily in Western Europe where the chemical industry has undergone rapid expansion in the last 20 years.

Petrochemical expansion outside the United States is still continuing at a fast pace. From 1971 to 1974, the number of new petrochemical projects in the world increased 45 percent. But only 10-11 percent of this construction is in the U.S., the remainder is going on in developing nations plus Japan and Western Europe.¹⁴

Thus, the U.S. industry is facing increasingly stiff competition in world markets. If the industry is subject to the impact of tariffs on imported petroleum, its positive contribution to the U.S. balance of trade could disappear. Over a 10-year period, petrochemicals have always given our nation a favorable balance of trade—contributing a surplus each year of at least \$1.28 billion.¹⁵ Estimates for 1974 indicate petrochemicals will contribute \$3.7 billion to our trade balance. Without this chemical contribution, the U.S. trade balance will slip even further in the red.¹⁶

As you can see Table XIII¹⁷ export and import levels in terms of dollar volumes vary markedly from quarter to quarter depending upon worldwide economic activity, availability of raw materials and price.

Last, look at economic impact. Petrochemicals and petrochemical products have become essential to the economic health of the nation.¹⁸ Because petrochemicals are involved in every facet of our daily lives—from the buildings we work in, to our homes, to what we wear, to our transportation—any increase in the cost of petrochemicals or decrease in their availability is likely to be reflected by a sharp increase in the cost of these domestics. Tariffs, taxes, or quotas which hobble the U.S. petrochemical industry in world markets do not make sense. These high-value products are an important weapon as we work to reduce the financial impact of imported petroleum. Petrochemicals exert a large amount of financial leverage and jobs because they are upgraded in value many times.

If you consider just one barrel of oil, we have estimated that as the oil leaves the ground from a U.S. well, it is worth \$9 to \$10. If it is upgraded into gasoline, jet fuel and fuel oils, it is worth \$12. Converted into basic petrochemicals, the barrel is worth around \$50. Further upgraded in petrochemical-based products, its value increases to at least \$200. In jobs, if the barrel of oil represents one labor unit for fuels, it represents nine labor units for basic petrochemicals and 45 labor units for petrochemical-based products. That, we submit, is a real return on investment in a scarce natural resource.

Secondly, a related trend is the exportation of petrochemical capacity. Failure to exempt petrochemical feedstocks from new import fees can only create artificial competitive disadvantages for U.S. firms and encourage new plant investment outside the United States—thus continuing a pattern in the in-

¹³ "Major International Chemical Companies." (See Table IX.)

¹⁴ "Free World Petrochemical Industry 1973-1975." (See Table X.)

¹⁵ "Balance of Trade in Petrochemicals." (See Table XI.)

¹⁶ "Chemicals Provide Big Uplift." (See Table XII.) Although the manufacture of chemicals and allied products generates only about 5% of U.S. corporate profits and employs approximately 1.5% of the nation's work force itself, this industry now accounts for more than 10% of U.S. exports of domestic merchandise. (See Chemical Week, Feb. 19, 1975, p. 11.) And note the substantial but yet unmeasured chemical component in many of the nation's other exports: e.g. chemical fertilizers and pesticides were a principal input for production of the grains and other agricultural products that brought in about 15% of the foreign exchange earned on U.S. exports.

¹⁷ "Selected Petrochemical Exports/Imports 1973-1974." (Table XIII.) The dramatic increase in world prices for petrochemicals combined with the shortage conditions existing during early 1974 provided for a 59% increase in the dollar volume of U.S. petrochemical exports to a level of nearly \$5.6 billion. The dollar value of imports increased only 56% to \$1.9 billion providing a net trade balance of \$3.7 billion, up 61% over 1973.

¹⁸ (See Tables XIVA and XIVB.) A clear indication of the importance of petrochemicals to other industries is the survey on material shortages undertaken during the embargo in March of 1974 by the Senate Permanent Subcommittee on Investigations. Committee Print, August 1974. The survey tabulates the responses of the 500 largest U.S. companies and concludes, at p. 23:

"By far the most universal shortage was in petrochemicals."

dustry where demand for petrochemicals has shifted from U.S. to foreign producers,¹⁹ taking with it employment and the ability to meet increasing domestic demand.

Quotas (title I, part I)

The goal of H.R. 6860 seems clear: to significantly reduce this country's dependence upon imports, but not at the expense of serious and unnecessary economic hardships. To avoid frustration of this goal and to comport with existing national energy policy, H.R. 6860 exempted petrochemical feedstocks from the quota limitations. As the Committee Report states:²⁰

"The need for adequate supplies of petrochemical feedstocks, including the relatively small volume of petrochemical feedstocks that are imported for petrochemical plants, has been recognized in the oil import program in the past as well as under the Emergency Petroleum Allocation Act of 1973."

We believe this is sound public policy. Because some have argued, however, that the exemption should not be retained, we ask that you consider the following:

1. As you are aware, we are independent petrochemical companies, and for more than 15 years we have worked to achieve appropriate recognition of the entire petrochemical industry in oil import policy. As early as 1965,²¹ the federal government recognized the unique disadvantage created by excluding the independent petrochemical sector from oil import quotas, and beginning in 1966 petrochemical quotas were established for both refiners and independent petrochemical companies to ensure equitable implementation of the quota system.²² Further, PEG companies are multinational companies. In 1970, the Cabinet Task Force on Oil Import Control concluded that product exceptions should be introduced for petrochemical feedstocks imported or exchanged in order to preserve and competitive viability of the industry in world markets. And then in 1972, the allocation-for-export program was introduced to implement this conclusion and to foster the industry's positive contribution to a favorable balance of trade. Most recently, the federal government has also recognized the need and importance of encouraging the domestic expansion of the petrochemical industry. The "heavy-liquids program" incorporated in present oil import regulations,²³ recognizes the fact that petrochemicals will be based increasingly on heavy liquid feedstocks, as supplies of lighter hydrocarbons become more scarce. To achieve these same goals, the feedstocks exemption should be retained.

2. The feedstock exemption does not create an undue preference for one industry over another. Rather, it provides appropriate recognition for the distinction between feedstocks and fuels. It is not just the petrochemical industry affected by this amendment—it is all of the consumers and industries dependent upon petrochemicals which may again face the severe petrochemical shortages experienced during the embargo. A reduction in feedstock availability would have serious impacts on the U.S. economy. One independent study reports that just a sustained 15 percent reduction in petrochemical feedstock supplies will result in a loss of 1.6 to 1.8 million jobs in the U.S. economy—and a loss of \$65-70 billion annually in domestic production value.²⁴ A decline in petrochemical production will spread across the entire economy, affecting plastics, fibers, agricultural chemicals, paints, textiles, rubber and detergents.²⁵

¹⁹ Table XI shows how imports of petrochemicals have increased over the last 10 years.

²⁰ Report of the Committee on Ways and Means, U.S. House of Representatives (Report No. 94-221, May 15, 1975). In discussing the feedstock exemption, the Report reads in full:

"... imports of petroleum and petroleum products when imported for use in the production of manmade products such as nitrogen fertilizer, farm chemicals, paints, plastics, synthetic fibers, synthetic rubber, pharmaceuticals and similar manmade products manufactured from petrochemical feedstocks are not to be counted against the import quota. This exemption for petrochemical feedstocks from the quantitative restriction recognizes that petroleum and petroleum products are the essential and nonsubstitutable raw material in the manufacture of these products. The need for adequate supplies of petrochemical feedstocks that are imported for petrochemical plants, has been recognized in the oil import program in the past as well as under the Emergency Petroleum Allocation Act of 1973." (p. 26.)

²¹ Presidential Proclamation No. 3693, Dec. 10, 1965. (See present section, 10 C.F.R. § 213.9.)

²² Paragraph 313(g), "The Oil Import Question," Cabinet Task Force on Oil Import Control (February 1970), pp. 77-79.

²³ C.F.R. § 213.11.

²⁴ "Impact of 15% Decline in Production."

²⁵ "Impact Analysis—Summary," Industry Survey.

3. The petrochemical feedstock exemption will not result in the "exportation of refinery capacity." Less than 215,000 b/d of the industry's feedstocks are dependent upon imports, but the bulk of those imports is crude to be further processed into petrochemical feedstocks. The petrochemical feedstock exemption, rather than discouraging the U.S. refining capacity, in fact, will encourage domestic petrochemical capacity. Moreover, domestic refineries are "fuels" refineries, and the importation of feedstocks, will not encourage the importation of fuels, such as gasoline or heating oil, that are refined overseas.

The heart of the matter, therefore, is the future ability of the petrochemical industry located in the U.S. to meet the demand for petrochemicals both here and abroad. If it cannot, either because domestic feedstock supplies are not available or because the industry cannot compete with foreign producers for incremental imported feedstocks, then the U.S. runs the risk of crippling a major positive contributor to U.S. trade balances, of exporting jobs and petrochemical production capacity and increasing its dependence upon imported petrochemicals. My belief is that it makes no sense to restrict petroleum imports at \$11 and \$12 per barrel and yet risk dependency upon petroleum-based petrochemicals equivalent to \$100 to \$140 per barrel.

4. Lastly, the petrochemical feedstock exemption is consistent with the high priority given petrochemical feedstocks in the Emergency Petroleum Allocation Act of 1973 (EPAA). We do not believe there is anything in H.R. 6860 intended to substitute high cost imports of feedstocks for feedstocks from domestic sources—which would be inconsistent with the allocation act. But, it may be that the usage of high priority users could be comparably reduced due to lack of domestic supply, in which case, domestic petrochemical companies must have access to non-substitutable feedstocks—or cut production and jobs. Under the exemption, it would not be necessary for the fuel importer to cut back his allocation in order to supply feedstocks; thus the Bill allows all feedstocks materials to be imported without compelling others to reduce fuel usage beyond the conservation and quota levels set in the Bill.

Conversion to other fuels

The goal of conversion to other fuels is of special interest to us, since it touches on a broad philosophy which we believe this nation must adopt. We believe there must be a "preferred use of resources" philosophy applied to energy management. In the long term we are convinced that the nation faces ever-decreasing supplies of both natural gas and petroleum. Therefore, we support the call for "COAL NOW—NUCLEAR LATER." Users of natural gas and oil that can and should convert to coal, must be encouraged to do so.

In developing policies for the conversion to alternate fuels, consideration must be given to the sources of alternate fuels to each of the markets involved—including the time, technology and economics involved. Above I referred to three main markets for our oil and gas—stationary fuels, transportation fuels and petrochemical feedstocks. Each of these markets does have possible options.

Stationary fuels

Stationary fuels used to provide power or heat have only one technical requirement—and that is the amount of BTUs of energy available. The energy can be supplied from oil, gas, coal, nuclear power—even from municipal trash. We endorse the Congressional intent that all electrical power plants on oil or gas should convert to coal. No new technology is required; we have burned coal for centuries. Of course, massive capital investment will be needed and some type of financial relief may be required to cover the cost of changing to coal, as well as some environmental accommodations. The same conversion option is available for industrial boilers, although their smaller size generally presents less favorable economics.

Nuclear power also offers a current alternate for electrical generation. Progress has been slow and needs to be speeded up.

Stationary fuels do have the most promising and immediate substitutes for petroleum or natural gas.

Transportation fuels

In transportation fuels, conservation via more efficient engines is a first step. Improvement in gasoline mileage could dramatically help lower imports. For example, less than a 10 percent saving in gasoline consumption could conserve an amount of petroleum equal to the total U.S. usage for petrochemical production.

In looking for alternate fuels to those now used in transportation, the technical problems become more complex. Nonetheless, there are solutions, all of which are known to be feasible, although none are fully developed. Here I refer to liquid fuels synthesized from coal, or alcohols from coal, or battery-powered vehicles using electricity from coal. The important thing here is to get on with the development of substitute transportation fuels. Development time and capital will be needed, but these options could attain broad commercial use by 1990, and hence help to reserve adequate petroleum supplies for their highest end use—petrochemicals.

Petrochemical feedstocks

Alternates for petrochemical feedstocks are practically non-existent, at present. Virtually all our feedstocks are derived from oil or gas, and there are no substitutes for existing plants. The development of coal liquefaction and gasification, however, does promise possible alternates for new plants—although many problems of cost and technology must be overcome.

The basic technology for coal gasification is now in commercial use. However, use of this present gasification technology for the manufacture of those few chemicals derived from natural gas would result in some very expensive fertilizers and other petrochemical derivatives. The problem here is the size and economies-of-scale of petrochemical production. In time, it may be possible to couple chemical manufacture with a power generation plant, for example, in order to overcome these problems of scale and thereby attain world-competitive petrochemical companies.

The technology for coal liquefaction is not as far along as coal gasification. Synthetic oil for fuels is being studied and produced in several pilot plants. To date, costs are high and not commercial. This phase must be completed before the chemical industry can even begin work on the production of chemicals from coal—since the molecular structure of any possible fuel can vary greatly. If research on coal is greatly accelerated, coal could be a source of petrochemical feedstocks around the year 2000.

We support the thrust of H.R. 6860 which recognizes that a much higher level of research on alternate fuels is needed. Regardless of the mechanics ultimately adopted, we support commitment to expanded research. The U.S. has a large share of the world's coal. Let us address ourselves to the technology needed.

Conclusion

Throughout my remarks, I have pointed out that petrochemical feedstocks are different from fuels. The Administration and Congress have already recognized this distinction. The Emergency Petroleum Allocation Act of 1973 called for recognizing the preferred use of petrochemical feedstocks. The Federal Energy Administration Act of 1974 called for studies into the impact of shortages of petrochemicals. The recent Presidential Proclamation 4341 urged increasing domestic petrochemical production.

As you consider the broad range of proposals to be faced in solving our energy problem, we recommend the six following points be kept in mind:

1. If tariff or taxing strategies are ultimately imposed to lower oil imports, petrochemical feedstocks should be exempt—unless we want our U.S. industry to become uncompetitive in the world market and destroy a major contributor to our balance of trade. Title I, Part II of H.R. 6860 should, therefore, be modified to apply only to fuels.

2. The petrochemical feedstock exemption from quotas established in Title I is necessary and sound public policy to ensure essential and nonsubstitutable feedstocks to the U.S. petrochemical industry.

3. Should allocation continue or be modified to lower imports, the petrochemical industry should continue to receive a priority high enough to ensure continued access to adequate feedstock supplies. Acting otherwise will have a serious impact on virtually all segments of the economy where jobs, dollars and trade depend on these man-made materials.

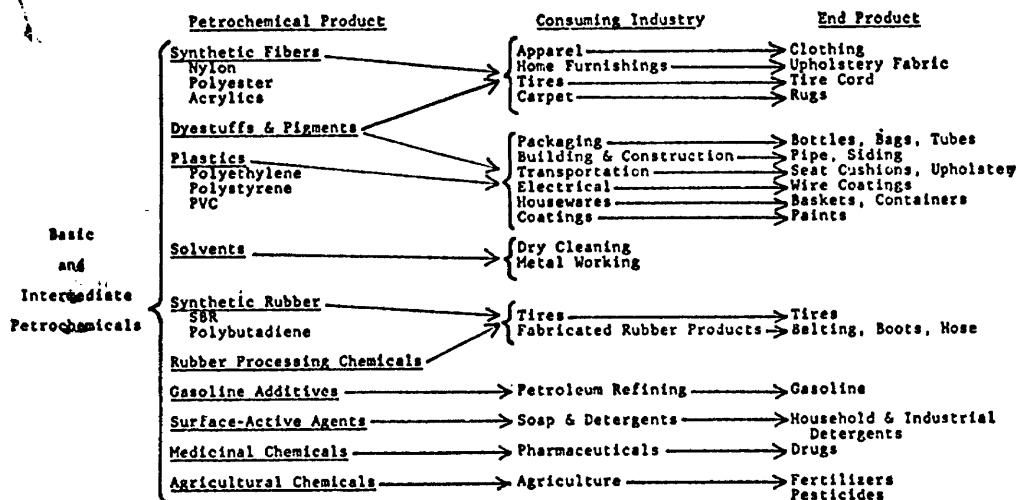
4. There must be further incentives for new exploration and development of oil and natural gas. As consumers, we are convinced that the price of new natural gas should be deregulated. Otherwise, we are concerned that there will be insufficient gas at any price even for high priority uses.

5. Conservation programs for industry should remain voluntary. Industry is already effectively responding to higher costs of fuels and carrying out major conservation efforts. Adequate capital incentives, however, may be necessary for our industry, like other industries, if we are to remain competitive while we maintain our commitments to conservation and the environment.

6. Finally, the philosophy of "preferred use of resources" should continue to guide national energy policy. For example, rapid conversion of large stationary fuel consumers to coal or nuclear power will reserve petroleum and natural gas for critical use in homes, transportation and petrochemicals—thus providing the necessary time for these markets to develop new sources of energy or raw materials.

Thank you.

PETROCHEMICAL INDUSTRY FLOW SHEET



ESTIMATED 1974 EMPLOYMENT IN THE CHEMICAL INDUSTRY

[In thousands of dollars]

	Manufacturing employment	Total employment
Chemical and allied products.....	855	1,063
Inorganic chemicals.....	96	165
Organic chemicals.....	130	168
Total industrial chemicals.....	226	333
Petrochemicals:		
Organic chemicals:		
Dyes.....	12	14
Pigments.....	4	5
Cyclic intermediates.....	12	14
Industrial organics.....	102	135
Subtotal.....	130	168
Plastics and resins.....	59	64
Synthetic fibers.....	80	108
Elastomers.....	12	15
Surface active agents.....	7	9
Carbon black.....	3	4
Nitrogen fertilizer.....	10	11
Medicinals.....	9	11
Total.....	310	390

Source: Manufacturing employment based on 1972 Census of Manufactures and Arthur D. Little, Inc., estimates.

Note: Total employment based on U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, December 1974, and Arthur D. Little, Inc., estimates.

ESTIMATED 1974 CHEMICAL INDUSTRY SALES

[In millions of dollars]

	Value of shipments	
	1972	1974
Chemical and allied products.....	57,062	82,000
Industrial chemicals:		
Inorganic.....	5,927	8,000
Organic.....	11,036	21,300
Total.....	16,963	29,300
Petrochemicals:		
Organic chemicals:		
Cyclic intermediates (2,865).....	2,002	6,000
Miscellaneous organics (2,869).....	9,034	15,300
Plastics (2,821).....	4,497	8,500
Fibers (2,824).....	3,675	4,400
Rubber (2,822).....	1,089	2,150
Surface active agents (2,843).....	452	600
Carbon black (2,895).....	227	350
Nitrogen fertilizer (2,873).....	837	2,700
Medicinals (2,833).....	566	800
Total.....	22,379	40,800

Source: U.S. Department of Commerce 1972 Census of Manufactures and Arthur D. Little, Inc., estimates.

THE U.S. PETROCHEMICAL INDUSTRY (1972)

[Dollar amounts in millions]

	Employment (thousands)	Value added	Capital investment
2,869—Organic chemicals.....	100	\$4,922	\$565
2,865—Cyclic intermediates.....	28	914	152
2,821—Plastics and resins.....	55	2,192	279
2,822—Synthetic rubber.....	12	487	34
2,824—Synthetic fibers.....	78	2,084	369
2,843—Surface active agents.....	7	204	21
28,411—Detergents.....	5	376	11
2,895—Carbon black.....	3	138	12
Ammonia.....	5	323	20
Total petrochemical.....	293	11,640	1,463
By comparison: 2,911—Petroleum refining.....	101	4,627	1,067

Source: U.S. Department of Commerce, 1972 Census of Manufactures, and Arthur D. Little, Inc., estimates.

1974 VALUE ADDED IN THE U.S. PETROCHEMICAL INDUSTRY

(In millions of dollars)

Sector	Total sales	Cost of materials and supplies ¹	Value added
Cyclic intermediates.....	6,000	2,040	3,960
Organic chemicals.....	15,300	7,200	8,100
Plastics.....	8,500	4,800	3,700
Fibers.....	4,400	2,925	1,475
Rubber.....	2,150	1,350	800
Surface active agents.....	600	465	135
Carbon black.....	350	155	195
Nitrogen fertilizer.....	2,700	540	2,160
Medicinals.....	800	400	400
Total.....	40,800	19,875	20,925
Gross industry sales.....			40,800
Intrasector sales.....			-5,275
Intraindustry sales.....			-8,840
Net industry sales.....			26,685
Value added.....			-20,925
Estimated net cost of raw materials and supplies.....			5,760

¹ Includes intrasector and intrapetrochemical industry purchases.

Source: Arthur D. Little, Inc., estimates.

THE PETROCHEMICAL INDUSTRY COMPARED TO OTHER MAJOR MANUFACTURING INDUSTRIES (1970)

	Value of shipments (billion)	Employment	Value added (billion)
Petrochemicals.....	\$18.6	314,000	\$10.0
Petroleum refining.....	22.7	108,500	4.6
Paper and allied products.....	24.7	656,600	11.5
Textile mill products.....	22.3	921,600	9.3
Primary iron and steel.....	29.7	829,100	13.6

Source: U.S. Department of Commerce, annual survey of manufactures, 1970.

GEOGRAPHICAL DISTRIBUTION OF THE PETROCHEMICAL INDUSTRY IN 1967

	Employment		Value added	
	Number (thousands)	Percent of total	Amount (millions)	Percent of total
New England.....	14	5	\$266	3
Middle Atlantic.....	57	21	1,226	15
South Atlantic.....	72	26	2,049	25
East North Central.....	36	13	1,042	13
East South Central.....	27	10	819	10
West North Central.....	7	3	212	3
West South Central.....	45	16	2,200	27
Louisiana.....	7	3	295	4
Texas.....	32	12	1,622	20
Subtotal.....	39	15	1,917	24
Mountain.....	1	1	28	(¹)
Pacific.....	15	5	372	4
Total.....	274	100	8,214	100

¹ Negligible.

Source: 1967 census of manufactures and Arthur D. Little, Inc., estimates.

U.S. oil and gas consumption

	Percent
Stationary fuels.....	64
Transportation fuels.....	82
Petrochemical feedstocks.....	4
Total	100

Source: The Petrochemical Energy Group estimates.

TABLE 7.—1974 CHEMICAL INDUSTRY ENERGY REQUIREMENTS COMPARED TO NATIONAL ENERGY INPUTS AND INDUSTRIAL DEMAND
(In trillions of Btu)

	National energy inputs	Industrial demand	Total chemical industry		Petrochemicals			
			Requirements	Percent of national inputs	Percent of industrial demand	Requirements	Percent of national inputs	Percent of industrial demand
Natural gas (dry).....	22,237	11,129						
Fuel.....			1,598	7.2	14.4	1,031	4.6	9.3
Feedstock.....			567	2.6	5.1	567	2.6	5.1
Subtotal.....			2,165	9.8	19.5	1,598	7.2	14.4
Petroleum.....	33,490	5,826						
Fuel.....			237	.7	4.1	152	.5	2.6
Feedstocks.....			811	2.4	13.9	811	2.4	13.9
Heavy liquids.....			891	2.7	15.3	891	2.7	15.3
Gas liquids.....								
Subtotal.....			1,939	5.8	33.3	1,854	5.6	31.8
Coal.....	13,169	4,208	503	3.8	12.0	273	2.1	6.5
Electricity: ¹								
Nuclear and hydro.....	4,225	34						
Total purchased.....			1,185			487		
Total	73,121	21,197	5,002	7.9	27.4	4,212	5.8	19.9

¹ Electric power inputs except for nuclear and hydro are included with requirements for other fossil fuels.

Source: Bureau of Mines, U.S. Department of Interior, and Arthur D. Little, Inc., estimates.

END-USE PATTERNS FOR KEY FINAL PRODUCTS OF THE PETROCHEMICAL INDUSTRY

	Billions of pounds	Percent
Plastics 1972:		
Packaging.....	5.2	21
Building and construction.....	4.5	19
Electrical.....	1.4	6
Transportation equipment.....	1.3	5
Housewares.....	1.2	5
Furniture.....	1.0	4
Appliances.....	.7	3
Toys.....	.7	3
Other uses ¹	6.6	27
Exports.....	1.7	7
Total.....	24.3	100
Synthetic fibers 1971:		
Home furnishings.....	1.3	30
Tire cord and other industrial uses.....	1.1	27
Women's, misses', children's and infants' wear.....	.9	21
Men's and boys' wear.....	.7	16
Other consumer products.....	.3	6
Total.....	4.3	100
Synthetic rubber 1970:		
Tires and tire products.....	2.7	63
Other uses ²	1.6	37
Total.....	4.3	100

¹ Includes marine, sportswear, medical, agriculture, signs, luggage, textile, and disposable products.

² Includes latex foam, boots and shoes, mechanical rubber goods and wire and cable products.

Sources: Modern Plastics Magazine, January 1973; Textile Organon, January 1970 and 1972; SRI's Chemical Economics Handbook; and Arthur D. Little, Inc., estimates.

Major international chemical company sales—1973

Company	Total sales (billions)
BASF (Germany).....	\$5.9
Hoechst (Germany).....	5.7
Bayer (Germany).....	5.4
Du Pont (United States).....	5.3
ICI (United Kingdom).....	5.2
Montedison (Italy).....	4.8
UCC (United States).....	3.9
Pechiney-Ugine Kuhlmann (France).....	3.6
AKZO (Holland).....	3.6
Dow (United States).....	3.1

Sources: C&EN, June 8, 1974, page 80; Mar. 18, 1974, page 10; and Aug. 12, 1974, page 13; Chemical Week, June 26, 1974, page 34.

TABLE 16.—FREE WORLD PETROCHEMICAL INDUSTRY, 1973-75

	Operating plants, January 1973		New plants and expansions					
			1973		1974		1975	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States.....	627	38	54	10	76	13	125	11
Western Europe.....	435	27	208	38	164	29	263	24
Japan.....	211	13	42	8	50	9	74	7
Developing countries.....	364	22	237	44	283	49	620	58
Total, free world.....	1,637		541		573		1,082	

Source: Oil and Gas Journal, Mar. 17, 1975, World Petroleum Report, 1973.

APPENDIX E-1

U.S. BALANCE OF TRADE IN PETROCHEMICALS

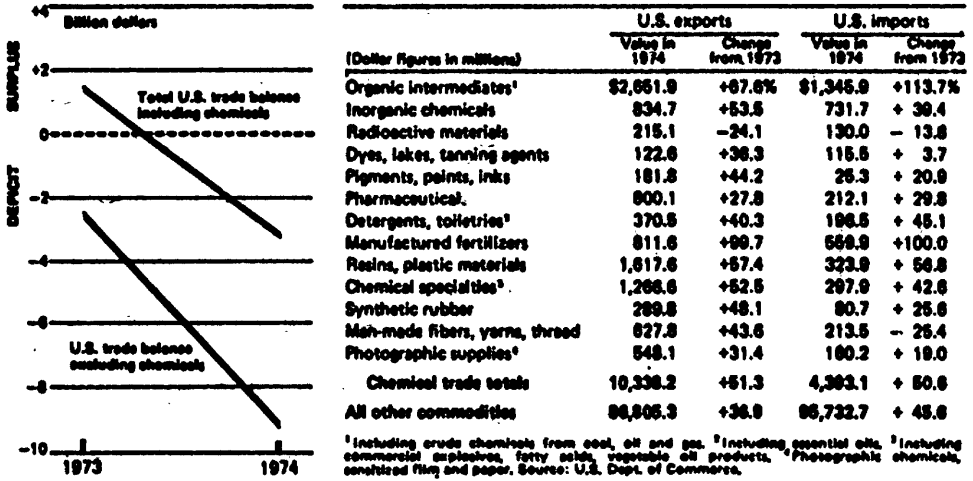
(Millions of dollars)

Trade class	1965	1966	1967	1968	1969	1970	1971	1972	1973	Pre- limi- nary 1974
1. Dyes, organic pigments (531):										
Exports.....	31.4	34.7	31.7	35.1	32.7	43.0	44.6	53.2	85.8	117.0
Imports.....	26.8	35.4	35.0	49.9	63.4	69.7	97.2	100.8	104.3	106.2
Difference.....	4.6	-7	-3.3	-14.8	-30.7	-26.7	-52.6	-47.6	-18.5	10.8
2. Plastics (except cellulose) (581):										
Exports.....	377.2	422.6	423.0	530.9	533.8	593.0	593.3	628.9	844.2	1,483.9
Imports.....	36.5	53.6	54.9	87.2	91.5	115.0	126.2	168.7	197.7	312.2
Difference.....	340.7	369.0	368.1	443.7	442.3	478.0	467.1	460.2	746.5	1,171.7
3. Synthetic rubber (231.2):										
Exports.....	163.1	175.1	170.0	190.3	139.6	176.0	172.7	161.0	195.8	289.8
Imports.....	19.0	23.6	20.7	29.3	37.6	42.2	56.3	53.6	64.3	79.2
Difference.....	144.1	151.5	149.3	151.0	102.0	133.8	116.4	107.4	131.5	210.6
4. Detergents and surface active agents (554.2):										
Exports.....	47.2	50.9	53.7	64.7	62.9	69.2	71.9	78.8	95.8	141.8
Imports.....	2.5	3.5	4.5	5.5	7.0	7.2	8.4	9.2	12.7	22.4
Difference.....	44.7	47.4	49.2	59.2	55.9	62.1	63.5	67.6	83.1	119.4
5. Carbon black (513.27):										
Exports.....	26.7	28.8	25.1	15.4	12.6	14.0	14.9	10.4	17.2	27.9
Imports.....		1.2		.2	1.4	1.1	1.4	1.6	3.0	7.1
Difference.....	26.7	27.6	25.1	15.2	11.2	12.9	13.5	8.8	14.2	20.8
6. Aromatics and olefins (521):										
Exports.....	40.5	26.2	28.3	66.8	62.1	49.2	32.5	30.7	72.5	83.8
Imports.....	1.2		1.1						.5	1.1
Difference.....	39.3	26.2	27.2	66.8	62.1	49.2	32.5	30.7	72.0	82.7
7. Synthetic fibers:										
Exports.....	129.7	133.3	123.7	136.8	155.0	175.4	186.5	191.6	344.7	507.8
Imports.....	46.7	54.7	56.6	98.8	85.5	201.3	340.1	297.9	248.0	178.0
Difference.....	83.0	78.6	67.1	38.0	69.5	-25.9	-153.6	-106.3	97.6	329.8
8. Organic chemicals¹ (512.599):										
Exports.....	759.0	802.7	864.8	992.3	1,016.4	1,183.2	1,143.0	1,219.5	1,683.8	2,845.0
Imports.....	144.4	189.0	184.6	221.6	263.3	298.7	345.3	432.5	546.5	1,036.5
Difference.....	614.6	613.7	680.2	770.7	753.1	884.5	797.7	787.0	1,137.3	1,746.5
9. Ammonia:										
Exports.....	14.0	16.2	22.6	26.5	33.0	30.2	16.3	21.9	41.2	48.8
Imports.....	9.5	15.3	19.1	18.6	20.7	20.7	20.5	17.0	15.5	52.5
Difference.....	4.5	.9	3.5	7.9	12.3	9.5	-4.2	4.9	25.7	-3.7
Grand total:										
Exports.....	1,588.8	1,690.5	1,742.9	2,048.8	2,048.1	2,333.3	2,275.7	2,394.0	3,481.0	5,545.8
Imports.....	286.6	376.3	376.5	511.1	570.4	755.9	995.4	1,081.3	1,192.5	1,857.2
Difference.....	1,302.3	1,314.2	1,366.4	1,537.7	1,477.7	1,577.4	1,280.3	1,312.7	2,288.5	3,688.6

¹ See appendix E-2 and E-3 for further breakdowns.

Source: U.S. Department of Commerce, Bureau of the Census FT 110, FT 135 U.S. Imports, and FT 410 U.S. Exports.

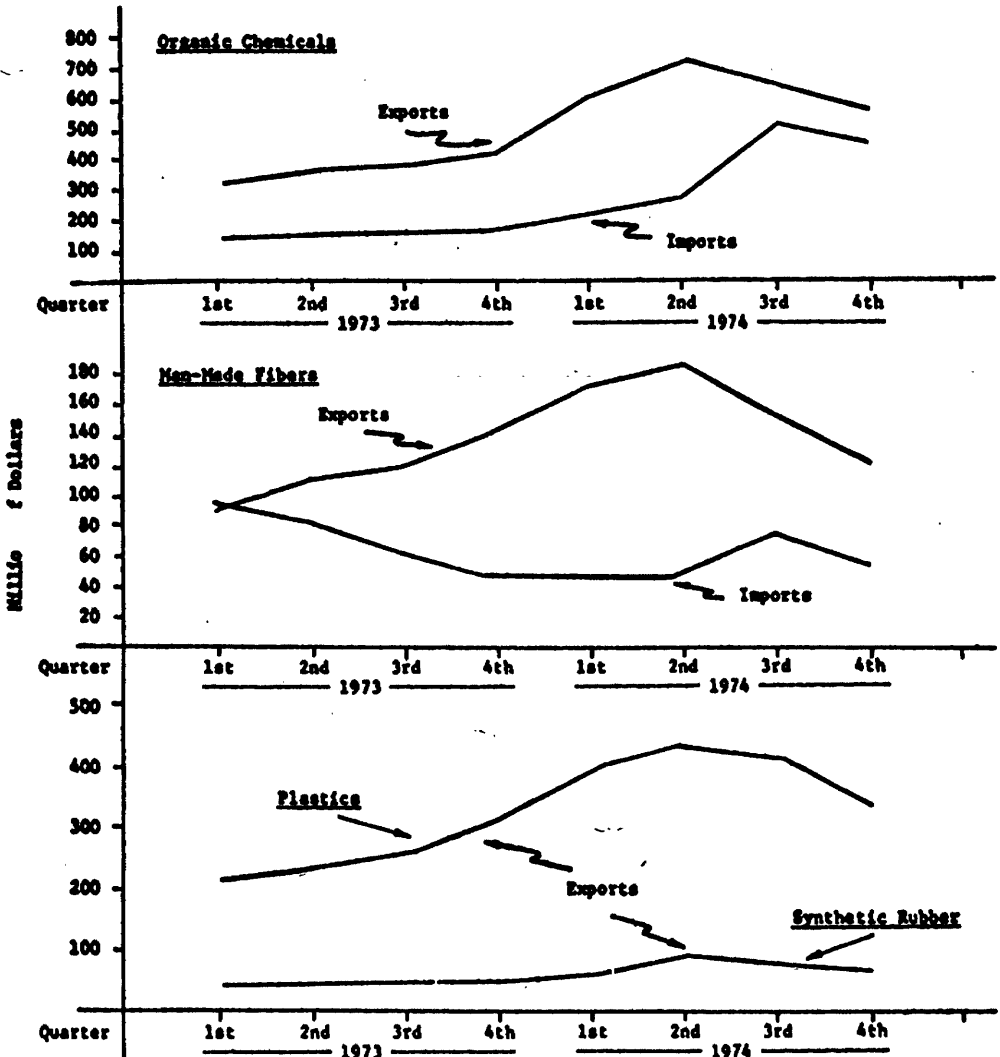
Chemicals provide big uplift for U.S. balance of trade



Source: U.S. Department of Commerce. See Chemical Week, Feb. 19, 1975, p. 11.

XIII

SELECTED PETROCHEMICAL EXPORTS/IMPORTS



Source: U.S. Department of Commerce, BT990/December 1974.

SUMMARY—IMPACT OF A 15 PERCENT DECLINE IN PRODUCTION OF ORGANIC CHEMICALS

Item	Loss in production value (millions)	Loss in employment (thousands)
A. Basic analysis:		
1. Organic chemicals.....	\$1,100	15
2. Primary markets for organic chemicals.....	3,910	71
3. Final market for organic chemicals.....	67,270	1,804
B. Special factors:		
4. Inflation (1970-73).....	+8,750	.....
5. Incomplete coverage (plastics, fibers, rubbers).....	+7,030	+175
6. Nonlinearity effects.....	-13,200	-330
7. Net effect.....	+2,580	-155
Adjusted total.....	1 69,850	1 1,735
C. Probable range of impact.....	(^a)	(^b)

¹ Sum of 3 and 7.

² Sum of 1, 2, 3, and 7.

^a \$65,000,000,000 to \$70,000,000,000.

^b 1,600,000 to 1,800,000.

Sources: 1970 annual survey of manufactures, 1963 input-output table, ADL input-output model.

IMPACT ANALYSIS—SUMMARY, 15 PERCENT DECLINE IN PRODUCTION OF ORGANIC CHEMICALS

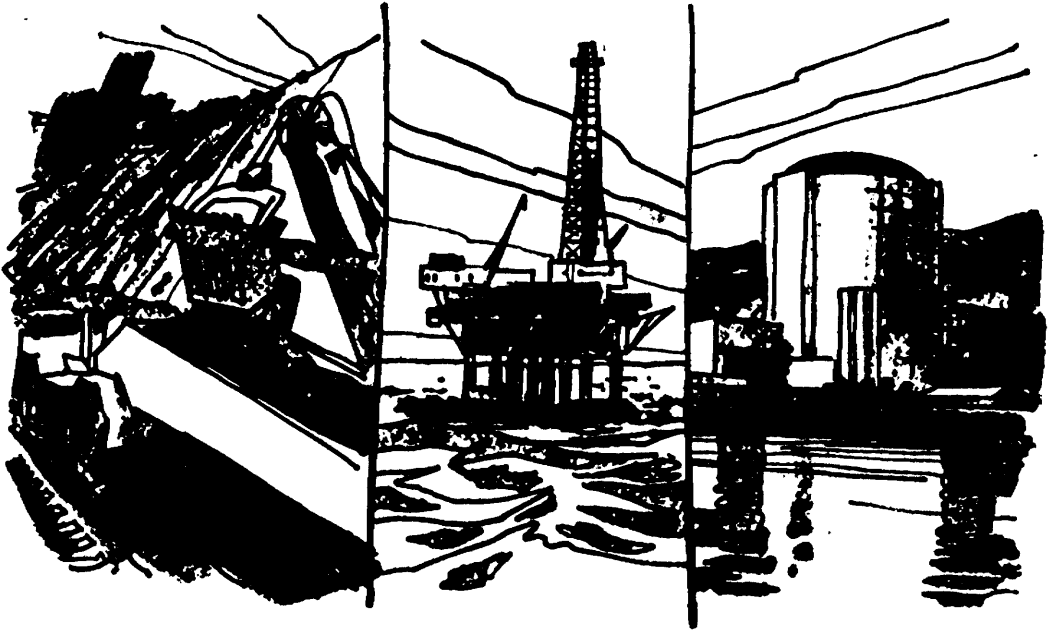
Market	Annual loss in production value (in millions)			Loss in employment (thousands)
	Primary market	Secondary market	Final market	
Plastics.....	\$645	.....	.....	11
Fabricated plastics.....	.....	\$1,050	.....	43
Final markets.....	.....	.....	\$28,250	700
Synthetic fibers.....	425	.....	.....	10
Fabrics and yarns.....	.....	2,675	.....	70
Final markets.....	.....	.....	4,380	110
Synthetic rubber.....	150	.....	.....	2
Tires.....	.....	680	.....	15
Final markets.....	.....	.....	580	15
Agricultural chemicals.....	130	.....	.....	2
Final markets.....	.....	.....	19,775	495
Medicinals and pharmaceuticals.....	980	.....	.....	18
Final markets.....	.....	.....	1,130	28
Soaps and detergents.....	450	.....	.....	5
Final markets.....	.....	.....	515	13
Paint.....	510	.....	.....	11
Final markets.....	.....	.....	6,000	150
Toilet preparations.....	520	.....	.....	8
Final markets.....	.....	.....	600	15
Cellulosic fibers.....	100	.....	.....	4
Final markets.....	.....	.....	6,030	150
Subtotal.....	3,910	.....	67,270	1,875
Organic chemicals.....	1,106	.....	.....	15
Total final market impact.....	.....	.....	67,270	1,890

Note: Every effort has been made to avoid double-counting by including the impact upon a particular final market only once in our estimates, although a final market may purchase materials from more than 1 sector. For example, plastics, fibers, and rubbers all are used in automobiles, but the impact on the auto industry has been included only once under the plastics sector.

Sources: "1970 Annual Survey of Manufactures," "1963 Input-Output Table," "ADL Input-Output Model."

PREFERRED USE OF RESOURCES

An Energy Management Philosophy



AN APPROACH TO ENERGY MANAGEMENT

The Petrochemical Energy Group (PEG), an organization of independent petrochemical companies, believes the U.S. energy crisis must be met by three different, but concurrent, approaches. These are 1) energy conservation, 2) expansion of all domestic energy resources, and 3) the preferred and best use of energy sources.

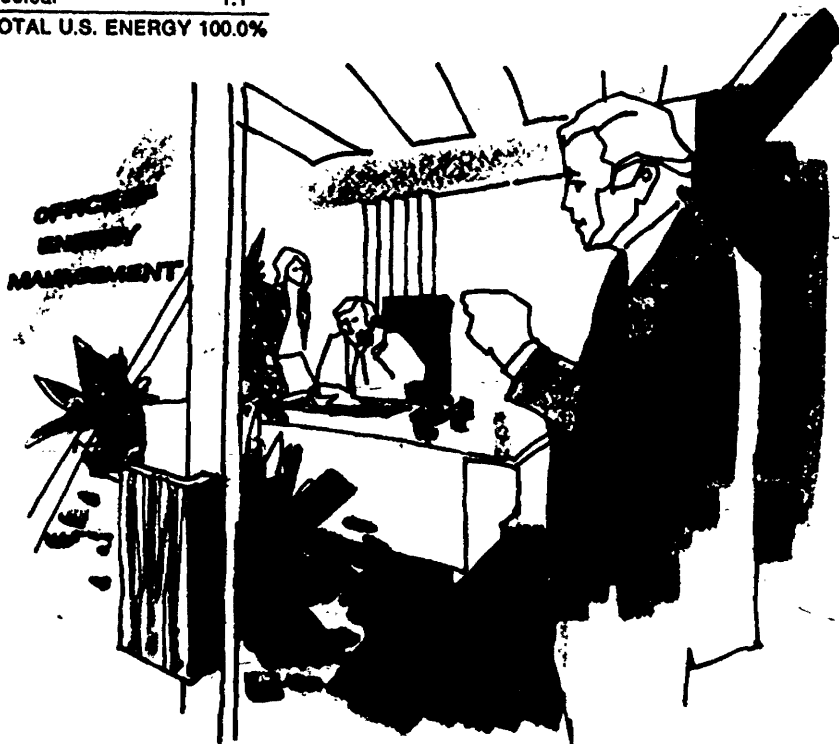
For the short term, there seems to be no way to avoid a shortage of petroleum and natural gas in the United States, without imports. This will impact upon many parts of the economy since these materials supply the bulk of our energy needs, according to 1973 U.S. Bureau of Mines data.

Petroleum	42.3%
Natural Gas	34.8
Coal	17.9
Hydropower	3.9
Nuclear	1.1

TOTAL U.S. ENERGY 100.0%

- The current decline in domestic oil and gas supplies means eventually that some products now based on these hydrocarbons will not be manufactured; some services will not be performed. In earlier times, this dilemma would have been resolved by pricing petroleum and natural gas much higher — forcing markets which could not afford the increased costs to turn to alternate materials. However, many kinds of socially-approved government restrictions on the free market will keep this market phenomenon from effectively occurring.

Thus, PEG is convinced the U.S. is facing a period of "energy management" for some years to come. How this management will be achieved is a continuing debate — which must be decided soon for the good of the nation.



An Approach to Energy Management (cont'd.)

Experience in such situations has shown that three mechanisms are possible. One is a tax against uses we wish to discourage. A second is a flat prohibition against the use of energy materials for certain purposes. A third is a restriction on the quantities that may be used — i.e., rationing.

A written discussion of the merits or demerits of each approach would fill a public library. However, it is possible to briefly outline a philosophy which should encompass all decisions — and that's the philosophy of "Preferred Use of Resources" outlined here.

Today the United States consumes its oil and gas in three principal markets.

Stationary Fuels	60%
Transportation Fuels	33
Raw Materials	7
TOTAL	100%

"Stationary fuels" are those burned in fixed boilers or furnaces such as electrical generating plants, industrial power plants, commercial boilers and home heating. "Transportation fuels" are used in cars, trucks, planes, trains, steamships, etc. "Raw materials" re-

flect the amounts used to make petrochemicals (4% of total), asphalt (2%), lubricating oils, etc. From petrochemicals we derive synthetic rubber, man-made fibers, plastics, agricultural chemicals — in fact an almost endless list of products on which modern society depends.

Each of these three U. S. markets does have the possibility of converting some of its use to alternate materials, so we can stretch out our finite supply of petroleum and natural gas. Each option requires varying amounts of research, time and investment. Thus an understanding of the factors involved is critical in the era of energy management, if good decisions are to be made. For instance:

1. Does the technology for substitution exist? How long will it take to develop technology?
2. What substitute resource is available? How long will it last?
3. Is the change economically feasible? Politically feasible?
4. What will be the impact on the economy? Does it affect a discretionary or critical part of our lives?

STATIONARY FUELS

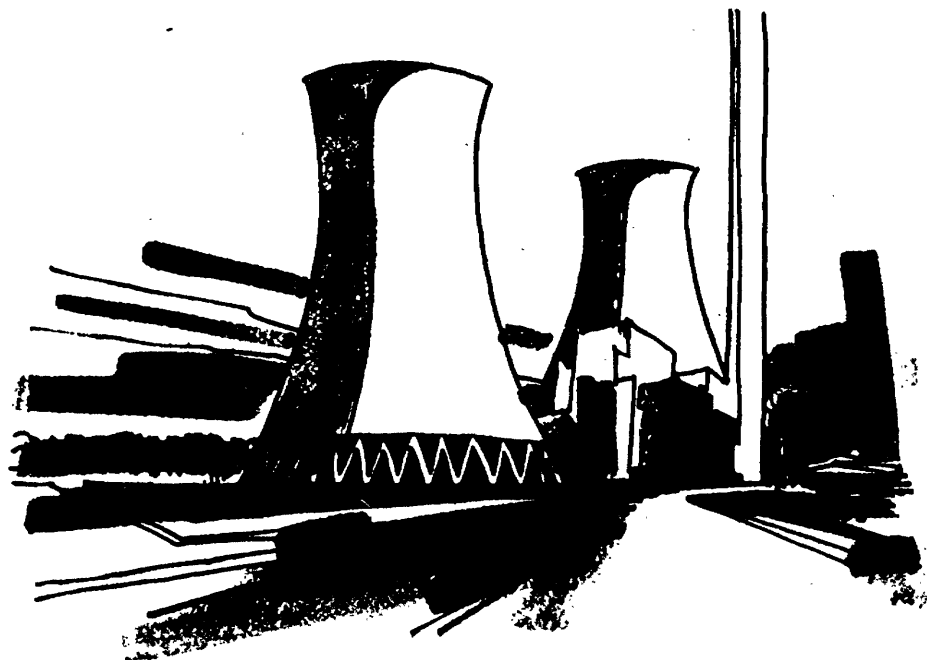
Fuels used to manufacture stationary power or heat have one common requirement — and that is the amount of British Thermal Units (BTUs) of energy available. Steam generated from oil or gas is identical to steam generated from coal or nuclear power. Around 97 per cent of our natural gas goes into stationary fuels. Approximately 37 per cent of each barrel of petroleum is similarly burned.

The largest stationary fuel market is general industry. Some 40 per cent of the oil and gas consumed in boilers or furnaces provides power to drive pumps, compressors and turbines — and the heat to convert natural resources into end products. The largest industrial consumers of energy are agriculture and food processing, aluminum, chemicals, paper, petroleum refining and steel.

Home furnaces and commercial boilers are the next largest market, taking 38 per cent of the oil and gas burned as stationary fuel. Space heating is a prime end-use.

Electrical generation, at 22 per cent of use, is also a large market. While hydropower today provides about one-sixth of our electricity, its growth is limited due to a lack of suitable sites for hydroelectric plants. Nuclear plants currently make only a minor part of our electric power. Thus oil and gas have provided 38 per cent of our electric generating capacity, almost equal to coal usage.

The nation has a number of alternates, readily at hand, to generate stationary power without the use of scarce petroleum and gas. Two im-



Stationary Fuels (cont'd.)

diate options, insofar as technology is concerned, are coal and nuclear energy.

In their 1975 energy programs, the U.S. Administration and Congress have called for all electrical power stations on oil or gas to shift to coal. No new technology is required since coal has been a major route to electricity for generations and currently provides 42 per cent of our electricity. Further technical work on air pollution controls will be needed to improve reliability and reduce the extensive capital now required, if regulations stay the same.

The second option for electricity is nuclear generation. Today the U.S. has some 52 licensed commercial atomic energy plants. Another 184 atomic plants are being built or are on order for completion by 1985. Although progress has been slow, government officials predict that nuclear power could provide 60 per cent of our electrical generating capacity by the year 2000, compared to 5 per cent today.

Industrial boilers also have an option to convert to coal, although the smaller size of these boilers generally presents less favorable economics.

In homes and commercial businesses, many future facilities may use electricity for heating and cooling as the cost and availability of other sources of energy change.

Admittedly some form of synthetic gas or oil will be needed in the future, particularly for existing home/commercial furnaces and for critical process use in some industries. The manufacture of gas and oil from coal promises an alternate here.

The production of high-BTU, pipeline gas from coal is now under active study in more than a dozen U.S. programs, both governmental and private. Several commercial-size plants are being proposed. The basic process for coal gasification has been used since the 1930s in many parts of the world to manufacture low-BTU "town gas," which has industrial potential. Since many U.S. gas burners are geared to a higher energy content, current work is concentrated on engineering improvement of a methanation phase to enhance BTUs.

The manufacture of synthetic oil from coal is less developed. Only three to four pilot projects are currently underway. Increasing the amount of oil obtained from each ton of coal is a major challenge.

Also distant, but promising, are other energy options for stationary power. Several cities are currently burning municipal trash to generate electricity. A break-through in the storage of solar energy could provide a new source of power for homes and buildings.

When all these alternates are considered, it is obvious that stationary power use has the most promising and immediate substitutes for petroleum or natural gas. Very little new technology is required to make significant progress. However, it will take three to eight years and considerable investment.

TRANSPORTATION FUELS

Practically all of the nation's transportation fuels are currently derived from petroleum. Natural gas, except for a small use of liquified petroleum gases such as propane and butane, plays no role. Over half of each barrel of oil goes into transportation markets.

Gasoline	39.3%
Diesel Fuels	7.1
Aviation Fuels	6.4
PORTION OF OIL	52.6%

The automobile, of course, is our major gasoline consumer. Diesel fuels are heavily used for trains, ships,

trucks and other bulk transportation. The jet aircraft is the largest consumer of aviation fuels.

The technical requirements for transportation fuels are more sophisticated than fuel for stationary uses. To begin with, except for electricity in rail systems, a transportation energy source must travel with the vehicle it powers.

In an internal combustion engine, critical fuel requirements include a suitable vapor pressure and ignition temperature. Octane needs will vary according to the engine. Gasolines from different refineries can provide the same engine performance. But no



Transportation Fuels (cont'd.)

two gasolines will be chemically identical since precise molecular composition is not required. Thus a good many hydrocarbons, other than petroleum, can technically be made into transportation fuels.

Coal is one such hydrocarbon source. Coal liquefaction may provide a new source of synthetic oil. Presumably, such oil would be further processed in conventional refineries to make gasolines and diesel fuels. Pilot plant production has already provided small amounts of fuels which were successfully burned in U.S. Navy vessels.

Still another possibility from coal is the use of alcohols for automobile fuel. Early in this century, ethyl alcohol was seriously considered as a motor fuel. During World War II, Germany ran much of its transportation on alcohols and oxygenated hydrocarbons made from coal.

Consideration is being given today to the use of methanol made from coal, in lieu of gasoline. Methanol is a viable engine fuel; in fact it powers many high-compression racing cars. However, methanol contains only about half the energy of gasoline, so larger fuel tanks would be needed for the same driving range. Thus government-

sponsored research has begun on the economics of converting methanol to a better motor fuel.

The technology for manufacturing methanol from natural gas has been in commercial use for many years. Other more unusual avenues to methanol are also being explored—since it is a simple chemical compound derived from carbon monoxide and hydrogen. The State of Maine is hoping to build a methanol plant that will use wood from five million acres of diseased spruce trees. West Virginia has a pilot project to make methanol from urban trash, as does Seattle, Wash.

Beyond the fuels discussed, another major option for transportation energy is greater use of electricity generated from nuclear or coal-fired plants.

Transportable electrical energy requires the use of batteries. The technology to build electric drives for vehicles is highly developed, but new high-energy batteries are needed for a widespread use of electric cars. Currently such vehicles have a driving limitation of up to 100 miles at 50

miles per hour. Acceleration is not suitable for high-speed freeways.

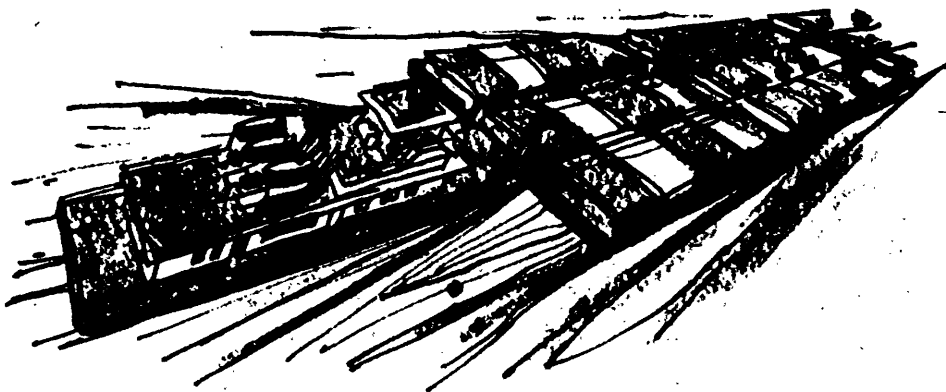
But even with these limitations, electric vehicles are growing in commercial use as delivery vans, buses, mail trucks and refuse trucks. A pilot test by the U.S. Postal Service employs 350 quarter-ton vans. Part of the New York City bus system is now battery-driven. In the United Kingdom, where petroleum has always been scarce, there are now 70,000 registered electric vehicles used for short-haul delivery. The development of new sodium-sulfur batteries, expected in the 1980s, would permit use of electric vehicles on metropolitan freeways.

The basic energy source for these vehicles can be provided, in a large part, by existing electric generating plants. A Chicago utility estimates that, even with present capacity, it could recharge about 500,000 electric vehicles at night — the period when the least electricity is demanded.

Electricity is also a transportation option for the nation's railroads. Tech-

nology is no barrier. The first U.S. electrical railroad dates back to 1888. More properly called "electromotives," such engines and their economics are used in the Northeast and are being further evaluated today in Utah and Wyoming by a major railroad. Power is supplied from overhead electrical lines on the railroad right-of-way. The Federal Railroad Administration is recommending electrification of 20,000 miles of track which handles 50 per cent of the nation's rail traffic.

In summary, reducing the use of petroleum in transportation is quite feasible. Considerable technology exists now for the use of electricity and fuels such as methanol. However, economic considerations are another matter. Development time and massive capital will be required. Nevertheless, these transportation options could attain broad commercial use by 1990 if we make choices soon on the preferred energy for this market.



PETROCHEMICAL RAW MATERIALS

Few people realize how petrochemicals affect every part of our lives. Petrochemical derivatives such as plastics, synthetic rubber, man-made fibers, agricultural chemicals and pharmaceuticals play a vital role in meeting our need for food, clothing, shelter and health. (For further details, see the PEG booklet "The Hidden Part of the Energy Crisis: Man-Made Materials.")

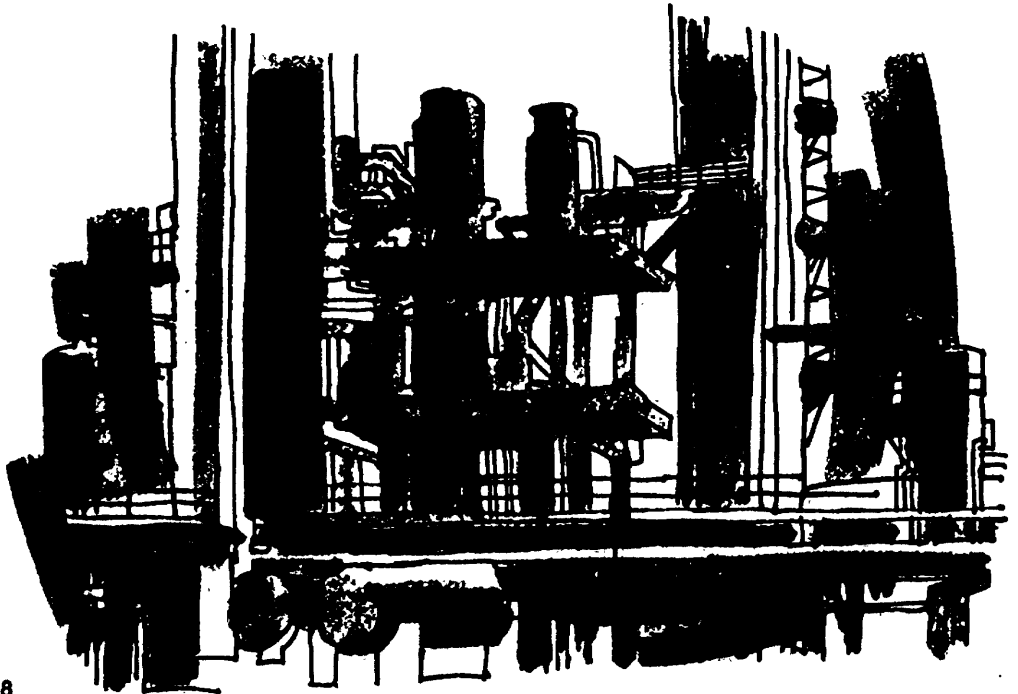
Although the petrochemical industry is a large user of petroleum and natural gas as fuels, it does not expect consideration different from any other industry. In fact, the industry is a leader in fuel conservation.

Raw materials, or feedstocks, are another matter. The industry converts specific raw materials into specific products. More than 70 per cent of our petrochemicals are completely dependent on the molecular structures

found in oil and natural gas liquids. The remainder of our petrochemicals are currently derived from natural gas or coal.

To further explain, chemicals are divided into two major areas: inorganics and organics. Inorganic chemicals do not generally contain hydrocarbon molecules. Thus they are not involved in this particular raw material problem. The one exception is ammonia, an inorganic which is manufactured with hydrogen derived from natural gas.

Organic chemicals contain carbon and hydrogen and are almost entirely based on natural gas or petroleum. Organics may be broadly sub-classified into three chemical groupings: methane derivatives, (20% of total), aromatic chemicals (25%), and aliphatic chemicals (55%).



Methane derivatives are now completely produced from natural gas. Chemicals in this category include ammonia, methanol, and other vital products. The technology does exist to make most methane chemicals from other materials. A "synthesis gas" of carbon monoxide and hydrogen can be manufactured from petroleum products like naphtha or residual oil. Synthesis gas can also be produced from coal, although development time, capital and proper scale is needed to modernize the economics of coal gasification.

These new routes do offer a technical alternate for methane chemicals. However, they will not relieve much of the energy crisis since ammonia, methanol and other methane derivatives account for only some 3 per cent of the natural gas consumed in the U.S.

Of more importance, insofar as coal is concerned, is the economics of conversion. The U.S. has some 90 ammonia and 12 methanol plants. Although their combined production of chemicals is large, the consumption of natural gas at any one plant is small in comparison to utilities. This small size would not justify a unilateral switch to the use of synthesis gas from coal. These plants would be forced to shut down. The only alternate would be some joint effort with a utility and its boilers, an approach new to both industries.

Further, the 102 plants which make these methane derivatives consume

only 600 billion cubic feet of natural gas per year. It takes the same amount of gas to run just 16 utility boilers of a 500-megawatt size. A brief review of construction costs indicates it will require almost five times the capital to replace the chemical plants as it would take to replace the 16 boilers. This is not a wise use of the nation's investment resources.

The majority of our aromatic chemicals — benzene, toluene and xylenes — are based on petroleum. A modest amount, around 7 per cent, comes from coal as by-products in the coking of coal. This production cannot be expanded at will, however, since it depends on the use of coke in steel manufacturing. Additionally, steel mills may elect to use their coke by-products as fuel.

Processes to provide aromatic feedstocks directly from coal are in their infancy. Coal is not a simple substance, but a highly complex material. Besides its hydrocarbon make-up, coal also contains varying amounts of up to 36 other elements. Unfortunately coal is deficient in hydrogen, as compared to petroleum and natural gas. And hydrogen is a vital component of most petrochemicals.

Technology for the production of aliphatic chemicals from coal is similarly undeveloped. Currently these products, such as ethylene, propylene

Petrochemical Raw Materials (cont'd.)

and paraffins, are made entirely from petroleum or liquids (LPGs) recovered from natural gas. The supply of LPGs is predicted to remain static in conjunction with the natural gas shortage.

As noted earlier in transportation, synthetic oil from coal is being studied in several small pilot plants. To date, fuel costs are not commercial. Detailed study on the manufacture of chemicals from such fuels cannot begin until one or another process proves feasible — since the molecular structure of the fuels can vary greatly. Liquid fuels and chemicals from coal are being produced in a full-scale plant in South Africa. However, this process is used due to political and geographic necessity and would be far from economic elsewhere.

Of more immediate promise for new sources of aromatics and aliphatics is a joint industry/government study on the production of "clean coke" for steel manufacturing. Perfection of a

technique to trap and separate the components emitted from a coking furnace could eventually provide significant amounts of petrochemicals.

The petrochemical industry thus faces a tremendous challenge for new sources of raw materials. Coal gasification offers technical alternates for methane derivatives, but totally new approaches in investment and planning are required to overcome economic roadblocks. It will take years of development in coal liquefaction, plus additional extensive research into chemical separation or clean coke processing, before aromatic and aliphatic alternates will be available. If research is greatly accelerated, coal could be a major source for these two chemical groups around the year 2000.

OTHER THOUGHTS ON PETROCHEMICALS

No discussion of petrochemical raw materials would be complete without answering two perennial questions:

1. Why can't we conserve these synthetics and go back to natural products?
2. Why are petrochemicals so important to the economy?

The first question can be answered by looking at four major markets for petrochemicals — rubber, fibers, agricultural chemicals and plastics.

Almost 80 per cent of the nation's rubber is synthetic. Additional natural rubber would have to come from the Far East, exposing the U.S. to future embargo of another critical material produced in other nations. Additionally, the land required to produce 2.5 million long tons of natural rubber, to replace synthetic rubber now consumed, can be better used to raise food for minimum life support for three million people.

Petrochemical-based fibers account for almost half of the fibers we need. A complete return to natural fibers would require another 16 million acres of cotton — an area the size of South Carolina. And, again, the acreage would have to be taken away from food production.

Agricultural chemicals, such as fertilizers and pesticides, have been the key to increased food production in the U.S. Efforts to solve the world's food shortage would be strangled if we attempted a return to natural ferti-

lizers like fish meal or animal waste.

Plastics play a vital role in our communication, transportation and housing. Natural materials which might replace these products are increasingly scarce. There is a growing shortage of hardwoods, zinc and other materials. Further, there is no known substitute for many high-performance plastics used in electronics, etc. Over 75 per cent of our plastic packaging, the most frequently criticized use, goes for packaging of basic foods. Thanks to this protective packaging, the waste experienced in getting U.S. food from the farm to the consumer is 50 to 68 per cent less than in other countries.

The economic impact of petrochemicals is both worldwide and domestic.

Petrochemicals compete in world markets. One benefit to the U.S. economy has been the consistently favorable balance of trade achieved by these products — estimated to be around \$3.7 billion in 1974. (See update on PEG booklet "Trade Trends in Petrochemicals.")

Man-made materials based on petrochemicals also pervade every segment of the U.S. economy. Merely a 15 per cent reduction in petrochemical supplies could result in a loss of 1.8 million jobs in consuming industries — and a drop in production value of \$70 billion annually. (See A. D. Little report "Impact Analysis — U.S. Petrochemical Industry.")



PREFERRED USE OF HYDROCARBONS

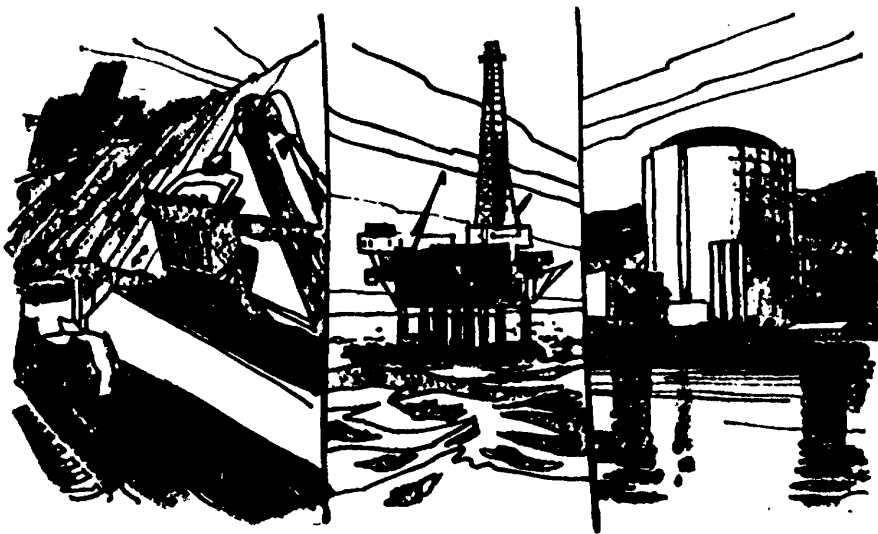
How finite are our hydrocarbon resources? How long will they last? It depends on how we use them.

The world's available supply of petroleum and natural gas will be exhausted within 50 years at today's growing rate of consumption. The U.S. supply is even smaller. Coal and oil shale, assuming we are willing to mine them, and nuclear power could extend the era of fossil fuels another 500 years or so. But even this is a short time as world history is reckoned.

Energy management requires that we identify the best possible use for each hydrocarbon resource. The various options covered in this booklet lead PEG to three conclusions:

1. A rapid shift of stationary fuels from oil and gas to other forms of energy can be achieved in the immediate future.
2. Transportation fuels also have options. A major part of our transportation can be converted from petroleum by 1990.
3. The small, but important, petrochemical raw materials market can have some alternates to petroleum or natural gas early in the next century.

These facts provide a philosophy of energy management which can and should be applied to all the nation's energy decisions. The mechanics for achieving each alternate may vary. But the real possibilities exist. We can convert most of the large stationary fuel market to other forms of energy. This will reserve petroleum and natural gas for critical use in transportation and petrochemicals. It will also provide the necessary time to develop new sources for these markets.



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The CHAIRMAN. I have discovered that it will not be possible for me to be here until 2:30. So, I will recess this meeting now until 2:30 this afternoon at which time we will then hear Admiral Zumwalt and the others.

[Whereupon, at 12:30 p.m., the committee recessed, to reconvene at 2:30 p.m., the same day.]

AFTERNOON SESSION

The CHAIRMAN. Admiral E. R. Zumwalt, Jr., president of Americans for Energy Independence. We are very pleased to have you, Admiral Zumwalt.

STATEMENT OF ADMIRAL E. R. ZUMWALT, JR., RETIRED, PRESIDENT, AMERICANS FOR ENERGY INDEPENDENCE

Admiral ZUMWALT. Mr. Chairman, Senator Byrd, it is a great pleasure to be back in front of this distinguished body. As president of Americans for Energy Independence, a new organization whose objective is to insure that all Americans are aware of the critical nature of the energy crisis we face, and become informed about the realistic options or alternatives available to them, I am pleased to respond to your invitation to come before your committee for hearings on H.R. 6860.

With regard to that bill, our organization has the following views:

No. 1, the dependence of the United States on foreign oil, notwithstanding all measures taken to date, has increased at a rate of 3.7 percent from January 1970 to January 1975, and is now approaching an intolerable 40 percent of total demand. This increasing dependence comes at a time when, for a number of reasons, our foreign policy and military might cannot be used to dictate foreign oil prices or foreign oil supply.

No. 2, H.R. 6860 as amended by the House does not, in our judgment, provide adequately for the United States to be able to begin to deal with these developments. We note that the summary of the report on H.R. 6860 by the House Committee on Ways and Means, dated May 15, 1975, recites that "the program prepared by the committee is designed not to interfere with recovery from recession, but instead, by phasing the conservation efforts in gradually over a period of time, to provide an opportunity for the various segments of our economy to make the necessary adjustments to the conservation program, knowing that more restrictive conservation efforts will be enforced in later years."

It is our judgment that the bill in its present form provides relatively insignificant restrictions in the expenditure of energy and deals inadequately, indeed almost not at all, with the problem of increasing our supply.

No. 3, Americans for Energy Independence believes that notwithstanding the conflicting pressures, Congress should place maximum emphasis on conservation of energy. Conservation legislation should be aimed at reducing energy consumption at the consumer level rather than at the manufacturing level, which carries a substantial likelihood of increased unemployment.

Conservation ought to be pursued by noninflationary measures as long as the possibility of renewed inflation exists; recovery from the recession and conservation should be compatible.

Conservation should be pursued by incentives to individuals and business rather than by rationing or some other form of dictation or regimentation. The use of tax incentives to encourage installation of energy-saving materials, equipment or processes should be seriously considered.

But, stopping short of serious economic disruption, Congress must develop a comprehensive, forceful conservation program to lessen our dependence on foreign oil.

No. 4, Americans for Energy Independence believes that Congress should consider immediate steps to increase our domestic energy supplies. For the present, we must consider possible full use of the sources of energy which we have in abundance—coal and uranium. Americans for Energy Independence plans to study the conflicting interests in such usage in an effort to reach a workable program for tapping these energy sources.

No. 5, we recommend that the following programs receive the highest priority: A. Congress should provide tax incentives, price support, or other measures designed to make it feasible and desirable for American business immediately to begin to make major investments in plants for liquefaction of coal in order to increase the domestic energy supply from that plentiful source.

Tax incentives or market price support arrangements seem necessary to attract free enterprise to this field, not only to offset the present differential between the price of overseas oil and the higher price of liquified coal, but also to provide domestic assurances against possible OPEC political action to reduce the price of their oil in an effort to destroy the capital investment of companies which enter the coal liquefaction business in the United States.

B. Congress should rapidly endorse an all out effort of utilizing uranium as an energy source. Congress should oversee the resolution of issues which tend to delay use of nuclear power. The delays in completion of over half of the nuclear plants under construction, or planned, amount to a public scandal and national jeopardy. Immediate action should be taken by Congress to help utilities get these plants back on schedule, including raising the necessary capital. The interests of energy users and conservationists can, we feel, be harmonized in resolving such problems.

C. Congress should support the immediate programs leading to commercial demonstration of the liquid metal fast breeder reactor. We support intensive research on advanced sources of energy such as geothermal energy, solar energy, and nuclear fusion.

D. Congress should move to stimulate the employment of secondary and tertiary methods of recovery to our existing oil fields and the development of additional domestic supplies of oil and natural gas such as shale oil, and offshore oil and gas deposits.

No. 6, this country in 1961 galvanized itself in a massive space effort and landed man on the moon in response to the Soviet Union's launch into orbit of a small metal object about the size of a basketball. Today, we face a much more serious challenge caused by our increasing dependence on foreign oil. We must once again galvanize our Nation into

a massive effort to free ourselves from being held hostage to the political and economic whims of the OPEC nations.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Admiral Zumwalt. You made a good statement.

I wish to inquire a little bit more about the Americans for Energy Independence. Would you tell me a little bit more about the organization, who some of the members are, and how it is financed?

Admiral ZUMWALT. Yes, sir. The organization came into being, I suppose, in an informal way about 3 months ago, when numbers of those of us who had been speaking up on the energy problem came together and agreed to form a board which was formally constituted the first week in June, about 5 weeks ago, under the chairmanship of Dr. Hans Bethe, the Nobel Prize-winning physicist, and under the vice-chairmanship of Mr. Lane Kirkland of AFL-CIO and Mr. Robert Nathan, the noted economist who has been before you.

And we have a group of some 20 to 22 board members at the present time, which I would be glad to provide to you for the record, comprising a spectrum of people from academia, business, labor. We are trying to make ourselves as broadly based as we can with regard to representing all of those interest groups representative of American life.

The CHAIRMAN. I think I agree with your statement, and we had some very interesting testimony from Mr. Nathan, undertaking to help us arrive at what the cost of producing new oil would be. That statement has received a lot of attention, by the way. I would be the first to agree that we must achieve energy independence. I of course was advocating that we should never be anything except independent for a great number of years. I just wish that I could have generated more support from those of you who are defense-related, such as yourself.

Back during those days, when some of us—and in considerable measure, because we were interested in the producers—were trying to contend that it would be a very grave mistake that the Nation would regret if we let ourselves become dependent upon the whim, caprice or volatile emotions of those who govern some of these foreign nations. I believe we have learned that to our regret. But unfortunately, Congress is very slow about coming to terms with the President in a program that will do the kind of thing you are advocating—namely, restoring independence.

Admiral ZUMWALT. Yes, Mr. Chairman. I recall a number of years ago conversing with you on the importance of this area, and in a posture statement I made in 1972, before the Armed Services Committee, I stressed the critical nature of this crisis. Whereupon, one of the members of the other body promptly issued a news release suggesting that I had invented a new threat.

The CHAIRMAN. There have been some people who felt that you could always obtain this crude oil. I regret to say that back in the days when some of us were contending that we ought to try to maintain more capacity in the domestic industry, there were people—well-intentioned, I am sure—over in the Pentagon who said, as far as defense is concerned, there was no problem. If the nations find themselves at war, they just take from civilians whatever might be needed to fight the war, and we find out it is not that simple.

Admiral ZUMWALT. Yes, sir, we certainly have.

The CHAIRMAN. Thank you very much. Senator Byrd?

Senator BYRD. Thank you very much, Mr. Chairman. Welcome, Admiral.

Admiral ZUMWALT. Thank you, Senator.

Senator BYRD. We have been accustomed to seeing one another in a different committee.

Admiral ZUMWALT. Yes, sir.

Senator BYRD. I might say we miss seeing you at the Armed Services Committee.

Your statement is an interesting one, and I agree with your statement, on page 2, that the pending legislation does very little toward increasing the Nation's energy supply. Now, on that same page, you say, "Conservation legislation should be aimed at reducing energy consumption at the consumer level, rather than the manufacturing level."

Now, could you elaborate on that a bit?

Admiral ZUMWALT. Yes, sir. We have in mind here that it is important to concentrate on doing those kinds of things that will not interfere with the ability of our free enterprise system to maintain the maximum number of jobs for the working man, but rather than the primary area of saving should be in the field of the insulation of homes, the improved efficiency of labor-saving devices of all kinds, the kinds of things that can be done without cutting into job-generating industry.

Senator BYRD. Now, 50 percent of the use of petroleum deals with gasoline. How would you propose to reduce the consumer consumption there—by price increases, or by rationing, or how?

Admiral ZUMWALT. It is my view, Senator Byrd, that the important thing to be aware of is the need, through any combination of incentives, to drive our system toward greater economy in the consumption of gasoline. The proposals to date, as we understand them in Americans for Energy Independence, permit an averaging for the individual automobile companies of the reductions, and will permit the continued production of the gas guzzlers to some level.

We think it would be very important to seek, as has been suggested by your chairman here earlier today, to drive the entire automobile industry to a much greater efficiency, lower consumption of gasoline, by a proper combination of incentives. Our organization believes that we should leave to the Congress the specific formulation of these, but rather to content ourselves with an expression of the general direction in which it is necessary to go.

Senator BYRD. Do you favor sharp increases in prices or taxes? That would curb consumption.

Admiral ZUMWALT. I think, Senator Byrd, that with regard to the specifics as to how one goes about it, we would be wiser to leave that to this august body. I would point out that, without adding a rate that the country simply cannot stand to the inflationary impact, it is important to have a combination of incentives that drive our automobile industry in the direction of much lower consuming, much higher efficiency engines for their cars.

Senator BYRD. And then, on page 3, you say conservation should be pursued by providing incentives to individuals and business. Now, could you give some detail on that?

Admiral ZUMWALT. Yes, sir, it is our view that it is much better and much more efficient, within our economic system, that there be specific incentives for individuals and businesses to shoot toward, rather than set up the infernal, complex kinds of rationing systems which have been tried, and have been found to be very inefficient in the past.

So that, for example, a homeowner has an incentive to try to insulate his home; so that a business has an incentive to try to produce in the least energy-guzzling fashion—incentives which—

Senator BYRD. You would do that with the Tax Code?

Admiral ZUMWALT. Tax incentives are certainly a significant one of the tools available, yes, sir.

Senator BYRD. You should rule out rationing as a means of reducing consumption?

Admiral ZUMWALT. Yes, sir, my judgment is, and our organization's judgment, that that would be a very inefficient way.

Senator BYRD. So the other way, so far as gasoline is concerned, would be an increase in price?

Admiral ZUMWALT. No, sir, I do not believe that is the only route.

Senator BYRD. Do you rule out an increase in price as a possibility?

Admiral ZUMWALT. Well there, sir, there again—I think that is the kind of thing my organization would want to leave to your committee. Our view is—

Senator BYRD. You did not leave the question of rationing to the committee.

Admiral ZUMWALT. Yes, sir, that is correct. We feel we know enough about that to know it does not work. I think our intuition is that incentive systems are better than just price increase systems—which are of course a form of incentive—but that the tax route is probably the superior way to go.

Senator BYRD. Now, you say Congress should provide tax incentives and price supports. What do you mean by price supports?

Admiral ZUMWALT. Are you still on page 3, sir?

Senator BYRD. Page 3, the bottom of page 3.

Admiral ZUMWALT. Yes, sir, this has to do with our concern that there is nothing in the bill that really gets the American system cranking in a major, massive effort to try to deal with the real end of the problem, namely, the incoming huge imports from overseas; and that under the free enterprise system, unless sufficient safeguards are provided for a major new business, which will have huge capital investments, unless sufficient safeguards are provided to protect those investments against arbitrary reductions by OPEC nations seeking to drive those capital investments out of business, we will not be able to crank up a race-to-the-moon-type effort to get ourselves energy independent.

We believe that the process of coal liquefaction is one which your more expert witnesses have testified before the committee is clearly within the state of the art, and what is needed is the incentive for business to go in a major way into the investments necessary to start generating.

Senator BYRD. Yes; but I am not clear what you mean when you say Congress should provide price supports. What do you mean by price supports?

Admiral ZUMWALT. We list tax incentives, price supports, or other measures as just examples of the kinds of things that need to be done under our basic objective, which is to provide protection for American industry to get started in the higher risk area of coal liquefaction, as one dramatic commitment on the part of the Congress to getting started on a job that, in this bill, does not appear to be getting started; namely—

Senator BYRD. I agree with that. I am just not clear as to what you mean that Congress should provide price supports.

Admiral ZUMWALT. An example of what we mean under that particular, for instance would be to insure that the price differential between any arbitrarily selected price on the part of OPEC nations desiring to drive this new business out of business, and the cost that it takes U.S. industry to bring in a barrel of liquified coal, should be in some way protected. It may be through a contract to buy a certain number of barrels per year. It could be tax incentives. It could be guaranteeing the differential for a period of years through the first phase of investment, or in some other way incentives designed to protect the free enterprise system in getting started in a critical race to get ourselves less dependent on the Mideast oil barons.

Senator BYRD. My time has expired, but just one further question, then I will reserve the rest of my questions.

In that connection, with regard to the \$5.25 price for old oil, what would be your view as to what should be done in that regard?

Admiral ZUMWALT. Senator Byrd, my view and the organization's view is that we have got to permit the free enterprise system to work. If the facts are as we perceive them to be, that the oil industries are not making adequate investments in this country to exploit the remaining oil and natural gas in this country, but rather are making the lion's share of their investments overseas, then it seems to us that something needs to be done to readjust that.

Now, whether or not that then suggests raising the price of old oil or of holding the price of old oil and dealing with their economic problems, or the price of new oil, or whether it involves some of these other kinds of incentives, again is a matter that our organization, in its 5 weeks of life, has not yet come to a position on.

Senator BYRD. Would you recommend taking controls off of old oil, or leaving them on the old oil?

Admiral ZUMWALT. No, sir, at this point, 5 weeks into our life, we would leave that to the wisdom of the Congress, but would underline the need for the oil industries to be able to make sufficient profit that they will make the investments in this country, rather than being driven to make them elsewhere, overseas.

Senator BYRD. Thank you.

Admiral ZUMWALT. Yes, sir.

Senator BYRD. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Ribicoff?

Senator RIBICOFF. No; thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Admiral Zumwalt.

Senator BYRD. I am sorry. I have more questions, but I was listening to the bell. I did not want to take your time or Senator Ribicoff's time.

The CHAIRMAN. All right. The ball is back in your court then.

Senator BYRD. Admiral, on page 4, that first paragraph, am I correct in assuming that the statement to endorse Secretary Kissinger's floor price plan?

Admiral ZUMWALT. No, sir, we, again, are trying to set a general principle, namely, that there has got to be a system, and we suggest a couple here, for protecting American business as it goes into the coal liquefaction business, in order that their capital will be protected against the Mideast oil barons who would undoubtedly seek to drive them out of business.

It is our view that if we can begin to bring in this competitive source the economic system alone will tend to drive oil prices in the Middle East down. And their avariciousness, their desire to wipe out our competitive system over here is also likely to drive them into lower prices. And, therefore, although a lower price level is a good trend, we want to avoid what they would have in mind in doing it, namely, wiping us out, and to protect the lead industries which will be giving us that freedom from the economic banditry of the OPEC nations.

Senator BYRD. Is that not essentially Secretary Kissinger's proposal?

Admiral ZUMWALT. He has a specific proposal, which could be one of the things that might fall under this general principle, sir. We do not go at this point, 5 weeks into our life, to the level of endorsing a specific proposal, such as his, and believe it is better to limit ourselves to the general principle and to the firm support of doing what it takes to get coal liquefaction started, as one dramatic example of something that is here now that the country can start to do while it is debating a lot of other things and doing the research and development in a lot of other fields.

Senator BYRD. But your statement says, "also to provide domestic assurances against possible OPEC political action to reduce the price of their oil in an effort to destroy the capital investment."

Now, how can we expect other nations to cooperate in that?

Admiral ZUMWALT. I do not think we can. As a matter of fact, Senator Byrd, I think we can count on the other nations to try to destroy any capital investments we make.

Senator BYRD. I would think so.

Admiral ZUMWALT. And, therefore, we feel we must provide, through tax incentives or through market price support arrangements, or some other device, such as a firm commitment to buy at a certain price a certain number of barrels, protection against that kind of economic banditry.

Senator BYRD. Now, on page 4, you say, "Immediate action should be taken by Congress to help utilities get their plants back on schedule, including raising the necessary capital."

Now, would you expand on that?

Admiral ZUMWALT. Yes, sir. We have at the present time something like 104 plants, fossil fuel and nuclear, that are either greatly delayed or not going forward at all because of a vast maze of regulatory problems, because of concern about whether or not there is adequate profit opportunity, the kinds of things that other witnesses have brought before this committee.

We believe that an all-out effort to cut through that Gordian knot and to resolve this problem is mandatory. As we see it, we have a

huge iceberg standing down on our ship of state, if I may be forgiven a nautical expression. And, in essence, people are scrambling around trying to place the deck chairs, rather than worrying about a major course change designed to avoid that iceberg.

Our urging is that we get cracking with the restoration of the opportunity for the utilities, in this case, the free enterprise system in general, to help the American society solve its problem and dodge that iceberg.

Senator BYRD. I agree with you that the ship of state, as you express it, is heading toward an iceberg.

Now, the question is, how do we handle that?

Now, you recommend in your statement that Congress help utilities get their plants back on schedule, including raising the necessary capital.

Now, how does Congress go about helping the utilities raise the necessary capital?

Admiral ZUMWALT. I think that one example, Senator Byrd, would be insuring that the long delays of nuclear regulatory bodies are in some way reduced, simplifying the procedure by which the necessary adjustments in rates of construction can be made. There is, as I have observed it around the country, a vast range—

Senator BYRD. Are you proposing that the Congress determine the utility rates in the 50 States?

Admiral ZUMWALT. No, sir. I am proposing that the Congress simplify the procedure by which utilities can arrange to get a proper judicious decision from the nuclear regulatory bodies.

Senator BYRD. But the regulatory bodies are State bodies.

Admiral ZUMWALT. Yes, sir, that is true; within individual States there are regulatory bodies. I am referring in this particular paragraph to the problems associated with the nuclear reactor end of the business, which has a body of Federal law associated with it that needs simplification to make the process work more briskly than it is working at the present time, and, therefore, to make it possible for the—

Senator BYRD. But the ratemaking, you do not propose to have the Congress get into the ratemakings?

Admiral ZUMWALT. No, sir.

Senator BYRD. That is done by the individual States.

Admiral ZUMWALT. Not the ratemaking which goes on at the State regulatory bodies. Here in this paragraph I am referring to the requirement for the Congress to help the utilities get their plants on the line so that we will avoid the delays that we are now seeing in the electrical industry.

Senator BYRD. That is primarily, I take it, then, through hastening the system of environmental impact statements?

Admiral ZUMWALT. Yes, sir; that is an example of the range of the kinds of things that need to be done.

Senator BYRD. I still am not clear on how you propose that Congress help raise the necessary capital.

Admiral ZUMWALT. At the present time, there are a number of reasons as a result of which the utilities are having difficulty with regard to raising capital. One is the sheer inability to get the decisions basically necessary to get their plants on the line.

Another has to do with whether or not they are making sufficient profit—and this certainly varies throughout the country; there are some that are doing very well and some that are doing very poorly—whether or not they are making sufficient profit to be able to raise the capital that is required.

We are in a situation which is national in its scope, a situation where the Nation is importing approaching 40 percent of its oil from overseas. It, therefore, is a national problem which needs assistance from the Congress in every area where the Federal regulations or the Federal law is a source of delay. And it is to that body of delay, or that body of difficulty with regard to the raising of capital that this paragraph is addressed.

Senator BYRD. The Wall Street Journal in its issue of July 15 asked this question, if we give this special tax break to the electric utilities then lots of other industries would demand equal treatment. How would you respond to that?

Admiral ZUMWALT. I would not in any sense want to put myself in the position of embracing across the board the need to provide that kind of assistance. In our home State of Virginia, for example, Vepco's problems are of another order. But we have got, I think, to concentrate on the national problem.

The order of problem that the Wall Street Journal has raised, in my judgment, has to do with the adjusting of the deck chairs rather than with the changing of the course to avoid the iceberg.

Senator BYRD. It is addressing itself to the question you raise. If a special tax break is given to the utilities, will other industries not demand equal treatment?

Admiral ZUMWALT. With energy being the Nation's No. 1 problem, I do not think that the consumer or the Congress needs to be excessively concerned about setting a precedent designed to deal with energy-related problems and to assume that that precedent has to be carried over into other elements of the business sector.

Senator BYRD. Admiral, how, as a matter of interest, how is this Organization of Americans for Energy Independence—how is it financed?

Admiral ZUMWALT. At the present time, it is financed by contributions from corporate memberships, all the way from labor on the one hand to business on the other. Our concept is that we will move into State organizations and have membership drives, because it is our view that this problem is a problem of the individual citizen and that over time ought to be sustained by individual memberships.

We have, we think, been very successful in providing support from a sufficiently wide range of interests that we are not beholden to any one interest group and can truly seek to represent the composite of the Nation.

Senator BYRD. But you are being financed at the present time by corporate funds?

Admiral ZUMWALT. Including labor, yes, sir.

Senator BYRD. Of course, labor is not a corporate organization. But you are being financed by—

Admiral ZUMWALT. We have some personal contributions; we have corporate contributions; we have labor contributions; a wide spectrum.

Senator BYRD. Is the bulk of the financing from corporate contributions?

Admiral ZUMWALT. I will have to provide that for the record, Senator. I honestly do not know the percentage.

Senator BYRD. If you would, it would be helpful.

Thank you.*

Senator BYRD. Thank you, Admiral.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Admiral.

Admiral ZUMWALT. Thank you.

The CHAIRMAN. All right.

Next, we will call, out of order, Mr. Charles H. Burkhardt. I believe Senator Ribicoff may have to leave soon, and I believe the Senator wanted to be here to hear Mr. Burkhardt's testimony. I believe Mr. Soule agreed with this shuffling of witnesses to accommodate the Senator.

Thank you very much.

Senator RIBICOFF. I want to thank you, Mr. Soule, gentlemen.

I would suggest, Mr. Chairman, I know these gentlemen and the organizations they represent. They have done an outstanding job in the entire New England area and the State of Connecticut. I have read their testimony very carefully, and in order to have time and make the record complete, my feeling is that more could be achieved by answers to some questions that I might put to them than listening to your statement that I have already read.

I wonder, Mr. Chairman, if I have your permission, if I have the permission of the witnesses—

Mr. SHEKETOFF. Fine, Mr. Ribicoff. The only thing I would like to suggest is, since you are well aware of the qualification of Mr. Burkhardt, that I defer the questions to him, in view of his expertise.

Senator RIBICOFF. Well, you are both experts; one is practical and one is theoretical. I have respect for both of you.

In your statement, you come out strongly against import quotas in any form.

Now, some argue that the House bill gives the President sufficient authority to increase the quota level and, therefore, we should not worry about its impact. Could you comment on this?

STATEMENT OF LEWIS SHEKETOFF, PRESIDENT, AUTOMATIC COMFORT, INC., HARTFORD, CONN., ACCOMPANIED BY CHARLES H. BURKHARDT, EXECUTIVE VICE PRESIDENT AND MANAGING DIRECTOR, NEW ENGLAND FUEL INSTITUTE

Mr. BURKHARDT. Yes, Senator Ribicoff. We have some strong feelings on that.

First of all, the limits that are given to the President to adjust the import levels are only 1 million to 2 million barrels a day. We feel this would be a very small and inadequate remedy if there was a problem in New England in relation to supply for an abnormally cold winter.

*See page 1002.

For instance, just during an ordinary summer day in New England we import 500,000 barrels a day of residual oil. During a cold day in winter, on No. 2 home heating oil, we will average during the first 3 weeks of January a consumption of 850,000 to 1 million barrels a day.

The authority given to the President is not flexible enough to cover emergencies that could take place in New England if there was an extremely cold winter. The flexibility would have to be much greater than 1 million or 2 million barrels a day.

Senator RIBICOFF. Thank you.

Now, on page 9 of your statement, you say we should emphasize conservation, reduction in demand, in the legislation reported out by the committee.

I have got four questions on this point. First, how much conservation of fuel oils No. 2 and No. 6 has taken place in New England?

Mr. BURKHARDT. Well, the conservation of No. 2 and No. 6 fuel oil in New England has been significant in comparison with the rest of the Nation. During the winter of 1973-74, when we received a terrific impetus toward conservation as a result of the Arab embargo, we went down 14.2 percent below 1972-73 in the consumption of No. 2 home heating oil, which is about 110 million to 114 million barrels per year. That was adjusted for the weather, so it is a basic figure. There was a saving during the winter, due to voluntary conservation on the part of homeowners, primarily, of 14.2 percent.

During the winter of 1974-75, again adjusted for the weather, there was an additional reduction in consumption of 6.2 percent over the 14.2 percent for the 1973-74 winter. So on No. 2 home heating oil, we are down in consumption in New England 20.4 percent.

Senator RIBICOFF. I know that everybody in New England pitched in. Could you tell me why there was such a good record? Can you explain it?

Mr. BURKHARDT. Yes; I believe there are three basic reasons why this savings took place, especially the 14.2 percent on home heating oil and about 16 percent on residual oil during the winter of 1973-74. The first reason was the profound psychological impact of the Arab embargo. It shook everybody up. They were psychologically attuned to conservation. There was a series of conditions over which no one had any true control so everybody pitched in on a voluntary basis and started to conserve.

Second, during the second winter, in conjunction with the Federal Energy Administration as a result of revised regulations they set forth during the winter of 1974-75, the independent home heating oil distributors, of which there are 2,400 in New England, engaged upon a two-stage education program. They mailed to all of their customers twice during the winter, and this is 2½ million customers, an education program that would lay down 8 to 10 points as to how the consumer could achieve a substantial savings.

Senator RIBICOFF. Would you submit for the purpose of the record the material that you sent out to your customers in New England so we can put it in the record?

Mr. BURKHARDT. Yes; we can submit samples of this; yes.

Now we sent out one complete mailing at the beginning of the winter and one complete mailing to these millions of customers through our 2,400 independent distributors at the height of the winter in January.

So the second reason was a sustained educational program on the part of the distributors selling at retail.

And the third reason, which had some effect, was the higher prices.

Senator RIBICOFF. Let me ask you, in view of this record of accomplishment, your 14 percent and your 6 percent on top of it, do you believe that further increases on fuel oil prices will lead to much more conservation?

Mr. BURKHARDT. I doubt it. I think that New England home heating consumption has just about reached its maximum point without visiting physical hardship or even some possible health danger on homeowners. It is just about as low as it can get.

Senator RIBICOFF. And did you have that cooperation from industrial and commercial users, too?

Mr. BURKHARDT. Yes, industrial consumption, which varied a bit, is very interesting. For instance, in buildings which were institutional in nature, that is like colleges, universities, schools, buildings of that sort, and buildings that were using commercial heating for fixed hours like office buildings from 9 to 5, there was a very marked reduction. It reached sometimes as high as 15 to 20 percent. In those buildings and industries that required the continual use of residual oil to operate plants and keep people employed there was a lower rate of conservation, ranging from about 6 to 9 percent. But there was continual conservation on the part of the use of residual oil.

Senator RIBICOFF. Let me ask you if, in your opinion, not much more can be done about fuel oils, where can more conservation take place and how can this committee insure that this be done?

Mr. BURKHARDT. Well, you notice we have touched now on considerable savings in home heating oil—that is distillate oils. We have touched on considerable savings at residual oil. Let's look at the other major part of what is a petroleum product.

Gasoline. In our opinion the major savings now in the New England area could result from the curtailment of the use of gasoline.

Senator RIBICOFF. Is there any particular way that you would suggest that that be curtailed?

Mr. BURKHARDT. Well, it could be curtailed in several ways. One, by increasing the price of gasoline. The other by increasing the efficiency of the engines that burn gasoline. The other by decreasing the size of the vehicles and/or engines that consume gasoline. And fourth, by voluntary efforts on the part of the public and a consistent educational program on the part of companies that distribute gasoline in conjunction with the Government, just as we had this educational program with No. 2 home heating oil and residual oil in New England. There has been no consistent educational attempt to get people to reduce the use of gasoline on the part of the people that sell gasoline, plus the Government, as we did have with the Federal Energy Administration in conjunction with the independent heating oil distributors in New England.

Senator RIBICOFF. Let me ask you, Senator Talmadge the other day made a few simple suggestions. I would like your reaction. First, there was his suggestion that we really go all out on enforcing the 55-miles-per-hour speed limit.

Would you go for that, a strict enforcement program?

Mr. BURKHARDT. Yes, I think that would result in a very significant savings, and what is more important is the consistent enforcement of the 55-mile speed limit. It is not only a regulatory procedure but it is an educational procedure. If you are going to educate anyone, the process of education must be consistent. It is 8 years in grammar school, 4 years in college. We cannot have hit or miss enforcement of the 55-mile speed limit and regard it purely as a regulatory measure. We must regard it as a consistent and continual educational measure, just as we did with the programs we had through the mail to reduce the consumption of No. 2 home heating oil.

Senator RIBICOFF. The other point Senator Talmadge makes is to close down gasoline stations on Sunday.

Would that get anything?

Mr. BURKHARDT. I think in a limited way this might be of some advantage, but I think the impact of closing down gasoline stations is mostly psychological. I do not believe that it is an important item in relation to quantitative reduction, but I do believe it has some value in laying a psychological basis for public thinking. But if you do not buy gasoline on Sunday, you can buy it on Monday, Tuesday, Wednesday, Thursday, or Friday.

Senator RIBICOFF. Now the next point he made, he sees a lot of kids in high schools and colleges with automobiles and he suggested eliminate credit cards.

Do you think that would do anything?

Mr. BURKHARDT. No; I do not believe the elimination of credit cards would have any long-range value. They would just result in educating the public to a different type of buying habit for gasoline.

Senator RIBICOFF. One final question. In last part of your statement you urge this committee adopt a tax credit to promote efficiency in home heating equipment.

Tell me, from your experience, why do you believe this is so important and how would you go about doing it?

Mr. BURKHARDT. Well, in the United States we have about 14 million homes that are heated with distillate heating oil, home heating oil. We have about 28 million to 29 million homes that are heated by gas. So we are talking of over 40 million homes. Just think of what could be achieved if through a tax incentive we could get one-half of these 40 million homes to upgrade their gas and oil heating equipment to achieve a 15-percent reduction in efficiency.

To bring it down to practical figures, if we could just get the 2½ million households in New England, through the upgrading of their heating equipment in which the average cost could be anywhere from \$150 to \$500, unless a new heating plant is installed, then it would be \$2,000—if we could get those 2½ million homes to increase their efficiency by only 15 percent through a tax incentive, get them to spend the money to do it, we would reduce the No. 2 home heating oil and consumption in New England from 110 million barrels a year to about 98 million barrels a year.

That is a whole lot of oil to save. It would get into every single household that is using gas and oil, get them to upgrade this equipment.

When you consider the average home heating boiler has a lifetime of 40 years, just think of driving an automobile that is 40 years of age. Something must be done to get this equipment upgraded.

Now I am talking only about 2½ million homes in New England, but there are over 40 million heated by oil and gas in the United States.

Senator RIBICOFF. Is it your contention that most heating systems throughout this country are old, antiquated units that are wasting an awful lot of gas and oil?

Mr. BURKARDT. No. I would say about 38 percent of all the home heating equipment in the United States is old and antiquated and wasting large amounts of fuel, but I will make the contention just as I would with automobiles, that every heating plant in the United States could be upgraded just as every engine could be tuned, and the savings would be enormous. It is not replacement, it is upgrading that is important, because replacement would affect only about 30 to 35 percent of the homes while upgrading would affect 65 to 70 percent of them.

Senator RIBICOFF. Well, thank you very much, Mr. Burkhardt.

Mr. Chairman, I just wanted you to know how knowledgeable our people in New England are.

The CHAIRMAN. They certainly are. You are a good example yourself, Senator.

Senator RIBICOFF. I do thank you very much and you have always made a consistent contribution.

Mr. SHEKETOFF. Thank you.

Senator BYRD. Mr. Chairman, may I make just one statement with regard to the testimony? I think he made the best statement that has been made from my point of view before this committee. He pointed out that neither the Congress nor the President nor government nor the industrial sources have made any concerted effort toward voluntary conservation, and it seems to me that is very important if we are going to achieve what we are trying to achieve. And you emphasized it; you are the only person who really has emphasized it before this committee.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, gentlemen.

Senator PACKWOOD. I have got a question.

The CHAIRMAN. I am sorry.

Senator PACKWOOD. You are opposed to the quotas, which I am. When the President, put his first dollar tariff on, the strongest opposition came from New England. Most people start with the premise that we should reduce imports rather substantially and certainly not let them go up.

If we do not do it the tariff route, if we do not do it the quota route, how do we do it?

Mr. BURKHARDT. We will do a lot of it by voluntary conservation.

Senator PACKWOOD. How quickly can we do it?

Mr. BURKHARDT. The thing is there is a practical limit to how much you can reduce imports in an area like New England that imports 147 million barrels out of its 167 million barrels of residual oil. It is this residual oil that powers our industry, our factories, our large buildings, our institutions, and our utilities.

Senator PACKWOOD. The argument last February from New England was not that we were going to cut their imports there—we would cut them all over the country—but it was going to raise the price dramatically and they did not like that either.

Mr. BURKHARDT. I think that is an effective argument. I think the reduction of supply and the raising of price at the same time could

work extreme hardships on an area that depends for more than 80 percent of all of its energy from petroleum. And of that amount, one half of it is imported. We are in a very peculiar situation in New England. We are so dependent. We import 25 million barrels of distillate a year and 147 million barrels of residual out of a total of 167 million. We are so sensitive to the cutting of imports, especially with our high unemployment rate. We have 3 States among the 10 highest unemployment rates. We cannot afford to have an increase in the cost of energy because industry is leaving the area. Already we have the highest cost energy in the Nation and the reduction in supply would only aggravate that.

The problem is that the overall restriction in the quantity of oil used cannot be applied by a universal method to all regions or to all 50 States in the same way. It is like a man having a family of five children—four have the measles and one has diphtheria. You do not treat the child with diphtheria the same way.

Senator PACKWOOD. Let's back up a minute. The President's plan by 1985 was to get us to 5.8-million-barrels-a-day imports. We are importing 6.5 million now. So it is not a dramatic reversal. But what he is trying to do is to avoid going up to 9- or 10- or 11- or 12- or 13-million-barrels-a-day imports.

But what I sense you are saying is no cut and no price increase and New England should be treated differently.

Mr. BURKHARDT. No. Until we can make transition in our industrial area and utility area from the use of vast quantities of residual oil, especially in the utility area, to coal, we have to go very easy on cutting off the supply.

For instance, in the economic studies at New England Fuel Institute, which is the organization I am attached to—

Senator PACKWOOD. I understand cutting off the supply but you are not willing to go to a higher price either.

Mr. BURKHARDT. We have gone to the higher price. We have the highest energy cost of any region in America.

Senator PACKWOOD. I understand that.

Mr. BURKHARDT. We are kind of overbleeding now. We are supersensitive.

Senator PACKWOOD. Yes, I understand that. I was aware of that last February when the strongest opposition came and I sense there is still strong opposition to any further increase in the tariff, especially in New England, and you are saying voluntary conservation measures will get us back. Cross your fingers. I do not know how soon we will be hitting 20- or 21-million-barrels-a-day use. You are saying voluntary conservation can keep us at 6- to 6½-million-barrels-a-day imports. I am not sure it can.

Mr. BURKHARDT. I think it is worth trying. We have tried every other method but a sustained educational method for the public of the United States helped by the Federal Government and Federal agencies and the States themselves. I think it is worthy of a try.

Now certainly we are not cutting back in any substantial portion at this moment on imports because of the tariff. We do not seem to be cutting back on gasoline with the price as high as 60 cents a gallon in New England and many pumps at 62 cents for premium.

It is not necessarily a fact that if you raise the price you will cut back on consumption.

The fact is that many times when you raise the price you increase hardship and achieve the consumption through hardship. I am not sure whether this is the objective of the Government. If it is, it should so say. But the fact is there has not been a sustained educational effort. There has been no sustained motivation.

There has been no continual push on the part of the Federal Government to appeal to the maturity of the American public in achieving a large amount of conservation through voluntary methods as we have achieved it in New England by cutting back about 20 percent on heating oil and about 16 percent on resid. We did not because we had a lot at stake and it was independent distributors who control 85 percent of the heating oil market in New England who sustain this educational campaign. I think it could be sustained by the independents, major oil companies in the Federal Government, and other parts of the Nation and should be tried before we commit ourselves to more stringent type of regulations.

Senator PACKWOOD. You are absolutely convinced that voluntary conservation programs, well-sold, well-educated throughout this Nation could cut back 2 to 3 million barrels a day?

Mr. BURKHARDT. It could cut back a substantial amount. I would not commit myself to the full 3 million but there was a time when nobody believed that we could run an army without Selective Service, but we are doing it on a voluntary basis and it is becoming more successful every day. There must be motivation. This is where the Government is failing. It is not supplying motivation to the Nation or the people of the Nation. It is not presenting the problem in a light of education. It is presenting it in a light of regulation, and this in itself raises a certain amount of opposition.

The thing is we should try the educational method first, the psychological impact, attempt to keep the people of the United States moving toward this goal instead of trying to regulate them into it.

Senator PACKWOOD. Thank you.

The CHAIRMAN. Thank you very much.

Mr. SHEKETOFF. Thank you, Mr. Chairman.

[The prepared statement of Mr. Sheketoff follows:]

STATEMENT OF NEW ENGLAND FUEL INSTITUTE

Mr. Chairman: My name is Lewis Sheketoff. I am President of Automatic Comfort, Inc., of Hartford, Connecticut, a large, independent home heating oil and gasoline jobber-distributor company serving the metropolitan Hartford, Connecticut area. I am also President of the Independent Connecticut Petroleum Marketers Association, an affiliate of the New England Fuel Institute. With me is Charles H. Burkhardt, Executive Vice President and Managing Director of the New England Fuel Institute and Mr. Robert Fawcett, past president of NEFI and Chairman of its Fuel Oil Supply Committee.

We are appearing today on behalf of the New England Fuel Institute (NEFI) to present comments on H.R. 6860. We specifically are presenting testimony on four matters of vital concern to the 1300 independent retail and wholesale home heating oil distributors throughout New England who are members of the New England Fuel Institute.

Our members serve two and one-half million retail home heating oil customers and market about 85% of the 4.2 billion gallons of No. 2 home heating oil sold in the New England area at the retail level and 40% of the gallonage sold at the wholesale level.

The four matters that are of vital concern to the life and continuation of the independent home heating oil marketers of New England are: 1) the quota system, 2) the auction system, 3) ad valorem taxes and 4) tax incentive provisions that would result in increasing the efficiency of millions of home and commercial heating systems.

1. Quotas

New Englanders in general, and those of us in the heating oil business in particular, are well qualified to talk about import quotas. Ours was the first region and the first industry to feel the impact of the Mandatory Oil Import Program established in 1959. As the Committee may recall, shortages of residual fuel oil began to occur in the early 1960's and the product was exempted from controls in 1966. Home heating oil shortages began to appear in various parts of New England during the Winter of 1966-67 and became chronic, reaching their worst in the Winter of 1972-73, when the product was also completely exempted from controls. Many independent fuel oil businesses were harmed, many homes and consumers nearly ran out of oil. It was only the effective work of our dealers and a break in the sustained cold weather that prevented widespread disaster.

Therefore, we wish to offer this Committee our comments based on actual experience.

This Institute and its members strongly oppose the quota system established by Section 111 of H.R. 6860. It should be deleted in its entirety. Our reasons are as follows:

It is unnecessary.—A quota system may make some sense as a means of limiting imports when foreign prices are *lower* than domestic, as was the case in the 1960's. But now foreign prices are much higher than domestic. In such a situation every barrel cut from domestic consumption means a barrel cut from imports, as importers will reduce purchases of the high priced foreign barrel first.

This is happening in New England now. Effective voluntary conservation efforts by consumers have resulted in a sharp drop in consumption of home heating and residual oils. Imports of these products have dropped correspondingly.

In short, no one is buying abroad unless he absolutely has to. We don't need the Government to discourage imports; the market place is doing so and will continue to do so if the Government does not upset this mechanism.

A quota system is cumbersome and bureaucratic.—The Congress should clearly understand what will happen. If it adopts quota controls, the Congress will give rise to another substantial bureaucracy, another set of complex, contradictory regulations and a never-ending series of complaints, hearings and attempts to change the program. We have already been through this in New England. The rest of the country should realize that the quota system represents one more massive step into Government control over our economy with all of its contradictions, disruptions and inefficiencies, to say nothing of the great cost.

New England thought it was rid of such controls in 1973 when the old quota system was abandoned. But now it is back again. We cannot emphasize too strongly our fears as to the damage and trouble the new bureaucracy will cause.

An effective quota system will cause serious shortages.—The key word is "effective." If a quota system really works, then it will hurt many people in several regions. Somewhere consumers are going to have to go without oil—it may be the homeowner of New England or Middle Atlantic Regions, the electric generating plants in the Middle West or the natural gas consumers in the Southwest. But everyone should be aware that all regions are vulnerable. New Englanders who have suffered continual shortages can attest to this.

An effective quota is a government-imposed embargo. What the OPEC nations imposed on this country in 1973-74 we are now apparently planning to do to ourselves. Many proponents of the quota system in the House told us that we shouldn't worry, the quota levels have been set high enough so that no one will be hurt. This is a contradiction. Why have a quota at all? If the import levels are to be so high as to be meaningless, then why create a massive bureaucracy with all the cost and controls for no worthy purpose?

We would like to amplify one point just made, that is, the relationship of a quota to natural gas supplies. There have been many complaints from states and leaders in the Southwest that we in New England have been over-consuming their precious resource, natural gas. First of all, most of that gas is *not* going to New England—we're an oil consuming region—but rather to other parts of the Northeast and the Middle West.

But we agree with the substance of the complaint. We share the concern of our

friends in the Southwest and support their desire to keep their natural gas for their own use and needs. And this is why we are opposed to a quota system. With a quota system when oil shortages are created in oil consuming regions, then consumers really have only one alternate fuel—natural gas. They will demand more gas. Thus, a quota system will cause more natural gas to be piped out of the Southwest. This is a major reason why a quota system is self defeating.

A quota system will cause higher prices.—We will address ourselves to the impact of the auction system on prices in a moment. Everyone knows that when a commodity is in short supply, the price goes up. This is what happened under the old quota system and what will happen under a newly imposed quota system. Again, the Congress should be clear on what it is doing to the hard-pressed consumer in high oil consumption regions.

A quota system will hurt independent importers and marketers.—Either by accident or design H.R. 6860 eliminates a feature of the current import license system that was designed to help independent importers and marketers. When the license system was established in 1973, many independent importers were granted a right to import a certain position of their volumes of home heating oil and residual fuel oil on a fee-free basis. These rights were granted through 1980. A firm commitment was made by the Federal Government to these importers:¹ H.R. 6860, in its present form, destroys that commitment.

As a result, the independent importers and the retail dealers they serve will be placed at a severe disadvantage in competition with major oil companies.

Therefore, we strongly recommend that this Committee examine this issue closely and take steps to insure that the firm commitment made to independents in 1973 is carried forward.

A quota system will discourage the construction of new refineries.—The New England Fuel Institute has, for nearly a decade, supported the construction of new refineries in New England. We believe they are vital to our region; we believe that, as an oil consuming area, we must not ask that other areas bear all the burdens of refining our oil.

During the 1960's, refinery construction was effectively stifled by the import quota system. This was particularly true along the East Coast, where capacity actually declined by more than 1 million barrels per day during that decade.

Now, just as we are about to embark upon some refinery construction in New England, the prospect of a quota system is shutting the door again. As we have indicated, a quota raises the prospect of a shortage of crude oil, and no one is going to commit hundreds of millions of dollars to a new facility unless they are sure that they can get all the crude oil required.

As New Englanders, we wish to see refineries built. It will never come about if a quota system is imposed.

2. Auction System

While we are strongly opposed to the quota system, we are even more strongly opposed to the auction system established by Section 112 of H.R. 6860. It is the wrong method at the wrong time.

Our basic objection is that it cannot possibly work. There will be mass confusion, mass bureaucracy, wild fluctuations in prices at times and higher prices for all products; the import distribution system could literally become paralyzed in time of heavy demand. Further, we believe an auction system is illegal, since it will force imposition of unequal import charges on certain regions at certain times, most especially in New England during the heavy demand months of Winter.

In addition, the auction will cause severe economic damage to independent importers and marketers and the consumers they serve. As we have said, the auction is going to force heating oil prices upward, in an irregular pattern, particularly in months when demand is high and more people are bidding for quotas. We are aware that there is a set-aside for independent importers, but here again we believe it is not going to work. Independents will be forced to bid against each other and costs will go up. Losing bidders will be short of oil and will lose customers, thereby disrupting established market patterns and threatening the market share of the independents.

A close examination of the auction will reveal its inconsistencies, serious defects and illegality. We are certain that this Committee will make such an

¹ Presidential Proclamation 4210, April 18, 1973.

examination and will come to understand the nightmare that lies ahead if the auction method of obtaining quotas is adopted.

Again, this Institute strongly urges that the entire auction system be deleted.

3. *Supplemental Fees, Ad Valorem Taxes*

There are two aspects of the import system set forth in Title I in H.R. 6860 which deserve support and which should be included in the final bill.

First, we welcome the fact that in Section 121(f), the House has eliminated the entire supplemental fee system. We strongly urge that this Committee do likewise. Our strong opposition to the entire supplemental fee program has been continually expressed from its inception early this year. The added fees are unfair and inflationary; they place a heavy cost burden on the very consumers—the homeowners, the factories, the hospitals, the schools and industries—that have already done their utmost to conserve home heating and residual fuel oils throughout our region. The result of supplemental fees has been higher prices and no additional savings.

Supplemental fees have resulted in too great a burden on the consumers of heating oil and too small a burden on consumers of gasoline. They simply are inequitable and unworkable.

Second, it is well that the House has, in Section 121, established a modest and workable ad valorem duty system of 2% on crude oil and 5% on products. This should be enacted into law as the basic import duty provision without a combined quota—auction system.

There is, however, one serious omission in the House Bill. We referred earlier to the fee-free licenses granted to independent importers under Presidential Proclamation 4210. In order to carry forward the firm commitment made to these independents in 1973 and in order to insure their competitive viability, this Institute urges that the same fee-free system be carried forward and applied to the ad valorem taxes.

Further, we firmly emphasize that the way to cut back on imports is to cut back on domestic consumption. Each barrel of reduction in domestic use is translated almost directly into a barrel reduction of imports. That is where the focus of action and emphasis must be placed—on reducing consumption—rather than on constructing a complex system of fees, which is the Administration's policy, or quotas and auctions, which is the method of the House of Representatives.

4. *Tax Incentive Provisions for Heating Systems*

The increase in efficiency of existing centrally heated homes through upgrading or replacement of older heating systems is of vital and continuing importance to the objective of preserving fuel. More than 50 million homes are heated by gas and/oil, or derive their domestic hot water or heating from either fuel or a combination of them, which in millions of cases is further complemented by the use of electricity for hot water and/or heat or auxiliary heating. Thus it is absolutely necessary, in order to achieve any marked degree of conservation at the multiple consumer level, that there be some incentive to home owners and multi-dwelling building owners to upgrade or replace this building heating equipment.

Unfortunately this fact was neglected in Title II, Part III of H.R. 6860. Therefore, while Title II, Part III of H.R. 6860 includes tax credits for expenditures on the installation of residential insulation, the installation of solar energy equipment, and the purchase of electric motor vehicles, it has a glaring omission because it does not include tax incentive for improving the efficiency of conventional, residential heating and/or cooling systems.

Vast quantities of gas, oil and electricity are used in residential buildings and homes throughout the United States with no incentive whatsoever for the owners or operators of these homes and buildings to increase the efficiency of the conventional heating and cooling equipment, and thereby achieve a considerable reduction in the use of energy. This could result in a marked reduction in the quantity of such fuels that is imported.

By providing tax benefits for upgrading currently existing home energy systems, Congress would achieve two objectives that have become national priority. Improvements in these systems would result in lower fuel bills for the homeowner, thereby reducing the inflationary strain on households. Secondly, reduction of fuel consumption by efficiency improvements would assist the conservation effort by reducing dependence on foreign sources of energy.

The purpose of Title II, Part III is to encourage fuel conservation through tax incentives; hence, New England Fuel Institute proposes that the following provisions be added:

A tax credit to provide for improvement according to standards developed by the National Bureau of Standards and administered by FEA and HUD, in the efficiency of a residential heating and/or cooling system up to a total expenditure of \$2,000.

Conversions from one fuel to another would be prohibited and conventional, traditional market patterns would not be disturbed, thereby, preserving the market share of the small independents, as mandated by Congress in the Emergency Petroleum Allocation Act of 1973. The qualified system expenditures would be those made after March 17, 1975 and before January 1, 1978, but only if the building was used as the owner's principal residence on March 17, 1975.

The tax credit would be limited in the case of joint ownership, and the credit would be available to tenant stockholders in cooperative housing corporations and condominium owners.

This proposal parallels the proposed tax credit authority for insulation and solar energy equipment, except in denying a credit for efficiencies gained by conversion to a heating or cooling system using a different fuel or form of energy. Changes from one fuel to another make it difficult to calculate an efficiency improvement, but more important, such conversions could easily work against the national goals of conservations and reduced dependence on foreign oil.

Conversion to electricity could be exceedingly wasteful, as about half of the nation's electricity is generated with natural gas or oil with a conversion efficiency of only 29.4%, as noted by the National Petroleum Council. Because direct oil or natural gas heat is so much more efficient than electric heat generated with those fuels, it would waste astronomical quantities of fossil fuels to convert to electricity.

Conversion of natural gas would jeopardize the stability of America's economy by disrupting the fuel oil market, and would further strain the limited amount of natural gas that will be available in diminished quantities over the next five years. Through diversion of new or existing supplies of natural gas or oil to homes, industry would be deprived of the new precious supplies it still receives, and would be forced to convert to more expensive alternative fuels. Such increased costs would result in reduction of manufacturing or production, employment cutbacks and increased wholesale prices. When the slow-down and cutbacks of gas supply occurs, employee lay-offs will follow and further perpetuate and aggravate the present recession and unemployment.

Finally, conversion from gas or electric heating systems to oil would increase demand for fuel oil and conflict with the national policy objective of conserving petroleum by reducing demand for foreign oil imports.

In view of this, there is a strict and imperative necessity for stimulating conservation, without conversion, by tens of millions of residential property owners. The psychological impact alone, of such a tax incentive stimulating tens of millions of homeowners to improve the efficiency of their heating equipment, would be a tremendous asset in developing national thinking and purpose toward achieving conservation goals. It is the tax incentive for improving the efficiency of conventional heating and/or cooling systems that could stimulate almost every homeowner in America who faces any type of cold weather or winter, to improve the operating efficiency of his heating system. The practical impact of a tax incentive would provide this.

It would be worth 20 million billboards, hundreds of millions of lines of newspaper print, thousands of hours of television messages—it would be worth more than any conservation message that all the media combined could make upon the public to encourage them to conserve energy. A tax incentive for increasing the efficiency of conventional, residential heating and/or cooling equipment is of such vast importance and of such an individual impactful nature that it *must* be considered—it cannot be ignored. It is the "sine qua non" of public cooperation during the continuing energy crisis that would reduce consumption of oil, gas and electricity, and, thereby, directly reduce imports.

In conclusion, NEFI wishes to thank the Committee for this opportunity of presenting our viewpoint. Your decisions on H.R. 6860 are of vital importance to the independent branded and unbranded heating oil dealers and the consumers of New England. Your actions will determine the direction of our energy policies and our economy and prosperity for years to come.

Thank you very much.

The CHAIRMAN. Next we will call Mr. Arthur T. Soule.

STATEMENT OF ARTHUR T. SOULE, PRESIDENT, INDEPENDENT FUEL TERMINAL OPERATORS ASSOCIATION

Mr. SOULE. Good afternoon, Mr. Chairman. My name is Arthur T. Soule.

Thank you very much for the privilege of appearing before you today. My name is Arthur T. Soule. I am president of Patchogue Oil Terminal Corporation of Brooklyn, New York, an independent deepwater terminal operator serving dealers and consumers in the New York and Long Island areas. With me is Leonard P. Steuart, who is vice president of Steuart Petroleum Company of Piney Point, Maryland. Steuart is an independent deepwater terminal operator serving dealers and consumers, including the Federal Government, in the Maryland, Virginia and Washington, D.C. areas.

We are appearing today on behalf of the Independent Fuel Terminal Operators Association to present comments on H.R. 6860, the Energy Conservation and Conversion Act of 1975. The association is composed of 22 companies who operate deepwater oil terminals along the east and gulf coasts from Maine to Mississippi.¹ None is affiliated with a major oil company. Members market home heating oil—No. 2 fuel—diesel fuel, residual fuel oils—Nos. 4, 5, and 6 fuels—and gasoline at the wholesale and retail level.

Our members operate 57 deepwater terminals and 46 barge terminals with a total storage capacity of over 51 million barrels. The geographic distribution of those facilities is as follows:

	Number of terminal operators	Number of terminals		Total storage capacity ¹ (barrels)
		Deepwater	Barge	
New England.....	7	22	6	11,789,000
Middle Atlantic (New York-Maryland).....	10	21	31	30,370,000
South Atlantic and gulf coast.....	5	14	9	8,854,000
Total.....	22	57	46	51,013,000

¹ The product breakdown is as follows: No. 2 fuel oil, 18,900,000 barrels; residual fuel, 27,700,000 barrels; and other products, 4,400,000 barrels.

Most of our members have been in the terminal business for generations. Some companies began in the ice business, got into the coal business and then became fuel oil marketers as that energy source became dominant in our marketing areas. We operate, as you can see from the chart above, a number of large terminals which are capable of receiving oceangoing tankers. The typical terminal facility, as the committee knows, consists of docks, unloading facilities, pipelines, storage tanks, and "racks," the platform from which oil is pumped from the tanks into fuel oil trucks for transport to the consumer. Our terminals are located in or near the areas of consumption of fuel oil and are an integral part of the complex distribution system that carries bulk petroleum fuels from the refinery to the ultimate consumer.

¹ A list of members and description of the association is attached. (Attachment A.)

We purchase product from refiners—either in the United States or abroad—and bring the material by tanker to our facilities, where it is unloaded and stored in our large tanks. The oil is then pumped into barges or trucks owned by ourselves or other companies and transported to the ultimate consumer—the home, factory, apartment, school, or hospital. As independent companies, we provide direct competition to the major oil companies and provide an alternative supply source for thousands of independent retail dealers and millions of consumers who would otherwise be forced to rely solely on the large companies. We handle about 25 percent of the No. 2 fuel oil and nearly 50 percent of the residual fuel oil shipped to the east coast.

We have many decades of experience in the importing, storing, and marketing of fuel oil, and based on that experience we wish to offer comments on four aspects of title I of H.R. 6860.

1. Import Quotas

Section 111 of H.R. 6860 establishes a strict quota limit on imports, beginning in the current year. It also establishes a 3-year “set-aside” for residual fuel and home heating oil imports. (Subsection (f).)

As importing companies, we were directly affected and severely damaged by the import quota system in effect during 1959–73. That system forced many independent terminal operators out of business; for example, in New England there were 19 such companies in 1959 and now there are 7. We were plagued by shortages and were forced to make a constant fight to loosen the import restrictions in order to survive.

From bitter experience we have learned the dangers and difficulties of a quota, and based on that experience, we strongly urge that this committee reject the quota system in its entirety.

Over the past week, you have received a good deal of testimony of this subject, so we will summarize our reasons for opposing a quota:

It is cumbersome and bureaucratic.—A quota will result in the creation of a massive Federal bureaucracy. And, as time goes on and the difficulties mount, the executive branch and the Congress will be besieged by pleas for changes in and exceptions from the rigidities of the system.

Congress should be clear about the trouble it is creating. It need only review what happened along the east coast and in New England during the late 1960’s and 1970’s with fuel oil quotas to get a preview of what will happen throughout the country as a quota takes effect in the years ahead.

A quota will cause shortages.—This is an inevitable result of an effective quota. Obviously if the import limits are set so high that everyone gets all the oil he needs, then it is useless to have the system; we end up with a large bureaucracy with nothing to do but process useless forms. But if the quota really puts limits on the quantities of gasoline and fuel oils that may be brought into this country to meet consumer demand, then some consumers will go without; some will be short of oil.

We as a nation must realize that, with a quota, we are placing an embargo on ourselves, and it will cause gasoline lines, cold homes, and closed factories.

And this might happen sooner than we think. As marketers of fuel oil we are deeply concerned about supplies of both No. 2 and No. 6 fuel oils, that is home heating and residual oil, in the coming winter. We see the distinct possibility, if the weather is at all cold—and it was not, as the committee may recall, during the past two winters—of a fuel oil shortage on the east coast, even without a quota. If there is a quota, the threat of shortage will be even greater. One fact will underscore our concern: H.R. 6860 provides a quota of 2 million barrels per day for fuel oil; the Federal Power Commission projects that natural gas curtailments during the coming winter will be the equivalent of about 2 million barrels per day. Those gas users will have to switch to fuel oil and that fuel oil must be imported.

To repeat: We fear a shortage even without a quota. It could be even worse if the Congress imposes a quota.

A quota will force consumer prices up.—The experience of the 1960's amply demonstrates that a quota helps to keep prices up by creating an artificial shortage. It is simple economics that a short supply results in higher prices, and that will be the case in fuel oil if the Congress enacts a quota. As marketers of fuel oil we have seen our prices more than double for—No. 2 fuel—and triple—for No. 6 fuel—over the past 18 months. Our customers have already been badly damaged by these price rises, and we urge the Congress to avoid any action which will drive the prices up any more. This is a prime reason why we are opposed to a quota.

A quota will hurt independent importers.—As companies who operate ocean terminals and must rely on domestic refiners for most of our product, access to overseas supplies—when necessary—is vital to our survival. It is a basic principle of antitrust law that an alternative source of supply is a stimulus to competition. The truth of this principle was demonstrated in the 1960's under the old quota, when—because of lack of domestic supply—many independent terminal operators were driven out of business. It was only through relaxation of the strict quota limits—which gave us access to overseas supplies—that the rest of us were able to survive.

If Congress enacts a quota, domestic shortages are very likely to occur again and we will be without supplies. For this reason alone—the direct threat to the survival of independent marketers and importers—we are strongly opposed to imposition of arbitrary limits on imports.

2. *Elimination of fee free licenses*

H.R. 6860 contains another provision that will severely hurt independent importers. Section 121 (f) eliminates the President's authority to limit imports under the "National Security Clause," section 232 of the Trade Act; in doing so, the section also wipes out the "fee free" license system that has been in effect since 1973.

As the committee may recall, when the quota was eliminated in April 1973, it was replaced by a license fee system. In order to strengthen the competitive position of independent importers such as ourselves, the President granted exemptions from the license fee—of 63 cents per barrel on products—for a certain volume of No. 2 fuel oil and residual fuel oil. These volumes were to decline steadily until they were phased out in 1980.¹

¹ Presidential Proclamation 4210, Apr. 18, 1973.

The important fact is that the Federal Government made a firm commitment to us extending for 7 years, upon which we have relied, upon which we have made long-term investment decisions. And with a stroke, the Congress is planning to break this commitment.

We are deeply disturbed by this abrupt action. We will be severely damaged if the waiver of fees is eliminated. We, therefore, strongly urge this committee to carry forward the commitment and embody the waiver for independent importers in any new import program which it adopts.

3. Auction system

Section 112 of H.R. 6860 contains a provision which has gained little attention—an auction of quota rights. We have examined this provision closely and have concluded that it would be a disaster for us and for the consumers we serve.

First, an auction would cause prices for importer and consumers to fluctuate sharply, depending on the time of the year, the number of bidders and the volume bid for. But one thing is certain: If the weather turned cold, the bidding for fuel oil imports would force prices paid by consumers, including homeowners, factories, hospitals, apartments, and utilities, to increase sharply. Again, the Congress should be clear about what it is enacting—an auction means higher prices for consumers, especially fuel oil consumers during periods of high demand.

Second, an auction would be cumbersome and virtually unworkable. How is an importer to determine his costs? Does he bid for a quota before or after he has bought a foreign cargo? If he bids on a quota after he buys the cargo and is unsuccessful, does his ship sit in the harbor until the next auction? There are many other questions, but these will suffice to demonstrate the serious, basically insurmountable problems with an auction.¹

Third, an auction would seriously damage the competitive position of independent importers such as ourselves. We realize that H.R. 6860 sets a separate auction for "independents," but this will be of little help. As the committee realizes, there are large independents and small independents, so the large could outbid the small; in addition, large importers such as the utilities could enter the bidding through their independent purchasing subsidiaries. In brief, the set-aside won't help, and what we, as independents, would be faced with under an auction are wild fluctuations of cost, great uncertainty about obtaining quotas and one more cumbersome, costly Federal system to contend with.

In brief, we can think of few better ways to hurt the consumer and independent marketers of oil than the proposed auction system. We strongly urge its prompt and complete rejection.

4. Foreign purchasing authority

The idea of a Federal authority to purchase all imports into the United States was considered and rejected in the House of Representatives. We understand that it may be considered in the Senate. As independent importers of oil we should like to offer our brief comments.

We are strongly opposed to this plan. It would be anticompetitive and inflationary. The price and competitive advantages which inde-

¹ A further problem which should be examined by the committee is whether the auction system is an impermissible delegation of legislative power (i.e. the power to tax), in violation of art. I, sec. 8, clause 1 of the U.S. Constitution.

pendent companies such as our selves can now achieve by negotiating in the world market and with the OPEC nations would be lost; the Federal Government simply would not have the incentive to buy at the lowest price and the American consumer would suffer.

It would create shortages and disruption in the U.S. economy. The Federal bureaucracy is simply not equipped to make the quick, complex, and numerous decisions involved in the daily movement of crude oil and products to the U.S. market. And in case of sharp upsurge in demand in cold period, the involvement of the Federal bureaucracy is a sure prescription for a serious fuel oil shortage.

Perhaps worse, it would not achieve its purpose, and may do just the opposite. We believe, frankly, that despite the OPEC cartel, foreign crude oil and product prices are weakening; we see it in our negotiations in the world market. The OPEC nations are likely to draw more closely together only in a crisis, caused by a new outbreak of hostilities or a direct, public challenge to their group. The creation by the United States of a single purchasing agency—with the avowed objective of breaking OPEC—would be such a challenge.

In brief, while this might sound like a good theory, upon close examination we believe the committee will realize that it is not only unworkable but will have just the opposite effect from that intended by its sponsors.

5. Summary

In summary, we urge this committee to reject title I in its entirety. And, we would suggest that the committee develop a new, more effective program to lessen our dependence on imported oil. Such a program should be based on a prime fact of life in today's oil market: Because foreign oil is more expensive than domestic, no one imports oil unless he absolutely has to; thus as domestic demand drops, imports drop on almost a barrel-for-barrel basis. We see this in our own business; our customers have been conserving substantial volumes and their drop in consumption has resulted in a corresponding drop in our foreign purchases.

This fact makes the job of Congress easier. You don't need to enact a quota, a tariff or an auction to stop the flow of imports. The marketplace is doing that. What you need to do is develop an effective program of cutting U.S. demand for oil and the imports will drop in and of themselves.

We, therefore, urge this committee to focus its efforts on the demand side and will be pleased to provide whatever assistance you may need in developing an effective program. Mr. Chairman, the future of our businesses depends on the decisions you will be making in the coming weeks. We are confident they will be the right decisions.

Thank you very much. I have an attachment I would like to submit for the record.

[The following attachment submitted for the record:]

ATTACHMENT A

MEMBERS—INDEPENDENT FUEL TERMINAL OPERATORS ASSOCIATION

Belcher Oil Company Miami, Florida	Meenan Oil Co., Inc. New York, New York
Blue Ridge Fuel Company New York, New York	Metropolitan Petroleum Company New York, New York
Bray Terminals, Inc. Albany, New York	Northeast Petroleum Industries, Inc. Chelsea, Massachusetts
Burns Bros., Inc. Brooklyn, New York	Northville Industries Corp. Melville, New York
Cirillo Brothers Terminal, Inc. Bronx, New York	Patchogue Oil Terminal Corp. Brooklyn, New York
Colonial Oil Company Jacksonville, Florida	Seaboard Enterprises, Inc. Boston, Massachusetts
Colonial Oil Industries, Inc. Savannah, Georgia	Southland Oil Company Savannah, Georgia
Deepwater Oil Terminal Quincy, Massachusetts	C. H. Sprague & Son Company Boston, Massachusetts
Ergon, Inc. Jackson, Mississippi	Steuart Petroleum Company Piney Point, Maryland
Gibbs Oil Company Revere, Massachusetts	Webber Tanks, Inc. Bucksport, Maine
Howard Oil Company, Inc. Maspeth, New York	Wyatt, Inc. New Haven, Connecticut

The 22 companies listed above own and control terminals capable of receiving ocean-going tankers. None is affiliated with a major oil company. Members of the Association are independent marketers of No. 2 fuel oil, No. 6 fuel oil, gasoline and other petroleum products.

They distribute 40 percent of the No. 2 fuel oil consumed in New England and 25 percent of the No. 2 fuel oil consumed along the East and Gulf Coasts. They distribute nearly 60 percent of the residual fuel oil burned by non-utility consumers in New England and nearly 50 percent in the Middle Atlantic states.

The 22 companies own and control nearly 19 million barrels of No. 2 fuel oil storage capacity and nearly 28 million barrels of residual fuel oil storage capacity.

The CHAIRMAN. Thank you very much, sir. You made a good case.

Well, that concludes the hearing for today. The committee meets again tomorrow at 10 o'clock.

[Whereupon, at 3:50 p.m., the committee recessed, to reconvene at 10 a.m. the following day.]



ENERGY CONSERVATION AND CONVERSION ACT OF 1975

FRIDAY, JULY 18, 1975

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to notice, at 10:03 a.m., in room 2221, Dirksen Senate Office Building, Senator Russell B. Long [chairman] presiding.

Present: Senators Long, Talmadge, Gravel, Nelson, Haskell, Curtis, Fannin, Dole, and Packwood.

Senator TALMADGE [presiding]. The chairman will be in very shortly, so I think we might as well get started. This morning the first witness is Mr. Peter G. Peterson of Lehman Bros., New York. Is Mr. Peterson here?

Next is a panel on utility rate structure, Dr. Alfred Kahn, chairman, New York Public Service Commission; Mr. Jules Joskow, senior vice president, National Economic Research Association, Inc.; Dr. Charles Cicchetti, Office of Emergency Energy Assistance, State of Wisconsin. Are those gentlemen present? Good, will you be seated please, and take the witness stand, and I would suggest that both of you present your testimony and then we will ask such questions as the committee may desire.

Senator HASKELL. Mr. Chairman.

Senator TALMADGE. Senator Haskell.

Senator HASKELL. I wonder if it would be possible—time limitations did not permit a hearing for Dr. Ernst Habicht, Jr., who is Staff Scientist and the Director of the Environmental Defense Fund Energy Program, and, in view of that, I wonder if I could have unanimous consent to insert in the record a very interesting paper on this entire rate structure by Dr. Habicht, together with a related newspaper article?

Senator TALMADGE. Without objection, so ordered.

[The material referred to follows:]

(755)

THE ENERGY PUZZLE: ELECTRICITY RATES, SPACE CONDITIONING AND LOAD MANAGEMENT, BEFORE THE FEA CONFERENCE: THE CHALLENGE OF LOAD MANAGEMENT, A CONVERGENCE OF DIVERSE INTERESTS, WASHINGTON, D.C., JUNE 12, 1975

(By Ernst R. Habicht, Jr., Ph. D., Staff Scientist and Director, Energy Program, Environmental Defense Fund, Inc.)

ELECTRICITY RATES, SPACE CONDITIONING AND LOAD MANAGEMENT

I. INTRODUCTION

Electricity producers, consumers and environmentalists are all too often depicted as having interests in complete conflict with each other. The Environmental Defense Fund (EDF) has repeatedly stated over the past three and a half years that the problems which confront the electric power industry need not be resolved in a fashion that necessitates undue antagonism between these concerns. In fact, all three groups may benefit from a common solution.

Together with a number of economists and attorneys, I have been involved for several years in a concerted effort to reform electricity pricing in the United States. The essential thrust of the approach is to make prices for electric power more closely reflect the actual cost—and causation of cost—experienced by the supplier of electric power. This necessarily implies a price for electricity that varies with the time of day, the day of the week and the season of the year. The second part of my presentation focuses on the theoretical arguments and practical endeavors dedicated towards such reform. Subsequent sections deal with some logical expectations of the impact of such reform on a major energy end-use sector, space conditioning and water heating, and the interrelationships of these changes with load management. First, however, I express my pessimism concerning the nature of regulated utilities and their managers and my optimism concerning the reformation of this sector.

During the past year there has been a visible change in the attitudes of utility regulators and even a few managers towards our approach. Endorsement of our arguments by the Federal Energy Administration and various federal regulatory bodies, the action of the Wisconsin Public Service Commission on August 8, 1974 concerning the Madison Gas and Electric Company as well as other firms in that state, endorsement of our position by the staff of the California Public Utilities Commission, the support for our position by numerous federal and state legislators and, finally, the support of our approach by a number of utility analysts and a growing but yet small number of utility managers have been most rewarding to us at EDF who took up this position long before it was the financially, politically or even environmentally obvious course of action. But while I detect an increase in the amount of light at the end of the tunnel, I do not believe this light will be supplied by investor- or publicly-owned electric systems as we know them today. Permit me to reflect and elaborate upon this observation.

Some years ago, before I joined the ranks of EDF, I became persuaded that the men who run most electric utility systems of the United States are, by and large, imbued with a world view most prevalent in the Thirteenth Century. This is not to say they are without talent; rather, they resist change fearfully and look back longingly. Needless to say, the past decade has been a tremendous shock to them as it introduced the rise of the environmental movement, inflation, fuel cost uncertainties and surges, increases in regulatory attention to detail just when "lag" began to work against (and not for) the regulated firm and an aroused and spirited consumer backlash—all spelling the reformation of electric utility practices.

After I began to make more careful study of the electric power industry, it became apparent just why utility managers tend to echo so much of the era preceding the recent turmoil. There are a lot of contributing factors which have received analysis elsewhere, especially the influence of regulation, but one of the most pervasive aspects of conditioning of utility managers is that for over 80 years the industry experienced an unbroken chain of technological advances and increasing returns to scale such that its average costs of production steadily (and predictably) fell. Most important, marginal cost trends perfectly paralleled average cost trends during the period from 1882 until the mid or late 1960's. Nothing could have had a more profound influence on utility management than this 80-plus year record of consistent and benign economic expectations.

The essential conservatism of utility managers is of importance because it speaks to their resistance of change regarding both the design of electricity tariffs and the management of connected electric loads. In accordance with past trends, utility managers look more towards central supply and storage systems for future investment than to decentralized control, storage and integrated supply systems depending in part on sources other than electricity for energy. Yet true economies of scale most likely lie in decentralized integrated systems. Indeed, there is every indication that for over a decade electricity investment by some systems has seen absolute conventional diseconomies of scale as measured in constant dollars. This results from such unnoticed practices as drastic overinvestment in supercritical coal-fired capacity^{1 2} but other forces have been at play including, in the later years especially, the reduced neglect of the external costs of power production.

We have made quite clear on many occasions that what EDF advocates is not a non-growth policy but rather a policy which dictates that growth must be paid for by those who occasion it and benefit therefrom. This has been widely misinterpreted by utility representatives. What we have advocated is wise not only for both the environment and the consumers of electric power but also for those who invest in the electricity supply system, be they the stockholders and bondholders of investor-owned systems or the taxpayers who supply the capital for publicly-owned systems. Yet many managers of these systems have obfuscated to the point where their investors have no cognizance of the real merits of our arguments. We also find ourselves under attack from other quarters including consulting firms, those with a financial stake in conventional electricity supply technology and even large electric customers—all of whom have for one reason or another a strong vested interest in perpetuating the status quo or have simply not bothered to calculate the benefits to them which would flow from a more rational pricing structure. They have opposed us at one time or another either because of their inherent conservatism or because they perceive their best interest to reside in using the adversary system to buy a maximum amount of time for the preservation of an outdated past. My respect for them is diminished not so much by their tactics as by their failure to perceive new markets and avenues of productive growth.

To their very substantial credit, a growing but yet small number of utility managers are willing to be forward-looking and innovative. A number of interesting studies and field demonstration projects are underway or are about to be implemented around the nation. Some utility systems have begun to hire or have advanced bright managers and engineers who are neither totally imbued with the all-pervasive influence of the first 80 years of the industry nor completely subjugated to an obsolete regulatory vision. This is all to the good. For the time has come for electric utility systems to quit reacting and to start thinking and, most significant, to start thinking smaller more integrated thoughts; the electricity reformation is at hand.

II. EDF'S ELECTRICITY DEMAND-RELATED CASES

Most electric utilities in the U.S. now find themselves in a precarious financial position balanced between the uncertainty of repeated request for rate relief and the persistent disfavor of capital markets. Utility regulators are ill equipped to handle the revolving door approach to rate relief wherein regulated firms are compelled to ask for a second rate increase before the first has been granted. Consumers face climbing electric bills with ever greater reluctance in the midst of a less certain economic outlook. And the environmental costs of electric power production continue to grow. Government policy makers and utility managers of both private and public systems have suggested numerous solutions to these dilemmas ranging from direct government grants to new dimensions in creative accounting. Nearly all the proposed solutions smack strongly of subsidies—an irony in view of past struggles between privately and publicly owned electric systems and counterproductive if we place a premium on "marketplace" decisions.³

¹ *Plant Size, Technological Change, and Investment Requirements*, David Huettner, Praeger Publishers, 1974.

² "Scale, Costs and Environmental Pressures" by David A. Huettner in *Technological Change: Economics, Management and Environment*, edited by Bela Gold, Pergamon Press, to appear in 1975.

³ For a recent discussion of the utilities' problems and their solutions including tariff reform see: *Perspective on Power—A Study of the Regulation and Pricing of Electric Power* by Edward Berlin, Charles J. Cicchetti and William J. Gillen, Ballinger, Cambridge, Mass. 1974.

Is there any solution to the electric utilities' financing, regulatory and consumer dilemmas which is not inherently perverse with respect to the concept that the prices paid for electric power should reflect the total costs of production?

The answer to this question is most assuredly yes. The solution is to permit the expertise of economists to permeate the design of electric utility tariffs so that rates are forward-looking and reflect accurately the cost of production of electric power. Economists suggest that we move to a tariff design premised on considerations of marginal cost. Utility costs are comprised of three main components:

(1) Variable costs associated with running the system (the system lambda), largely energy outlays which tend to increase per unit of output as the level of production increases;

(2) Fixed costs of the system consisting principally of generation capacity, which must be increased to meet the growth in peak consumption, but which lies partly or largely idle during off-peak periods; and

(3) Fixed costs allocated to individual customers such as billing, metering and (some) transmission and distribution expenses.

The average fuel costs for meeting demand below 60% of installed capacity are well below the average fuel costs for meeting demands during periods of peak load. More significant, the incremental fuel costs during periods of peak demand are likely to be three times or more the average fuel costs of base-loaded fossil units and over ten times the fuel costs for any nuclear unit. Currently, fuel adjustment clauses simply wash these disparities through as an average of all utility fuel costs leaving consumers with no concept that fuel costs are quite sensitive to the timing of their consumption. Furthermore, utility systems are compelled to rely on their oldest, dirtiest or least efficient units to meet peak loads, causing disproportionately increasing environmental damage with increasing levels of production.

It must be emphasized that the projected load growth on-peak is the single factor which compels the construction of new plant. Thus peak period consumption (that which occurs at any time above approximately 70-85% of the available supply capacity) must bear the entire responsibility of capacity costs. More precisely, this will be a function of the system load curve such that prices will reflect the probability of occurrence of system peak demand. Rate economists concerned to insure that prices reflect the causation of cost, state that prices for peak demand consumption should be set so as to discharge this responsibility and recover capacity costs. This body of suggestions is derived from marginal cost pricing theory and is variously referred to as time-of-day, peak responsibility or peak load pricing.^{4,5,6}

Under conditions prevailing in the electric utility sector until the latter 1960's, the constant dollar prices for electricity generally fell or remained constant while per capita disposable income and many prices actually rose. With utility system expansion under conditions of timely technological innovation and increasing returns to scale, virtually all customers were better off as electricity consumption expanded. Since the unit cost of electricity declined with increasing consumption, there was economic justification for establishing electricity rates in declining blocks which served to crudely mirror the cost outlook of utility systems (despite the fact that this obscured certain very important determinants of cost). However, it must be recognized that such a rate design becomes onerous to society when the cost trend reverses as it has done in recent years for most utilities.

Other things being equal, it now makes good sense to move to essentially flat rates. Some have suggested inverted rate schedules as appropriate. We fear that such a tariff design would increase environmental damages and inefficiencies in the application of resources to the production of electricity by needlessly driving large customers to self-generation of electric power. It would also cause net revenue instabilities, particularly if the time of consumption were ignored.

From this it is clear that the time of consumption should be a far more important determinant of price than the volume of consumption. Obviously, a

⁴ *Optimal Pricing in Electricity Supply*, Ralph Turvey, M.I.T. Press, Cambridge, Mass. 1968.

⁵ "Models for Determining Least Cost Investments in Electricity Supply," Dennis Anderson, *The Bell Journal of Economics and Management Science*, Vol. 3 No. 1 at page 267 (Spring 1972).

⁶ *Electricity Economics: Theory and Practice*, Ralph Turvey and Dennis Anderson, to be published in late 1975 or early 1976.

large customer taking electric service at the same time as a small customer will pay a lower rate simply because: (1) the larger customer occasions little need for distribution capacity or step-down transformers and (2) higher voltage customers are more efficiently served because of greater power losses attendant to lower voltages. However, large customers will be paying a substantially higher price for electric power during periods of peak system demand than small customers will be paying during off-peak periods.

The two part tariff, by means of which large customers are billed in accordance with both their individual demand levels and their energy usage, has never borne more than a casual relationship to system costs since it is not keyed to the most important determinant of costs: the system load curve. In fact, the two part tariff can easily be shown to be perverse with respect to system costs save for the minority of customers whose individual peak demands coincide with the peak load of the system itself.

Regardless of the prognosis for electricity costs, the spreading of electrical loads over the daily, weekly and seasonal cycles of demand is a good thing since it saves capital and has considerable merit with respect to both economic and environmental policy objectives. Peak load pricing has been endorsed repeatedly by the Federal Energy Administration, the Chairman of the Federal Power Commission, the Secretary of the Treasury and numerous others during the past year.

A landmark was reached on August 8, 1974 when the Wisconsin Public Service Commission announced that marginal production cost information would henceforth provide the basis for electricity tariff design. The Chairman of the Wisconsin PSC pointed out that EDF's participation had been a key factor in the proceeding which he termed "... a 'national' test case of electric rate design." EDF has participated in individual rate cases in the States of New York, Michigan, California, Arkansas as well as Wisconsin and has initiated generic proceedings directed solely to the consideration of new tariff designs in both New York and California. In a recently concluded pair of rate cases, the Michigan Public Service Commission commended EDF for its participation, including that "... EDF is in large part responsible for the dramatic and intriguing new approaches to rate design..." A vigorous program directed towards comprehensive implementation of peak load pricing is near completion in Wisconsin and the Michigan P.S.C. has ordered that studies to the same end be undertaken.

Pursuant to testimony by EDF, the California Public Utility Commission staff recently endorsed the concept of peak load pricing and indicated that it has worked out an informal agreement with Pacific Gas and Electric Company to undertake studies directed towards the implementation of redesigned electricity tariffs. In the same case, EDF played a pivotal role in coaxing the FEA to take an active part in electricity tariff reform. Furthermore, in a case concerning the pricing of natural gas before the Federal Power Commission, the California P.U.C. recently withdrew its previous endorsement of rolled-in pricing (as opposed to incremental pricing), a change in position that came substantially as a result of EDF's efforts.

Not only are regulatory bodies paying far more attention to the question of redesigned electricity tariffs—as evidenced by recent actions of individual Commissions as well as by the National Association of Regulatory Commissioners—but also individual utilities are showing decidedly increased interest in these reforms.

Why then is it, it may be asked, that an environmental organization has come forth with such an array of arguments premised almost entirely on considerations of economic optimality. There are a number of excellent reasons for peak load pricing that have compelled EDF to refine such arguments and make them known to utility regulators. They include the following:

(1) A lessening in the amount of air and water pollution produced per kilowatt hour consumed together with more efficient and less environmentally destructive use of land and mineral resources;

(2) The opportunity to "buy time" through the spreading of electrical loads, capture the benefits of our recently increased commitment to increased electricity supply R & D more efficiently and so avoid over-commitment to present unreliable, dirty and inefficient generating capacity and primitive environmental control technology;

(3) An inducement for the implementation of energy-efficient total energy systems together with what are now termed to be "exotic" technologies such as solar space conditioning;

(4) The increased efficiency of energy utilization in conversion of fuels to electricity and a concomitant lowering of average fuel costs;

(5) The opportunity for the consumer of electricity to save money either by restricting his consumption or by deferring the time at which he takes electric service without being subsequently penalized by "conservation adjustment" rate increases;

(6) An increase in the efficiency of utilization of utility plant leading to a long-run lowering of average electricity costs; and

(7) Improved utility net revenue stability, an increase in investor confidence in the electric utility sector and an inherent anti-inflationary bias.

It makes little sense to impose peak load pricing on a customer whose volume of consumption is so small that the additional costs of metering are greater than the expected benefits. A simple computer model exists to indicate at what level of electric service it is no longer beneficial to charge on a time-of-day basis but small customer studies are necessary. Nonetheless, it makes good sense to offer each and every customer the option of peak load pricing since there are bound to be numerous small customers whose usage is so flexible that the benefits will indeed outweigh the costs for them.

Where utility loads vary with the time of year, all customers should face seasonal differentials. In fact, there has been much progress in this direction in the past few years and electricity consumers should recognize these changes as the initial steps directed towards prices premised on considerations of marginal costs. The best parallel to all these changes is, of course, the tariff design of the Bell System. Like electricity, telephone service cannot be stored and prices for phone calls reflect both the peak demands for service during weekdays and the idle communication capacity that exists at night and during weekends. Thus peak load pricing for electricity can hardly be called revolutionary.

There are numerous strategies for minimizing costs under peak load pricing. Some of interest are:

(1) Conservation of electricity use during periods of system peak demand;

(2) Load management of service for hot water heating, refrigeration, space conditioning and other uses;

(3) Accelerated replacement of electricity-intensive plant and consumer durables with more efficient devices including those incorporating energy storage;

(4) Modification of work force, retooling and maintenance schedules; and

(5) Planning of new endeavors in accord with changed tariff designs such that poor customer diversity from the system load curve will be a particularly strong incentive for reliance on total energy systems.

Is it equitable that the utility system should spend a thousand dollars to accommodate the load of a new \$250 air conditioner and never recover these costs from its owner? Should not the utility customer be encouraged to spend another \$100 for a device that is twice as efficient, thus reducing the cost burden on the utility by half? Would not a \$5 time switch in a frost-free refrigerator be justified if it saved five or ten times that sum in electricity supply investment? Similar arguments apply to a wide range of electricity-dependent activities—ranging from pumping strategies for irrigation and sewage to the design of buildings.

The French have metered a portion of their industrial customers on a time-of-day basis for nearly two decades and a fraction of small customers for a considerably shorter period. Recent estimates by the managers of the French system indicate that these initial steps have led to a 7% savings of capacity costs—in a country with only a third of the per capita demand for electric power of the U.S. Not counting fuel savings, a 7% savings in investment for electrical supply in this country would yield annual benefits exceeding one billion dollars. These savings would accrue to all who use electricity whether or not they can reshape their demands in the near term. After all is said regarding peak load pricing we must ask ourselves what is the cost of not implementing the indicated changes.^{7, 8}

EDF has used arguments derived from marginal cost pricing theory in cases concerning water pricing, auto tolls, freight rates and, as mentioned above, na-

⁷ For a timely account of the French experience see the forthcoming *Energy Systems Forecasting, Planning and Pricing* edited by Charles J. Cicchetti and Wesley Foell, Institute of Environmental Studies, University of Wisconsin at Madison, Spring 1975.

⁸ EDF's extrapolation of savings from the French experience is deliberately conservative; the FEA has estimated that an integrated program of load management and demand control procedures can save 500,000 barrels of oil per day and \$120,000,000,000 in capacity expansion by 1985. (Brief to the California P.U.C. in Application No. 54279, April 2, 1975.)

tural gas tariffs. Our ideas stem from a simple theory: let growth go forward where the consumer is willing to bear the full costs. At the same time, let's make the most efficient use of those systems we have in place whether they be water supply networks, electric utilities or transportation systems. To us this is a touchstone of environmental reform and, not insignificantly, an approach that offers others such as consumer groups, industrial interests, labor unions and investment interests to join forces with what is all too frequently viewed as their natural antagonist—the environmental movement.

III. SPACE CONDITIONING AND HOT WATER HEATING

As of 1968, residential and commercial space and water heating accounted for 17.9% of U.S. energy consumption and air conditioning was another 2.5%.⁹ Yet still the integration of conventional and exotic energy supply systems for residential space conditioning and water heating is a topic that passes virtually unnoticed amidst multi-billion dollar budgets for plutonium cycle nuclear fission and improved coal conversion technology. The purveyors of fuels and energy conversion equipment all too often aim solely for each other's throats and markets to the exclusion of collaborative innovation. They are also far too quick to lash out at their critics rather than to listen and learn from them. Such are the unfortunate consequences of existing institutional, regulatory and managerial constraints, reflecting a cumbersome and conservative response to drastically changed economic circumstances.

Let us consider three sources of energy supply which have in the past been viewed to be mutually exclusive and necessarily competitive. These are: fossil fuels utilized for direct combustion on-site to provide warmth and hot water; electricity either as direct resistance heating or (prospectively) for use in heat pump applications; and solar energy as captured by flat plate collectors and stored as hot water proximate to the collection site. What is the present nature of use of these resources, their cost competitiveness and the cost outlooks for each?

A. Oil and natural gas

Number 2 heating oil is presently quite expensive, now costing between \$2.25 and \$2.50 per million Btu's delivered in small quantities to individual residences in the northeastern United States. The price of this fuel has almost doubled (in constant dollars) in the past two years and, given the buffering capacity of present distinctions between new and old oil produced in the United States, may well remain high even if world oil prices should fall.

Natural gas is by far and away the cheapest form of energy for space conditioning available today but the prognosis for gas costs, while uncertain as to timing, is markedly upward. The fact that new increments of gas are coming increasingly from expensive LNG imports, costly Canadian pipeline sources, an irrational (and uneconomic save for regulatory protection) array of petroleum product conversion plants and, in the future, an increasing number of coal conversion plants, means that the next decade will see marked increases in the price of delivered gas to the end user. Without deregulation and, more important, absent any reform of natural gas tariffs for end users, the initial years will see a continuation of relatively cheap gas. However, as imported and synthetic sources of gas become a more significant component of supply, the price for gas will move upward abruptly and, in every eventuality, precipitate a regulatory and political crisis substantially more drastic than we have recently seen with regard to electric power. Assuming regulators catch on to this dilemma in the relatively near future, the gas customer should see a tall block rate which more closely approximates the actual marginal cost of gas supplied to the system. Even if this does not permit new connections to gas distribution networks, the smaller gas customers should begin to face a much higher rate for this fuel in their final blocks of consumption.

Thus far, proponents of deregulation have completely overlooked the crucial need for reforming gas tariffs and it is always possible that—with the depth perception of a Cyclops—they will continue to ignore this pivotal reform. In that eventuality, gas supplies will continue to dwindle and there will be no question of adding new customers to existing gas distribution networks. This effectively

⁹ *Patterns of Energy Consumption in the United States*, Prepared for the Office of Science and Technology by the Stanford Research Institute, January 1972 (U.S.G.P.O. #4106-0034).

eliminates any need to discuss here the question of natural gas heat in new construction. Gas will either be expensive for new applications or it will not be available.

While modern gas or oil-fired residential heating units can be operated at a steady-state efficiency of over 75%, this high rate of converting fuel into useful heat is drastically reduced by the cycling of the unit. Typically, home heating units are substantially oversized with respect to optimal efficient operation. The full capacity of the unit is brought to bear most productively only when the outside temperature falls to a very low level. At other times, the efficiency of the unit is drastically reduced by constant on-off operation such that the typical well-tuned unit in operation today is characterized by roughly an overall 55% efficiency of conversion. During initial warm-up and final cool-off of fossil fired furnaces, an average of over a quarter of the steady state energy is lost up the stack. The more frequently these "cycles" occur, the greater the percentage of energy loss.¹⁰ This neglects certain perverse features of operation and maintenance which characterize the "average" unit—as opposed to that which is maintained in good operating order.

To abate home owners' complaints about insufficient heating capacity from an oil-fired furnace, it is not uncommon policy to retrofit the flame gun with an oversized nozzle to supply fuel at a greater rate. This is pernicious in at least three ways:

- (1) The unit operates at less than optimal steady-state efficiencies;
- (2) The unit will cycle more frequently during the burning season thus further reducing overall efficiencies; and
- (3) Maintenance requirements for the unit are substantially increased.

A strong argument can thus be made for thermal storage in association with fossil-fired heating units which, with supplemental off-peak electric heating or solar heating (depending upon the region), need require a furnace only about a quarter of the size of the unit typically in place today. The unit would operate for very much longer periods of time thus drastically reducing the cycling frequency and associated inefficiency of energy conversion. Hot water heating would be integrated through the energy storage system, a portion of which might be segregated so as to be dedicated to cool during the summer and heat during the winter.

Despite the fact that oil suppliers make about a third of their income from the maintenance and sale of equipment, they are today busily at battle with electric utilities regarding what are generally (but sometimes erroneously) depicted to be "preferential" rates for electric heating. If the two groups could ever get together or at least cease fighting past battles, they would find a common market for new equipment substantially surpassing the individual vision of either sector. Such collaboration would be to the net benefit of both the consumer and the environment and should be understood as a realignment rather than a reduction of competition.

B. Electricity

Electricity is now delivered to the end user for space and hot water heating at an overall efficiency that is roughly one-third that of fossil fuels and at rates which vary by at least a factor of five across the nation—in excess of \$12.00 per MM Btu for electric heat customers of oil-fired utilities. However, these deficiencies are offset in part by the high efficiency of electric heating at the point of end-use. Combustion inefficiencies and, more significant, the on- and off-cycling of fossil-fired furnaces (discussed above) are serious detractors to the efficient conversion of fuel energy to useful heat within the confines of the structure in question. Furthermore, the use of electricity in small heat pump applications holds high promise for new installations and even certain retrofit operations to commence within the next decade.

Electric resistance space-heating has long been anathema to environmentalists. (With the advance of abrupt fuel cost increases for electric utilities, their ranks have been reinforced by consumers who have installed electric resistance heating.) But, however important the overall conversion inefficiencies associated with electric heat have been to environmentalists in the past, their attitudes are not necessarily engraved upon stone. The perceptive analyst understands full well

¹⁰ A *Laboratory Test of the Modular Concept As Applied to Gas Fired Boilers* by G. E. Kelly and D. A. Didion, Building and Environment Division, National Bureau of Standards, Washington, D.C., paper presented at *Purdue University*, October 7-8, 1974.

the importance of present trends as distinguished from past patterns of behavior. Given the choice of heating one's home either with electric resistance heating or with gas derived from strip mined coal (characterized by at best a 65% conversion efficiency), the environmental damage function is roughly equal for the two alternatives. Furthermore, if the choice is between a heat pump and direct combustion of fossil fuels, there is no question but that electricity will win the favor of the environmentalists.

If the consumer is forced to pay the price associated with that increment of gas derived from coal (now estimated to be \$3.11 per MM Btu at the plant in New Mexico or \$4.66 per MM Btu delivered to the customer in Los Angeles), he would almost certainly prefer to have that same amount of coal converted into electricity and delivered to his home by wire for purposes of space heating. Assuming reliable and somewhat less costly heat pump technology comes to the fore there is no question but that both consumers and environmentalists would endorse the widespread use of electricity for space heating. It is essential for all of us—environmentalists, consumers, regulators, manufacturers and entrepreneurs (and each of us wears at least two of these hats) to begin to think in terms of society's behavior at the margin and beyond instead of reacting to the pattern of events that characterized our actions during an era when the expectations for energy costs were ever lower.

C. The Sun

The direct use of solar energy for the heating of water and, to a much lesser extent, for space heating has been a commercially viable technology for many decades. Until recent years, however, the relatively low scale of solar unit manufacture, the steady decline in fossil fuel and electric energy costs and the expectation of ever lower fuel and electricity costs all operated to restrict and reduce the implementation of solar heating. Despite much recent renewed interest in various solar technologies, the market for solar space conditioning is still generally thought to be quite restricted. This is a consequence of a drastic failure in cost comparison decision rules. This failure has been perpetuated by virtually every interest—environmental, entrepreneurial, governmental and consumer-oriented—that has bothered to look at solar space conditioning technology.

The fundamental mistake has been and continues to be comparisons of average cost of complete solar systems with the average cost of competing technologies. Such comparisons cannot stand of their own weight. They have led to drastic misinterpretation of the attractiveness and speed of implementation of technologies whose time would have arrived some time ago but for the fact that decision makers in both government and private enterprise lack the vision to insure timely implementation in the complete absence of "demonstration projects" and well meaning (but perverse and self-defeating) subsidies.

Once energy storage can be justified through redesigned tariffs for electric power (as discussed earlier in this paper) or through fuel price movements together with natural gas tariff reform which dictate redesigned fossil-fired heating installations, a very substantial economic incentive will obtain for partial dependence on the direct use of the sun's energy for space conditioning and water heating throughout much of the country. Most important, it should be noted that this in no way constitutes a "subsidy" of solar energy. Since peak load pricing for electric power leads to on-site energy storage (as heat or coolth), it will obviously provide strong economic justification for solar energy installations.

The economic attractiveness of partial solar energy dependence (with off-peak electric power as backup) will persist regardless of possible downward fuel price movements. This is so because domestic energy storage offsets capital investment in new electric plant unassociated with fuel costs. This is an excellent example of just why peak load pricing should be implemented even if we now know that there would be no immediate response—in terms of shift of present consumption patterns—to the changed tariff design. It can be stated in general that price signals for electricity which vary with diurnal and seasonal levels of demand will themselves provide formidable incentives to inventors and manufacturers to confront and solve problems affecting the electric utility sector.

It remains to be seen whether or not electric utilities should become financially involved in solar energy installations. There are arguments for and against such an approach and I remain neutral on this subject. Obviously, if the only way to overcome the inertia of the construction industry and allied financial institutions is to roll solar energy installations into the electric rate base it may well be nec-

essary to take this approach. Clearly the electric utilities might be the only force for such progress in the highly fragmented and undercapitalized construction industry.¹¹

It also remains to be seen whether or not electric utilities can be induced to collaborate more closely with oil heating suppliers and vice versa. Heating oil suppliers are under pressure from the domestic majors with respect to competition for large No. 2 oil customers and have not received the most benign treatment from the FEA with respect to allocations and cost adjustments over the past 18 months. Clearly they have every expectation of penetrating the natural gas market and supplying some total energy customers in the future but the question remains whether or not they can remain economically viable until these markets open up. I would only suggest to heating oil firms that their future lies ever more heavily in the sale and maintenance of new and improved heating equipment and fuel substitutes such as insulation. No one knows their present customers better than they and while past patterns of growth may be effectively barred to them, it should be recognized that they are in a unique position to effect the conservation of oil and gain a profit at the same time.

IV LOAD MANAGEMENT

It is simply not rational to look at peak load pricing and load management as separate entities. They can only be approached as chicken and egg. One can neither justify nor impose load management in the absence of time differentiated prices for electricity and, insofar as many smaller customers are concerned, one can neither implement nor justify time of day metering without the stream of benefits that ensue from concomitant load management.

Load management may range from the "rolling" of connected loads, (e.g., disconnecting the heating load of specific residences for ten minutes out of each hour a peak system demand occurs) to interruptible service for very large customers for whom electricity costs are a sizeable portion of their value they add to a product (e.g., the manufacture of liquid oxygen). In other countries ranging from New Zealand to Germany it is common practice to employ widely available electrically charged thermal storage devices whose loads are connected and disconnected with ripple control. Such systems are in the first stages of being implemented in Vermont.¹²

Off-peak water heating—characterized by selectively lower electricity rates—has been the feature of a number of utility service territories in this country for some years. These latter systems have seen the widespread use (in the Detroit Edison service territory) of radio controlled load switching, a Motorola development representing a substantial step forward from older clock-controlled units. However, virtually every one of these systems in place in the United States suffers a grave drawback since the common practice is to provide an incentive by lower rates during off-peak periods with no concomitant increases in the price of electric power during peak periods of demand. Such a "stickless carrot" approach can only be of limited persuasive force and, despite claims to the contrary, in no way represents the sound economic application of appropriate price signals to consumers.

Load management offers substantial savings to those with direct resistance electric heating. The simple retrofit of load switching devices for conventional baseboard electric heating (on a room by room basis in some instances) as well as resistance water heating could substantially reduce connected loads during periods of peak demand at minimum inconvenience to customers. The savings to the electricity supply system associated with such retrofit would be a powerful incentive for customer acceptance, assuming that electric rates were adjusted appropriately so as to reflect the change in cost causation. In this way load management together with peak load pricing offers some meaningful relief to the customer who is already locked into electric resistance heating. Of course, once we begin to implement peak load pricing, we must take care to offer load management practices so as to insure that each customer who invests in electricity-dependent energy supplies by virtue of low off-peak rates will continue to benefit when load patterns have been shifted.

¹¹ *New Energy Technologies for Buildings* by Richard Schoen, Alan S. Hirschberg and Jerome M. Weingart, edited by Jane Stein, Ballinger, Cambridge, Mass., 1975.

¹² A good discussion of the benefits and costs of load management in this region is to be found in "Technical Alternatives for Load Management with Implications for Rate Structures" by A. O. Converse and Thomas Laaspere in ref. (7).

For selected older installations and virtually all new installations, load management clearly paves the way for time-of-day pricing since the heavier metering expenses (\$75 to \$200 per installation as compared to \$18-20 for a conventional meter today) will be repaid swiftly even with only a modicum of load control. For example, the mere "rolling" of a 6 kw load for ten minutes an hour would have associated savings in the neighborhood of \$1000 in consideration of the costs of conventional electricity supply. This would buy a good many "high cost" meters and does not take cognizance of the savings that accrue from reducing conventional metering costs, data acquisition and improved planning capabilities or any of the myriad of benefits that are reaped by the firm which begins to apply capital more efficiently to the production process.

For some years I have been far more concerned with the nature of new uses of electricity than with past patterns of consumption. Utility managers worry also and they constantly resist EDF's arguments in favor of peak load pricing by responding with scenarios that directly predict spiked peaks, drastically shifted load patterns and unpredictable revenues. While I constantly have to remind them that it is their net revenue that is most important (and not gross revenues as they would lead us to believe), I must emphasize that sound load management practices minimize the problems associated with predictions of the complete synchronization of human electricity consumption patterns. In general, half of the utilities' criticisms of peak load pricing are premised on there being no responsiveness whatsoever to time differentiated rates and the other half stem from an expectation that there would be an enormous yet unpredictable response. Not only are such criticisms mutually inconsistent but they also tend to ignore the empirical results obtained in other nations.

As is the case with peak load pricing, consumers benefit from load management even if they are not direct participants. Just as the responsiveness of some consumers improves load factors and reduces the average costs for others, the management of connected electrical loads improves the efficiency of the application of all resources dedicated to the production of electricity and thus lowers average costs for all, including those who are not even aware of load management. Insofar as spinning reserve and spare capacity requirements can be reduced by load management, the aggregate savings can be formidable.

Present electricity generation reserves approximate 30% of installed capacity. This is a direct reflection of the consequences of continued investment in accordance with past expectations in the midst of a two year period of near zero growth. Assuming that a 20% reserve margin is sufficient (and this would be overly abundant if we implemented meaningful load management programs), we now have an idle investment in excess of \$10 billion in electricity supply capability. Directly and indirectly this adds over \$20 per year of unnecessary carrying charges alone to each American family's electric bill. Equally unpleasant are the environmental consequences of overinvestment in electricity supply not only because of unnecessary proliferation of physical facilities but also because of the amount of pollution abatement technology that might be acquired in lieu of unnecessary expansion of plant and appurtenant systems.

It is often argued by utility managers, regulatory representatives and the purveyors of dirty fuels that effluent abatement costs grow exponentially as we restrict the emissions of air and water pollutants. Actually this is rather more of a step function than a smooth curve. However, few seem to recognize that the total cost of electricity supply moves up markedly as we increase reserve margins. In order to insure outage frequencies of no more than one day in ten years (over 99.97% reliability) we must make a very substantial investment in largely idle capacity. Reserve margins are exacerbated by the uneconomic choice of over-sized units and by the markedly high outage rates and plant unavailability that characterizes both nuclear and large fossil-fired units.^{13 14} Excessive consumer costs introduced by poor choice of capacity and excessive reserve margins can and should be abated by a program of tariff reform and load management.

¹³ *Report on Equipment Availability for the Ten-Year Period 1964-1973* (EEI Publication No. 74-57), issued by the Edison Electric Institute, New York, N.Y., December 1974.

¹⁴ For the controversy clouding nuclear availability and capacity factors see the substantive arguments in: "Will Idle Capacity Kill Nuclear Power?" by David Dinsmore Corey in the *Bulletin of the Atomic Scientists*, November 1974, pp. 23-28.

See also: "Nuclear Power Plant Reliability: the 1973-1974 Record" by David Dinsmore Corey, BPI-7507, 14 February 1975.

For counter arguments see: "On the Credibility of Arguments Concerning Nuclear Power Plant Reliability" by A. David Rossin of the Commonwealth Edison Co.

One parallel change in utility practice is required, especially if sound load management practices are to have maximum impact. We must achieve better unit reliability and utilities must receive regulatory support directed towards improved construction management practices. Neither the environment nor consumers benefit from the operational dilemmas engendered by poor unit availability and distressingly low capacity factors.¹⁵

The construction of new homes and other buildings, a fairly labor-intensive activity, is presently in a seriously depressed state. The designs of such structures determine the nature of their construction and their subsequent operation over many decades. The higher first costs associated with better conceived and executed buildings, load management and metering devices, energy storage systems, more efficient heating and cooling systems and at least partial reliance on the sun's energy is a serious detriment to the implementation of the ideas I've discussed. Yet, over the life cycle of any structure, we can drastically reduce the aggregate costs if at the outset we resort to a somewhat more labor- and materials-intensive design. There is probably no more clear cut example of how labor can substitute for energy than in something as simple as the retrofitting of insulation to a home. Unemployed workers are presented with a productive job environmental damage is reduced and consumer costs are decreased. Why is it that we cannot take what is so clearly the socially, economically and environmentally desirable course of action?

The answer lies in the nature of the outlook of those financial and regulatory institutions that grew up in the preceding century or more of falling energy costs. These bodies came not only to expect ever-declining energy costs, they structured themselves on such premises.

The real question is whether or not our institutions, ranging from state and local regulatory and standard-setting bodies to the FEA itself, can be sufficiently flexible and forward-looking to insure such market realignment as permits both competition and innovation. All too often I perceive that the energy crisis is essentially a crisis of institutions. In a very real sense the dilemma of the past few years is institutional in that it has been compounded by regulatory (in) action and serves to explain the remaining part of the essential conservatism of electric utility managers whom I excoriated so unkindly earlier in this paper. I am confident that with the appropriate array of inducements and constraints which reflect drastically changed energy supply circumstances, the electric utility industry can revive and redeem itself. All that is needed is for utility managers and regulators to ask themselves a none too novel business question: What outlays might we make to yield greatest benefit to our consumers and investors?

V. SUMMARY

Consumers, investors, the economy and the environment all benefit from a combined regimen of electricity tariff reform and load management. This is so because the concept embodies and implements sound principles of economic efficiency. Only by taking such a course of action can we improve the outlook for the electric utility sector without creating a new wave of inflation.

The complete identity of interests between consumers and environmentalists depends on improvements in small technologies—mass produced solar panels for thermal transfer and storage, fossil-fired home heating units and heat pumps. These are relatively minor areas of development endeavors compared to central electric generation and storage projects now emphasized—the LMFBR program, fusion research, solar electric systems and the like. It is the recent advances in metering and load management technology that have been in large part responsible for this coalescence of interests.

The equipment to do the job is available or in prototype development. The political incentive to move in the direction I have advocated is nearly overwhelming. Some large consumers of electric power and a few utility managers have begun to rethink and reject outdated dogma. All that remains is to reduce institutional barriers to reform and to insure that managerial wisdom in the utility sector can grow with the times.

A small group—the Environmental Defense Fund—whose only interests are frequently misinterpreted as concerned solely with the environment—has been advocating these reforms for nearly four years. EDF has identified an over-

¹⁵ "A Report on Improving the Productivity of Electric Power Plants," prepared by the FEA Interagency Task Group on Power Plant Reliability, March 1975.

whelming commonality of interests. We have effected real change before regulatory forums. It is past time that electric utilities and their regulators together with the Electric Power Research Institute, the Edison Electric Institute and the American Public Power Association begin to implement reforms rather than merely study them to death. We can only hope to progress from our present dilemma if we can finally and overwhelmingly decide that the past provides an inadequate image of the future.

POWER PLAY IN WASHINGTON

(By James P. Gannon)

WASHINGTON.—Labor power. Big business power. White House power. Pork barrel power. Put them all together and you have Washington's big electric power play of 1975.

That's partly pun, but the subject isn't funny. It is no laughing matter when big corporations and big unions together concoct a scheme to siphon \$600 million a year from the U.S. Treasury, sell the idea to the President, and then get the Secretary of the Treasury to set aside his principles and act as their special-interest lobbyist in Congress.

That is what's happening, though, under the Ford administration's latest tax proposal, a measure designed to improve the financial health of the electric utility industry and to stimulate construction of more power plants to meet future needs for electricity.

Those are, no doubt, worthy goals. But in proposing a new tax subsidy to help achieve them, the administration has embraced means which contradict its rhetoric, undercut its budget policy, violate its economic philosophy and substitute a hurriedly designed plan for a more fundamental solution to the problem. Furthermore, the utility "crisis" which the new tax plan is designed to relieve shows every sign of dissolving without new federal aid.

It is undeniable that electric utilities have had plenty of troubles lately. Their operating costs exploded last year with the spectacular surge in oil and coal prices; their borrowing costs soared with the 1974 climb in interest rates; their plant-construction costs were bloated by double-digit inflation; their financial pinch was compounded by Wall Street's lack of enthusiasm for utility stocks and bonds. By the end of 1974, the squeeze of these circumstances had many utility executives crying "uncle," or, more specifically, "Uncle Sam."

The plea fell upon some sympathetic ears in the Ford administration. White House economic aide L. William Seidman began pushing the utilities' cause in inner councils, not unmindful of the fact that several of the power companies in the most dire shape were back home in Michigan, where he and friend Jerry Ford come from. Some Federal Energy Administration aides joined the cause. But other officials were cool to a federal bailout for utilities. Prominent among these was William Simon, the Treasury Secretary, who has argued often and eloquently against federal subsidies for special interests.

SHUNTED TO SECRETARY DUNLOP

Somehow while administration officials still were divided over the issue, it got shunted to a new debating forum: the President's Labor-Management Advisory Committee. This is a 16-man group of union and management bigwigs headed by Labor Secretary John Dunlop, who has a well-earned reputation as a master of backroom bargaining. While the labor-management panel considered the utility problem in private, Mr. Dunlop began talking in public about the plight of the utilities and the prospect of future "blackout" due to lack of generating-plant capacity.

The labor-management committee agreed in May on a program to aid the utilities. Its key elements are tax advantages. Though Congress in March raised the investment tax credit for utilities to 10% from 4% for 1975 and 1976, the union and business leaders urged a further permanent increase to 12%. The panel also proposed that utility stockholders be allowed to defer taxes on dividends taken in the form of additional shares of stock, and that power companies be allowed more liberal depreciation rules and fast five-year write-off of pollution control facilities. Beyond the tax area, the panel urged, among other things, a relaxation of environmental restrictions on utilities and a speed up in approvals for nuclear plant projects.

The President in June endorsed the recommendations of the panel. Then he thanked the union and company officials for their work "in the national interest."

It is instructive to note the membership of this panel that devised what now is Ford administration policy. It includes Reginald H. Jones, chairman of General Electric Co., one of the nation's largest suppliers of electric generating and transmission equipment, whose sales and profits would benefit from more utility plant construction. It also includes Stephen D. Bechtel, Jr., chairman of the Bechtel group of companies, one of the major builders of utility plants. Other management members include the top officers of General Motors Corp., Aluminum Co. of America, and U.S. Steel, whose plants are among the nation's largest users of electric power.

On the union side, the key man is George Meany, president of the AFL-CIO, whose union affiliates in the construction trades are suffering unemployment rates in excess of 20%. The heads of the Teamsters and Steelworkers are members too, and they are naturally concerned that power shortages in the future might threaten plant shutdowns or layoffs.

There is nothing illegal, immoral, or even unethical about a union leader or company executive urging the government to pursue policies that will benefit his interests. That is natural. But it's surprising that the President should ask such a group to devise tax policy on utilities. The results are as predictable as they would be if he asked homebuilders and real estate salesmen to devise his national housing policy, or big-city mayors to draw up his plan for urban aid.

Swallowing his earlier reservations, Treasury Chief Simon now is urging Congress to pass the utility-aid tax bill in hurry-up fashion. He was almost apologetic in outlining the narrow-interest legislation to the House Ways and Means Committee last week. The proposals, he told the lawmakers, "are probably not the same proposals we would advance if we had the luxury of more time, a less critical problem, and the realistic possibility of an overall solution to our country's economic problems." But, he said, "we must be practical and must act, and act quickly." The proposals, he noted pointedly, "have the support of both business and labor." Furthermore, he said, they would provide jobs (which is a magic word in Washington in these days of recession) and help reduce foreign oil imports.

No wonder Mr. Simon felt a bit sheepish. Here is the man who derided public-works jobs programs as "pure pork barrel," merchandising a private-sector pork barrel as a job-creating program. Here is the man who personified resistance to budget deficits, urging Congress to allow a \$600 million addition to the red ink this fiscal year, and more in future years. Here is the man who is quick to praise free enterprise and to condemn government handouts, promoting a fast cash transfusion from Treasury to the corporations. Here is the man who demands fundamental, long-range solutions to economic problems (such as the fiscal crisis in New York City) proposing a quick-fix for utilities, because there just isn't time to devise a more considered response.

Some Congressmen asked embarrassing questions. If we give this special tax break to the electric utilities, won't lots of other industries demand equal treatment? Can the Treasury afford this revenue loss in a period of record deficits? If the utilities need more money, shouldn't they get it from their customers instead of the taxpayer? Mr. Simon's wobbly answers boiled down to saying that the utilities were a special case, an exception to his rules.

MR. BRANNON'S OPINION

The utility tax proposals "are a permanent response to a temporary problem," in the opinion of Gerard Brannon, a former Treasury tax specialist who recently analyzed the proposals for Tax Analysts and Advocates, a tax research organization. He wrote: "If inflation, interest rates and fuel costs are bugging the utilities now, will the new tax giveaways be repealed when the market problems abate? You should live so long! Crises are the usual cover for enacting 'reliefs' in the tax law that will be pure rip-offs when the crisis is gone."

The utility "crisis" may be passing already. Utility profits have begun rising again; First National City Bank's first-quarter survey found combined profits of 81 utilities up 20% from the fourth quarter and up 12% from a year earlier. Interest rates have fallen sharply in the past six months, so borrowing costs are lower. Inflation is cooling. Utility stock and bond prices have risen in Wall Street's big 1975 rally, so utilities are again able to raise money in the markets. Most im-

portant, fuel escalation clauses are helping power companies recoup higher oil costs from their customers, and state rate-setting agencies are granting faster, bigger rate increases.

But even if the short-term crisis is passing, it's true that utilities face formidable long-term challenges. They will require enormous amounts of capital to build all the facilities needed to power a growing economy in the decade ahead. But the U.S. Treasury isn't the right place to get the money.

The long-run solution to the industry's financial needs is higher rates, as Mr. Simon himself has said repeatedly. The utility customer—including big industries such as GM, Alcoa and U.S. Steel, which currently benefit from outmoded volume-discount rates—ought to pay the bill, not the taxpayer. Tax subsidies, in fact, may only undermine energy conservation by helping keep rates artificially low.

The full cost of providing power ought to be evident in people's and companies' electric bills, not partly hidden in their tax bills. Then, if your power bill seems too high, you can throw away your electric toothbrush or turn down the air conditioner. But once the power companies plug in at the Treasury, you won't be able to switch them off.

Senator TALMADGE. Dr. Kahn. Will you proceed, please? You have been informed that due to the time limitations you are asked to brief your statement.

Mr. KAHN. I have indeed.

STATEMENT OF ALFRED E. KAHN, CHAIRMAN, NEW YORK STATE PUBLIC SERVICE COMMISSION

Mr. KAHN. My name is Alfred Kahn. I am chairman of the New York State Public Service Commission. Actually, in real life, I am professor of economics at Cornell University, to which I plan to return.

I am honored by your invitation to talk to you about certain aspects of the energy tax bill that is before you.

When I prepared my introductory statement, I did not have a copy of the bill before me, and so I was operating on the understanding that there were two subjects at least that I might address myself to. One is the one that is listed here; you are interested in considering the possible reform of electric rate structures as a means of encouraging conservation. I understand in addition the bill has various inducements to electric companies to convert from use of oil to coal as fuel for their generating stations. These are two subjects in which I happen to have a very intense and active interest, and I would like to confine my remarks to those two.

I will try very briefly to summarize my written remarks since, as I understand, the formal version will be in the record.

I have for at least 7 years been publicly advocating the importance of reforming electric, as well as other public utility, rate structures to relate the rates of various categories of customers more closely to the respective costs of serving them, and particularly in such a way as to discourage wasteful use. During the past year, in which I have been its chairman, the New York State Public Service Commission has taken several very important steps in that direction, and we are going to take some more.

The main function of setting up rate structures in the past has been principally to effect a fair and equitable distribution of the total burden of revenues among customers, and, until recently, this was done by simply taking the total cost, the total revenue requirements,

and distributing them on the basis often of very arbitrary allocations between different categories of customers.

This technique was reasonably effective and equitable in the past. The period of the 1950's and 1960's was a period of stability in the economy of growth, technological progress in the industry; costs went down, electric rates declined as much as 30 to 33 percent in that period, but the situation has obviously become totally unbalanced in the last 3 or 4 years, and it has become increasingly apparent to all of us that rates fashioned in the traditional way may fall very far short of achieving the purposes of economic efficiency, environmental protection and conservation.

I would like to talk just a little bit about the principles that we are trying to apply now and show how they differ from the ones we have applied in the past. We begin with the notion that the only economic function of price is to influence behavior. The most important criterion, in my judgment, of a rate structure is, does it induce consumers to behave in such a way as to make the best use of our limited resources, resources whose limitations are becoming increasingly obvious to all of us. That means rates have to be based on costs preponderantly. How would economically efficient rates differ from what we have had in the past. Three ways: the first is rates and prices should be calculated on the basis of what we call marginal costs or incremental costs. Let me try to explain the only way in which pricing works economically is on the assumption that demand will respond to price. If price goes up, we expect people will consume somewhat less. If price goes down, we expect people will consume somewhat more. Well, if the pricing system is going to work well, then the signals that consumers should be getting is what does it add to society's costs if they consume a little bit more. What would society save if they consume a little bit less? That means the cost of additional supplies or the saving from a cut in consumption.

There is one very important way in which electric rate schedules in the past, and still largely in the country, violate this principle, and I think most of you are aware of it. It is the so-called declining block rate system which has the effect that the more a subscriber consumes, the lower the price he pays, which is obviously an inducement to expand consumption. This is not a totally stupid arrangement. It has a basic justification in that a large part of the cost of serving customers are fixed. They do not vary with the amount of consumption. The cost of the whole distribution system is there. A meter reader has to read the meter, whether it has 1 kilowatt-hour on it or 100 kilowatt-hours, so there is a tendency for costs to decline on the average with increasing consumption, but that is not a justification of declining block rates. What it justifies is a lump sum charge. Charge the customer a certain number of dollars a month for his share of the distribution system for his customer meter reading and billing costs and thereafter every customer should be confronted with the same cost per kilowatt-hour. There is no reason why the person who consumes only 100 kilowatt-hours per month should have a greater incentive to conserve than the customer who consumes 1,000 kilowatt-hours a month, so in New York State, in our latest Con Edison decision, we have eliminated the declining block character of electric rates. We have a fixed customer charge, and then everybody in the residential category pays the same amount per kilowatt-hour.

The second way in which efficient rates will differ from traditional rates is that now rates have to be based on current or future costs, not historic or past costs. Costs that have already been incurred in the past can no longer be saved. What purchasers must be confronted with are rates that reflect the current cost to society of supplying a little bit more. The current costs that society would save if they consumed a little bit less. Of course, because of inflation, current costs tend to be markedly higher than the historic costs, so if your rates are simply uniformly based on historic costs, they do not encourage conservation as much as they should because they do not tell customers what it costs today.

Third, a pricing system that is based on incremental costs must recognize the wide variation in the cost of service, depending on the time of consumption relative to the system peak. It is a simple economic fact that the costs that society will incur if consumption is increased on peak and the cost it will save if consumption is decreased at the time of the peak are the costs of providing additional capacity and of operating existing generating plant at its least efficient level. That is, as demand grows companies draw on less and less efficient generating capacity, so on peak your incremental costs are the least efficient, energy capacity.

So long as rate structures fail to reflect the difference in the time of consumption, we are going to have a systematic subsidization for the construction of new capacity because there will be no incentive for people to curtail their consumption at the time of the system peak. And it is the amount of demand at the system peak that determines how much capacity you have to build. So we are determined that when utility companies incur capital costs for the construction of new capacity, that the amount that they have to incur will be subject to a market test; that is, the price of sales on peak will reflect the incremental costs at that time.

I am going to pass from this subject in just a moment, but I would like to point out that the industry—I do not think it is unfair to say that in much of the industry—there is a skepticism, if not outright hostility, to the enunciation and the incorporation of these principles. In part, it is understandable. They are worried about what is going to happen to their revenues if you have radical changes in the pricing systems; and, of course, most of them are very hard-pressed financially anyhow. No reasonable regulator, and in my reasonable moments I am a reasonable regulator, can object to being cautious in introducing new procedures; but the need for reform is urgent. If, in fact, incremental costs are really above average, then every day that passes in which we do not make progress in relating rates to the time of consumption is a day in which companies are experiencing unnecessary revenue deficiencies because those rates are not compensatory. They do not reflect the additional costs. They are encouraging economic waste. They are accumulating burdens on their customers, and they are encouraging unnecessary construction of capacity. And it is also true that every day that passes in which we do not introduce these rate changes, is a day in which we deny customers the opportunity to change their consumption habits in ways that will reduce the cost burden that they impose on the companies and, therefore, on society and thereby find some escape from the crushing burden of electric rates from

which they cannot escape as readily now because the rates are the same no matter whether it is on peak, off peak, no matter whether it is day or night.

Now, in 2 or 3 minutes I would like to refer to the remaining topic which affects me very directly and, perhaps, you will tell me if it is irrelevant. It is obviously a subject that is in the bill. I want to talk about the conversion of electric plants to coal, and I would like to make just two observations. First, these conversions are going to prove very costly for some of the companies involved in terms of the impact on their costs and therefore their rates, and in terms of the impact on their ability to raise capital. And, as you know, these companies, many of them, are having great difficulty raising capital. That is my first point.

My second, it seems to be quite unjust for those financial burdens to be placed simply on the customers of those particular companies that convert. Let me explain on the first point. There are two generating stations in New York State subject to recent reconversion orders by the Federal Energy Administration. According to our calculations it is going to require a rate increase of 5 percent in one of the cases. It is the Central Hudson Co., which, because it is heavily dependent on imported oil, has about the highest rates—other than Con Edison—for electricity in the entire country. So it is going to be a very heavy burden on their ratepayers.

Moreover, in the case of Niagara Mohawk, we estimate it is going to cost them \$27 million of additional capital to convert from oil to coal, and if there were time, I could explain to you the difficulty that the company is having raising capital now.

Now, I realize that these financing difficulties could, in theory, be handled if we can get enough rate increases and if you were uncharitable you might observe that companies would not be in their present state if we regulators were more generous in our rate awardings.

But observe the following; first, in the case of Central Hudson, we gave them every cent they asked for. We felt that that was necessary. Second, as I have said, their rates are already about the highest in the country. In the case of Niagara Mohawk, all I can say is, again, we came close to giving them everything they were asking for, and they are still in a mess of financial difficulty.

My second point, then, just to return to it; there is principle involved here, and it relates to provisions in the energy bill, by the way, this principle, so let me emphasize it. I suggest it is wrong, as a matter of national policy, to require these particular companies and their customers to carry the entire burden of the resulting rate increases and capital investments. What we are doing is putting into effect a policy whose purpose it is to reduce this Nation's dependence on foreign oil, a policy which I applaud. It is going to improve our balance of payments. Therefore, it is going to change and improve the terms on which every American consumer of all products trades with the rest of the world. It is going to be beneficial to all consumers of energy and electricity.

I suggest, therefore, that the burden should not fall haphazardly or quixotically on the customers of those particular companies that convert: I suggest that the inequity can be removed and must be if a

conversion program is to be fair and acceptable to customers in the utility territories that have plants that are going to be converted.

The Federal Government—

The CHAIRMAN [presiding]. I am sorry sir, but in order to allow time for the other witnesses, I will have to ask that we pass on to the next witness. Your prepared statement will appear in full in the record.

Next we will call on Mr. Jules Joskow, of the National Economic Research Associates, Inc.

**STATEMENT OF JULES JOSKOW, SENIOR VICE PRESIDENT,
NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.**

Mr. Joskow. Thank you, Senator. My name is Jules Joskow. I am senior vice president of the National Economic Research Associates. We are a consulting firm that does a considerable amount of work on electric utility rate matters.

I want to thank you for the privilege of speaking to you today, and I am grateful for the invitation to do so.

I have only two things to tell you, and I am quite sure I can tell it to you in less than 10 minutes.

One, that rate reform is well on its way in this country, and two, that the kind of rate reform that is appropriate is and will ultimately, I am sure, be implemented in many areas of this country. It is not likely in the reasonable foreseeable planning horizon—that is, the horizon on which utilities must be concerned today—going to affect in any significant degree the enormous capital requirements that these utilities face in erecting plants to serve the public.

The kind of rate reform to which I refer is the rate reform approach that Professor Kahn—and I must call him professor because I know him really as a professor. He educated two of my three children, and I hope eventually he will have the courage to take the third as well. The kind of rate reform I am talking about is peakload pricing, the time of use rate reform.

Many of the States in this country have moved very assiduously in this direction. California, for instance, has set up what we call a generic proceeding that is well underway; in fact, it has reached its briefing stage in which alternative types of rate adjustment, and particularly those rate reforms which relate to time of use pricing, and have had reasonably extensive hearing. In the State of New York under the commission that Dr. Kahn chairs, a generic proceeding has started and testimony relating to the concepts of time of day pricing have been presented. This testimony sponsored by all of the privately owned utilities serving in the State of New York. I must emphasize it is not necessarily appropriate to say that all of these utilities support everything witnesses from my company, who have presented state of the art testimony in this area, support, but to a large extent I think it is a good illustration of the fact that utilities are reacting to the need for rate reform in this State, at any rate, of providing the commission with at least the kind of economic information that would be required if such rate reform were to be instituted.

Other States in which rate reform along these lines is being seriously investigated are Florida and Massachusetts. The State of Maryland

has just introduced a generic proceeding in which this kind of rate reform undoubtedly will have extensive evaluation.

Among the States in the country, probably the State in my view that is most advanced in this direction of rate reform is the State of Wisconsin, and the State of Wisconsin has essentially skipped the generic proceeding step and has, as a result of extensive hearings on rate cases, has actually ordered utilities in that State to implement as soon as appropriate studies and necessary studies are completed, time of use or time of day rates, and I would expect that probably the first company to introduce such rates for the Commission's evaluation will be the Wisconsin Electric Power Co.

I and my colleagues are working very hard on meeting a September 1 deadline. That probably will be the first instance in this country in which economically determined time of use rates will be suggested to a commission. In addition, at the overall State regulatory levels, the National Association of Regulatory Utility Commissioners, has asked the Edison Electric Institute and the Electric Power Research Institute to jointly propose an extensive study which will inform the various commissions as to the pros and cons of this kind of rate reform. That study has been proposed to narrow the executive committee of that commission. It has approved the study planning, and it is my understanding that we are now in an organizational process to implement the proposals in that study.

I would suspect that the study will take a minimum of a year to complete.

Now, undoubtedly, I have omitted a good number of instances where movements are being made and progress is being made in this area of rate reform, but I think this will give you a general idea of the scope to which the movement is developing in this area.

I do not want to discuss—there certainly is not enough time to discuss—the pros and cons of peakload pricing and to a significant extent Dr. Kahn has touched upon the economic rationale of this approach. I do not also want to suggest that this approach is universally accepted, although, in my view, most economists favor the approach, at least conceptually. There is a good deal of industrial intervention against this approach. It is showing up in various of the generic proceedings, but, by and large, in my view I would suspect that it is inevitable that a movement in this direction will be made in various areas of the country.

Now, what concerns me is that because this movement is making progress, a number of people are beginning to ask the question, well, if we have this rate reform and if, indeed, we begin to charge customers the costs that they impose upon the system and that these costs are charged by time of use, is it not very likely that there will be a diminution in the capacity and, therefore, the capital requirements of the electric utilities?

The answer to that is undoubtedly yes. There will be a diminution, but that diminution is going to take a good deal of time in coming. The reasons for that are extensive. There is no question in my mind that there will be some effect upon the use of electric power over time as we begin to charge, as the utilities begin to charge higher rates when higher costs are imposed upon the system, but, by and large, the reaction of customers to price change is a gradual one. Our best

estimate now available is that the so-called elasticity of demand effects takes somewhere on the order of 10 years or so to have full effect. We know that the systems we have in this country are very largely summer peaking systems, and, when we look to the European experience, where undoubtedly there has been some effect over the long run in peak capacity requirements, we must recognize that those systems are winter peaking systems. In many instances they have been able to introduce storage heating devices which have permitted customers to move their use of electricity for that purpose off the peak into some valley or off-peak period.

Where you have a summer peaking company and where you do not yet have available economically the technology of storage cooling, it is likely that the movement away from the peak is going to take significantly greater time in showing up.

By and large what I am saying, therefore, is that while I very strongly and fully support the concept of peakload pricing, and I do not want anybody to draw the inference that because I say peakload pricing is going to take a considerable amount of time in showing up in terms of its effect on the peak, that I, therefore, feel we should have a go-slow attitude in this kind of rate reform. I think we should move forward on the rate reform. We will never have the kind of capacity adjustments that would come from this kind of pricing if we do not start it sometime. I see no reason why we should not start now.

Now, I must also emphasize that while it is undoubtedly true that, in my view, that the revenue requirements, or I should say, the capital requirements of the industry are not going to be significantly reduced during, let us say, the next 10 years by the introducing of peakload pricing, we know there is some effect on the overall consumption of electricity due to the higher prices that customers are now paying for electricity, and I certainly fully expect that to the extent that there will be a reduction in capital requirements due to this overall elasticity of demand, that reduction should be taken into account in forecasting capital requirements of the industry.

To a significant extent, the companies with which I am familiar are now factoring into their low forecast that effect.

In sum then, I do not believe that this committee should look to rate reform as a significant factor affecting the electric utilities capital requirements for the current and reasonably projectable future. While I have not had the opportunity to review in depth the provision of H.R. 6860 or related proposals which would provide more immediate relief for the capital formations problems of the utility industry, I and my colleagues will be glad to undertake such a review and, if we feel our comments could be of assistance to the committee, we will be pleased to submit them for your consideration. Thank you.

The CHAIRMAN. We now will hear from Mr. Charles Cicchetti.

STATEMENT OF CHARLES CICHETTI, OFFICE OF EMERGENCY ENERGY ASSISTANCE, STATE OF WISCONSIN

Mr. CICHETTI. I certainly agree with the comments Dr. Kahn and Dr. Joskow have made.

I am from the State of Wisconsin, and I think we are leading in a lot of the reform that is under way. I have testified in about 15 other

States, and my experience has been there is interest in those other States, but the commitment has been in Wisconsin, where other States have not been quite as far along.

What I would like to do is to outline some of the other reasons why I think time-of-day pricing has a lot to offer, and then comment on what I think the committee might do to help move this reform along.

In addition to the notion that utilities cost minimize, and every utility company in the country practices that, with a great deal of attention to holding down costs, the utility knows that a kilowatt-hour of electricity is not the same as another kilowatt hour of electricity. That is, some kilowatt-hours cost a lot more to provide than others. And it is important to try to get electricity prices to reflect those cost differentials.

Now, for too long, we have had electric utilities cost minimize by one hand of the operation, and then the other hand of the operation has been in charge of developing tariffs to produce a given target revenue that they have been allowed to return.

Now, the safest way, in the minds of the accountants who are working for the utilities of getting that target revenue is to get as much money up front as they can possibly get. If they could have everybody pay a pro rata share of the costs that have to be recovered in a given year, they would be certain that they would get their revenue requirements.

Now, no utility has priced quite so much up front, but the general philosophy of electricity pricing has been to get revenues in the beginning of the month, in the low volumes of consumption, in separate two-part tariffs, and in this way, the end of the month consumption of electricity is very much underpriced. That has led to a charge that electric utilities are promoting the use of electricity at a time when energy conservation is a national goal or a national requirement.

Promotional or volume discount pricing, I think has to be eliminated. Now, there is one way of eliminating that pricing system that not only gets rid of the promotional practices but also comes a long way towards addressing many of the other problems that we face in electric generation and transmission, and that is time-of-day pricing.

Now, the aspect of time-of-day pricing is that it does not eliminate discounts. What it does is it comes up with an alternative set of discounts, namely time of consumption discounts. Industrial users of electricity will still be offered the opportunity to have discounts, if they use electricity when the costs of providing it are cheap, such as many months throughout the year, in the evenings, weekends, what have you.

In Wisconsin, I think one of the reasons why we are further along in this electricity pricing reform is that, after a year or so of hearings and considerations, the industrial users of electricity and the manufacturing associations have been talking about the advantages of time-of-day discounts when the volume discounts that they have been having for the last 20 years are eliminated.

And I think that getting not only the industrial users but the consumer groups and the environmental groups behind the reform has been the key to what has taken place politically, at least in Wisconsin.

There are environmental advantages to time-of-day pricing. For one

thing, it penalizes the use of electricity that requires the expansion of the system, and by penalizing expansion and encouraging electricity use to take place when it is not necessary to expand a system, there are savings in avoiding new generation and transmission facilities which have important environmental side effects.

Additionally, by encouraging use to come from the most efficient plants the utility owns, there is less pollution in the form of air pollution associated with the same amount of kilowatt-hour generations that would take place, without this form of pricing.

There is also energy conservation, but it is a different kind of energy conservation. The time-of-day pricing might encourage more energy to be used by the economy of the various States that endorse the principle, but the electricity that is being consumed will come from a smaller investment in generation and transmission facilities; thus, the less energy going in to construct those facilities, the less money going in to construct those facilities, and there will be the possibility of more jobs and more economic activity, lower consumer bills. And therefore, we might have more kilowatt-hours being consumed, the energy output might go up, but the energy input will go way down, and efficiency will be achieved.

So it is an important area in our fight for energy conservation, as well as the economics and environment, to go ahead with time-of-day pricing.

Now, what do I think—having said that, and having talked about some of the advantages of time-of-day pricing—I think there are a couple of areas where the Congress and legislatures around the country can do some things to help encourage time-of-day pricing. For one thing, to implement time-of-day pricing, investments in new metering, at least at the residential level, will be required. I think that certainly in H.R. 6860, there are several places where there is additional tax incentives for solar energy, for other forms of energy conservation, and I think it would be important to make certain that new meters that would make it possible for time-of-day pricing be included in any of the tax incentives or accelerated depreciation aspects of a bill that might come out of the Congress.

Additionally, I think that the time has now come that even if we do not go forward in the direction of time-of-day pricing, it is important to eliminate the current declining rate block pricing that utilities have practiced. And I think that I would like to see some consideration, a congressional stick, if you will, to hold back some of the advantages that are in the House bill that is before you, unless utilities are moving away from declining rate block pricing, and either flattening those schedules or moving fully toward time of day.

For too long now, I think we have relied on the fact that 50 years ago, electric utilities peaked in the evening and low-volume users were responsible for that peak, so therefore, to collect generation and transmission costs, it was necessary to get the dollars for low volumes of consumption. Today, it is almost impossible to find an electric utility that peaks in the evening, but we still find this practice of charging very high amounts for the lowest earliest volumes of consumption in a particular billing period. And I think we have to end that practice and move quickly toward time of day.

— But even if we do move fully toward time of day, we should be eliminating a declining block promotional of volume discount pricing, any of those pejorative names you want to describe it as. And so it might be important in offering some capital advantage or benefits to the utilities that are deeply in trouble in this country to help push the reform along by putting in some requirement that utilities show that they have a good faith attempt to move away from volume discount pricing.

I think that is all the time I will take now, since most of the things I would have said have already been said.

The CHAIRMAN. Mr. Packwood.

Senator PACKWOOD. I have no questions.

The CHAIRMAN. Senator Talmadge.

Senator TALMADGE. I judge from the testimony, of all three of you, that you are recommending that we outlaw this practice of volume discounting for electrical customers—is that the thrust of your argument?

Mr. KAHN. Senator, I am not sure I am in favor of a congressional outlawing of it, unless it is very carefully framed. Obviously, we are all in favor of eliminating these discounts, where they are justified, but do be careful. In the Con-Ed case, for example, we found that some very large religious institution customers in fact imposed fewer costs on the system than the average customer in that category, because they tend to use their electricity on Sundays, and on Friday nights. So we in fact introduced a lower block rate for religious institutions. So if you do move in that direction, I would suggest that you have some sort of a qualification, such as eliminate it except where commissions find it is specifically cost justified. You see, it might be justified on time of day.

Senator TALMADGE. You think the States ought to do it, or the Congress ought to do it?

Mr. KAHN. I am not a States' right advocate sir, even though I am chairman of a State commission. I think the States ought to do it, but I have no objection at all to Congress stimulating and delivering a prod to those States that do not do it.

Senator TALMADGE. How many States have done it?

Mr. KAHN. Oh, there has been very little activity in this area up to a couple of years ago. Dr. Joskow mentioned a few of the States that are now moving in this direction. I think it is still a handful who have really moved.

Senator TALMADGE. How much energy has been saved where this volume discounting has been eliminated?

Mr. KAHN. I guess I could not give you the number. We could try to find out.

Senator TALMADGE. Could you give us some estimate? What is the situation in New York? You have done something about it there; have you not?

Mr. KAHN. Yes; we have. The difficulty of it is that we just put it in about 3 months ago, so at the moment it is just surmise. All we know, sir, is if you raise the rates, there is going to be more conservation. We do not know how much yet.

Senator TALMADGE. You must have had some preconceived notion about your objective when you put it into effect, did you not? What was your guess as to what it was going to be 12 months in?

Mr. KAHN. I guess that it might save—in a particular category, it might save 1 percent, or something like that. But my objective is to have rates that reflect cost. Then if people insist on still buying it at that cost, in this free enterprise economy, I do not necessarily object. But I want them not to be subsidized. I do think it will save. I do not think anybody can tell you, sir, with any degree of assurance, how much, because we do not know.

Senator TALMADGE. Now, has volume discounting been practiced for commercial customers, as well as residential customers?

Mr. KAHN. It has been within both. In the residential category, larger consumers have had lower rates than smaller. It has tended to be particularly so for industrial customers who pay a lower average rate than residential customers.

Senator TALMADGE. I believe the commissioner from Wisconsin stated the peak hours are no longer in the evening. Is that correct?

Mr. CICHETTI. Yes; that is certainly true, in almost every large utility in the country, not to have a lighting peak. You might have peaks which are air-conditioning peaks, which might still be in existence in the summertime to 7 or 8 o'clock in the evening. It is not a lighting peak any longer.

Senator TALMADGE. What would you have? Would you have just a flat rate, regardless of the time it is used? I believe the New York commissioner wants volume discounting on Sundays for religious institutions. So how would you work it out so it would be applicable throughout the United States, and equitable?

Mr. CICHETTI. I do not think you would have the same rates throughout the United States. Each utility system would have to price based upon the cost of providing electricity at different times in those utilities. One alternative would be to have, let us say, 3 cents a kilowatt-hour for all kilowatt-hours being consumed. That would be a flat rate. Another alternative might be to have some electricity being sold at 5 cents a kilowatt for, maybe electricity taken during the few hours when the utility has to build new capacity, as demand increases, and maybe only 1 cent during the other hours. It would be much like the long-distance phone calls, except it would be on a regional basis, instead of a national basis.

And the customers, when their electric bills went up, would be afforded the opportunity of avoiding some of that price increase by shifting some of their use around in both the appliances they purchase and the use of the appliances they have.

I could give you some indication of what the expectation is in savings, if time of day pricing replaces volume discount pricing. I think it is not a very good estimate, but it is the estimate that motivates most of us who are proposing this reform, and that is to look at the European experience, particularly France and the United Kingdom, which, 20 years ago eliminated what I have called volume discount pricing and moved toward time of day pricing for industry, and optional time of day pricing for residential customers.

Both of those countries estimate they save about \$250 million to \$300 million per year in cost of providing—

Senator TALMADGE. What was that in percentage of power used?

Mr. CICCHETTI. That is about 10 percent of ours, so we might be talking about \$2.5 billion to \$3 billion per year, if we had the same shifting taking place as the Europeans.

Senator TALMADGE. That would mean the utilities would receive that much less in income?

Mr. CICCHETTI. They would have that much less in cost, as well, and that is the beauty of time of day pricing. It tends to have—

Senator TALMADGE. It will equalize itself?

Mr. CICCHETTI. Yes, that is correct.

Senator TALMADGE. Let me ask you something—all of you, I presume, represent utilities, and all of us have read the horror stories that utilities are experiencing, throughout America now. I think the prime horror story is perhaps Consolidated Edison in New York. I think everything that could happen to them has happened to them. And we have had a parade of witnesses through here who tell us every time they try to do something, they are hamstrung by regulations and lawsuits and environmentalists. If we are really to solve this energy problem, it seems to me we are going to have to break some bottlenecks. If we want to build a utility plant, we are just going to have to build it.

And of course a nuclear plant now, I think, takes about 11 years, from the drawing board to on stream, whereas, in Europe and in Japan, I am informed, they can get one on stream in about 3½ years. Should we not create some sort of an emergency energy board with power similar to what the War Production Board had in World War II, to break all these bottlenecks, where we can mine coal, where we can build nuclear plants, where we can build electrical plants, where we can build coal-generating plants and get them going? I would like to have your opinion on that.

Mr. KAHN. Well, it is obviously an enormous subject, Senator. Without necessarily agreeing with everything you have said, I certainly agree that it is desirable to have some agency that is responsible for the adequacy of our capacity, and that can look into these bottlenecks, which unquestionably exist. The delays in getting permission to build some of these plants are unconscionable. And I am not suggesting that environmental values should be ignored. They should be handled, but there is no reason why they cannot be handled expeditiously.

Senator TALMADGE. We are at war now. It is an economic war. We have got to have somebody to mobilize the troops to fight the war, have we not?

Mr. JOSKOW. That is absolutely correct. You are going to have to start thinking in terms of whether there are significant areas in which the delays—and you are absolutely correct that there are differences, fantastic differences in the amount of time it takes to go through all of the steps that have to be gone through in the construction of nuclear plants in this country, as opposed to the European countries. Now, that does not mean, of course, that the European countries are necessarily appropriate, in terms of the time pattern that they are following. They may be too quick. They may have different safety standards from us. They may have different environmental standards. But there

is certainly no question in my mind, at any rate, that we are going to have to start concentrating on eliminating, to the extent at all possible, the delays that we now face in the construction of the kinds of capacity we are going to require, even if the introduction of peakload pricing comes on very, very quickly.

I might, if I may, just come back to the earlier question. I might point out to you that certainly, in various areas of the country, utility commissions are paying a good deal of attention to what Dr. Cicchetti has called discount pricing. I would not be as extreme as he with regard to whether the declining block rate is necessarily inappropriate. To the extent the declining block rate does track the cost of the utility, it may be appropriate, and should be appropriate, pending the introduction of time of day rates, to continue a block rate in many circumstances.

In Wisconsin, for instance, they have recognized there is a need for a reduction in the taper of the block rates, because at the tail blocks of rates are not cost justified. But going along with Professor Kahn, to the extent that we have an appropriate reflection of cost, and those that nevertheless do have block rates, those should be continued.

Senator TALMADGE. Thank you, gentlemen; my time is expired.

The CHAIRMAN. The thought that occurs to me about this is that if we could work out some way to prevail upon the utilities to simply reverse their rates, so that the early units are priced very cheaply and the final units are priced very high, to encourage everybody to economize. You hear advertising that if you will put 6 inches of insulation in your attic, you will save \$150 during the winter here in Washington.

Now if you could reverse the way that you have structured that rate, they could be advertising that you will save \$300.

It also appears to me that we should try to work out an overall arrangement whereby we would raise some money. Now that is not your problem. We will try to figure out how to raise the money. But we are talking about a lot of money; we are not talking about a small amount, we are talking about several billions.

Having done that, it would seem that rather than try to pay for it all at one time it would do well to arrange for a financing mechanism. For example simply say that the utility company could work with the bank and advise what it would take to make a home energy efficient. We would then provide about a 20-percent tax credit for the cost of it. If the person would put up perhaps 10 percent, the rest could be financed. The company could simply, instead of having a charge for service, whether you pay for it or not, just put that at the far end of the rate to make it more advantageous to save and then proceed to load the initial charge as a charge to pay for the cost of this insulation in these homes.

Now we could guarantee these loans, although I personally do not think it necessary to do so. You start out with about a 20-percent equity in-it which is generated by the tax credits. If the people put up about 10 percent, that gives you a 30-percent equity. Make it at low interest rates and let them pay for it over a period of time. It seems to me you would save a great deal of energy.

Now New England, under the pressure of the high fuel oil prices, has cut back 20 percent in energy consumption in those homes. If everybody had done this in America, the energy shortage would be over already. At least the immediate crisis would be behind us.

Now why can we not work together on some approaches like that?

Mr. CICHETTI. The problem with that approach, Senator, is that it would save a lot of energy but it would also cause the utility to lose a lot of revenue.

The CHAIRMAN. Well, let me stop you right there. I left out one feature. We will have to find a way to pay for all of this. I understand that. I have voted for taxes before. And if we simply proceed to make it up to the company, whatever they are losing, you tell us what that company ought to be making on a fair rate of return and we just make it up to them. Why not?

Mr. CICHETTI. The other way of doing it is the way we are recommending, which is to say that at certain times conservation is both more energy saving and also results in greater cost savings for the utility. And so rather than say that all of the use that accumulates on a meter over a whole monthly billing period, rather than say the last half should be overpriced and the first half underpriced, what we are recommending is saying let us add a second meter and let us find out whether it is high cost electricity being consumed and low cost electricity being consumed and let us reward those users who take low cost electricity and penalize more heavily those users who take high cost electricity.

The CHAIRMAN. I am willing to do that. I am perfectly willing to do that and do what I can to encourage that type of thing.

Mr. CICHETTI. But simply reversing the—

The CHAIRMAN. You are not responding to my part of it. What I would assume if you want to do the kind of thing you do, instead of heating the house in the peak period—I am not talking about just with electricity. I am talking about gas as well. Instead of heating your house in the peak period, you would try to heat it in the off-period. But if you do not have any insulation, the heat is going to escape out of the house as fast as you put it in there.

Mr. CICHETTI. I agree with everything you have said about the insulation and the need for tax incentives for insulation. What I am saying, though, is that just merely turning the declining block tariffs upside down and making them rising block tariffs, in my view the conversation that takes place will lose a lot more revenue than it will save the utility in cost, and therefore the need for additional rate hearings and rate increases or tax subsidies will be even greater than they are now.

The CHAIRMAN. I am not even thinking about whether they are going to make or lose money. We can make that up to them out of revenues. I am talking about dispensing with a system that encourages waste and going to a rate structure that encourages people to save.

Have you ever thought about such an approach?

Mr. CICHETTI. Yes.

The CHAIRMAN. Because to me we are sitting here talking about brownouts, blackouts, doing without. And we have got some of our friends that want to save the public money by doing without energy.

Now what I am trying to do is to make better use of what we have. I think it makes a lot better sense to try to make better use of what we have. As a matter of fact, the structure we have right now of volume rates is very unfair to the poor. They pay for everything they buy at the high rates, do they not?

Mr. CICHETTI. Yes, sir.

The CHAIRMAN. It would be far more fair to those people to do it the other way around. In everything I know of, except utility rate structures, we favor the poor. We do it with our income taxes but it sure is not that way with utility rates and it seems to me if you want to encourage someone to save energy, you ought to reverse that rate structure.

Now the company has to make a certain amount of money, I know that. That is no problem. You tell us what they need to make and we will work with you to see if they make that much. But over and above that it seems to me as though we ought to have something to encourage saving and so far very little has been achieved. I think we ought to do more than eliminate volume discounts. We ought to reverse the rates.

Mr. KAHN. Senator, may I talk about that? I agree again totally on the question of the provisions of this bill, about tax credits and the use of Government money to help conservation, solar installations and so on. And all I would add is that I would hope you would use that energy trust fund as well to help utility companies convert from coal to oil. I think that is very important.

OK, that is one point—excuse me, switch from oil to coal.

But I for one would argue strongly against inverting the rate structure, and let me try to explain why. There is no more logic in saying the person who happens to consume 1,000 kilowatt-hours a month should have more incentive to conserve than the person who consumes 300 or 200 kilowatt-hours per month. And do not be so sure it is always the poor person who consumes the 200 and 300, and it is always the rich person who consumes 1,000.

In New York City, for example, some 20 percent of the minimum bills are by rich people who have an apartment in town and they use it once in a while for an occasional assignation or whatever purpose they have in mind, and they go away. The poor people have to stay home and watch television. They cook at home. The rich people go to restaurants.

It is a very imperfect way of helping the poor, and I am in favor of helping the poor in other ways. That is No. 1, No. 2, what are you going to do about the people that heat their homes with electricity? A lot of people, poor people with relatively small apartments have electric heating. You are going to murder them if you invert the rate, and what are you going to do to induce them to turn to oil.

Now if the oil comes from Louisiana I am not going to object. The trouble is I know it is going to come from the Middle East. So you had better be very careful about having selective conservation devices. I would urge you, if you want to do more conservation than the price system will do, and we want to use the price system, all of us, to do it, then let us have an energy tax on all kinds of energy. Then people will conserve, whether they use a little, whether they use a medium amount, or whether they use a lot. You are going to get into a very complicated business by tinkering and making rates that do not reflect costs.

The CHAIRMAN. Let me just trespass on everyone's time for just one moment to make this point.

A, we ought to do something far more drastic than what the House sent us. I see everybody agrees with that. B, I think we have the cap-

ability of raising a lot of money in this committee. I think we can find the votes to vote for whatever revenue source we need.

Now having found a way to pay for it, I do not think we ought to penalize the poor. The people who carry the burden of this ought to be people who are in middle and upper income brackets, and there is no reason why we cannot do it that way if we just put a little brought to it.

But we ought to try to find ways that would effectively stimulate economy and savings, and we have not done that anywhere except in New England and we cannot take any credit for that.

Now for once we ought to do something and the Congress ought to make an affirmative move toward doing something that helps to bring out energy conservation, and we can do more in the short run with energy conservation than we can with more production. In the long run production is the answer.

Mr. JOSKOW. Senator, I think first of all what the three economists are telling you now is they feel economists can tell you something about how we can economically save electric energy and that is with the introduction of time of day rates.

I want to mention first of all we three do not represent utilities. I do represent utilities and Professor Kahn regulates them, and Dr. Cicchetti usually intervenes against them. This is, I think, a rare combination of three people on all sides of the fence taking exactly the same position. I certainly strongly urge that this committee do everything in its power to effectively develop measures which can conserve energy.

Let me adopt what Dr. Kahn said a moment ago and let me suggest that if indeed you can raise revenues and if you are concerned with the effective rise in electric prices on the poor that, you not tinker with rate structures in trying to benefit them.

Let me add one statistic to some of the things that Dr. Kahn has said. Somewhere on the order of 12 to 15 percent of the poor in this country pay for their electricity through their rent. They are not going to be helped by the kind of reduction you are talking about. In fact, they may actually be harmed because probably they pay under commercial rate schedules that will probably rise.

I would suggest that if you can raise money and if you are significantly concerned about the impact of rising electricity prices on the poor, that you conceive of and perhaps even suggest some kind of energy stamp program similar to the food stamp program that is now in effect in this country.

The CHAIRMAN. All you would do would be to encourage them to waste. Would that not give them more money to pay for energy?

Mr. KAHN. No, sir, on the contrary.

The CHAIRMAN. When you said an energy stamp program is the same as the food stamp program, what does the food stamp program do? It just gives them more money to buy food with.

Mr. KAHN. Sir, you cannot do it both ways. If you want to raise the price of energy to induce conservation and help the poor, in which case you have got to give them something back. And one way of doing it is to single out the poor and see that you really help them by giving them energy stamps. You cannot say, we do not want the poor to be hurt, and on the other hand we do not want to encourage them to consume. We can also tax rebates and you can rebate to them on an income

basis. Have a lump sum return to the people who are poor—energy stamps, rebates, that is fine, and raise the prices uniformly, that is fine, to get conservation. Do not raise them discriminatorily the way you are suggesting because it is going to have effects that will not get what you want.

The CHAIRMAN. I do not mind discriminating in favor of the poor. We just got through doing it with the tax cut bill.

Senator Gravel.

SENATOR GRAVEL. One of the proposals I will be offering in committee will be a British thermal unit tax. I am surprised to hear you mention what the tax would do if you taxed all forms of energy at the source on a uniform, equitable basis. And as the system progresses obviously it would reward the efficient systems and punish the inefficient systems.

Could I assume that you subscribe to that since it would not be tinkering with mechanisms but would be raising the revenues necessary to pay the cost of whatever we want to pay for in our need?

Mr. CICHETTI. Where would the British thermal unit tax on the utility come?

Senator GRAVEL. For example, if it is a hydro-utility, you would rate the generator for British thermal unit capacity and tax it there. If it was an atomic generator, you would place the tax there. If it is coal, you would rate the ton of coal for British thermal unit capacity when it is mined. If it is oil, you would rate the oil at the wellhead. And if it is imported oil, you would rate it when it is purchased or when it comes into the country. If it is gas, you would rate the million cubic feet of gas. So in some cases it would be before generation and in some cases it would be at the point of generation, because we have no way of measuring British thermal unit capacity of running water.

But in all cases whether it is geothermal, atomic, hydro, oil, or gas, there would be an equitable tax. For instance, if you had a tax of 2 cents per million British thermal unit, you would raise almost \$2 billion in the Nation, which could then be used for the whole R. & D. cost of increasing our capacity.

Mr. KAHN. Senator, it happens I prepared a rather lengthy paper for our Governor's office on a proposal of a similar kind, some of the problems of a British thermal unit tax. It certainly is preferable, as we suggested, to inverting the rate structure, and it does sort of get into the heart of the problem. But there probably is not time here to discuss some of the problems involved.

Senator GRAVEL. If you would give me the paper, that would be a most valuable contribution. Obviously, in order to meld together a good piece of legislation, we need the finest criticism of the proposal that we can get. If you have a paper that is done, I would hope that you could have it delivered to us by Monday.

Mr. KAHN. I would be delighted. It has already been written. I will just take the "Confidential" off of it.

Senator GRAVEL. Very good. Thank you very much. You will render us a great service in this regard.

What thinking do you have on this subject? Let us take the Northwest. The Northwest, because it is on a hydro system, enjoys a better utility rate than does other parts of the country. In the State of Alaska, I will be pushing for a dam that will provide most of our electrical

needs. Because we have an unusual hydro site, we will be able to have power cheaper through this hydro site, we will be able to have power cheaper through this hydro than we will through oil and gas, which we have in great abundance. So we will export our oil and gas.

Of course, that is good national policy.

In that regard, what is the possibility of instituting a system where we could equalize electricity rates throughout the country. Currently, we have areas of the country vying for each other's industries in a competitive fashion which may not be in the best interest of total national policy?

Is there any way that we could, through a tax device, equalize the burden of electrical power on a universal basis within the confines of the United States?

Of course, they would be equalized at a relatively high level, but then it could be adjusted so that areas of the country which suffer could receive some succor as opposed to areas which are just accidentally blessed by nature.

Mr. CICHETTI. My reaction to that is, I do not think it is a very good idea unless we had a national grid system that made it possible that an additional kilowatt consumed anyplace in the country resulted in the same additional cost for the entire country. That is, as long as we are going to have separate regions for the production of electricity, as we have it, and as long as they are not totally interconnected, then I do not think it makes sense to think about a national price for electricity.

Senator GRAVEL. You are just thinking in terms of electrical cost. I am thinking in broader social terms.

If you happen to live next to a dam in Grand Coulee, which is probably paid by tax dollars from people living in New York City and Manhattan Island, you have a different cost than those people in New York.

I do not disagree with your assessing a direct cost, but you can also assess the regional cost accurately and then average it out nationally. Then everybody carries the burden, which is exactly the recommendation he is making to us with respect to coal conversion. The people in Alaska are going to help carry the coal conversion burden in New York. I think that is justified because it is a national policy we are after. We, in Alaska, are going to benefit from the savings that occur in balance of payments, and the advantage that is going to happen to our economy.

So do you still want to comment on it?

Mr. CICHETTI. I guess the other half of it is to say that if it is being undertaken as a national goal, it is a goal that has cost involved, and there are two ways of going after this. One is to say let us spread these costs around nationally and get them equal. Another is to say if there are regional benefits, then rather than having Federal tax dollars be used for the construction of powerplants, that State dollars and regional dollars ought to be used to finance these things.

What is happening, I think, more and more is that the environmental and social impact of powerplants is such that almost nobody wants them built in their State or their region, and if it would be possible to not only get plugged into other States that build powerplants and have the same cost to supply, I think there would be a great local

opposition at this, and State level opposition, to construction of much needed powerplants because there would not be any economic cost from not having the powerplants built in your State.

I think it is important to have people locally pay for these things if the benefits are local.

Senator GRAVEL. What about in your State? Do you have a lot of oil-fired generation plants?

Mr. CICHETTI. No; we have mostly nuclear and coal.

Senator GRAVEL. Does most of the coal come from your area?

Mr. CICHETTI. No; it all comes from the Western States.

Senator GRAVEL. So, the environmental denigration is theirs, but the benefit is yours?

Mr. CICHETTI. Except for the denigration, which is associated with the burning of the coal directly into power.

Senator GRAVEL. No question, you have to have a plant. But the point I am making is that you are enjoying the benefits of that electricity, but there is an element of cost that is going to appreciate to the poor souls in the area where you have carved out their land.

Mr. CICHETTI. I agree with that. I think the tax dollars ought to be collected in those States to offset that particular economic environmental dislocation, but the point that I thought you were making is that we really would not be having these offsets take place, because we would somehow levelize all the electric bills around the country, whether or not you were near a mine or near a generating plant, or near nuclear powerplants, and that is what I am having trouble with.

Mr. KAHN. Well, there would be major inefficiencies, Senator.

Senator GRAVEL. Would there?

Mr. KAHN. For example, suppose you do have a lot of hydroelectric power available in certain areas. If you equalize those rates all over the country, then there would be no incentive for industry to locate where it, in fact, costs society less to serve it. And you would have an enormous grid of transmission lines going all over the country, you see. There are certain advantages of location that are properly reflected in rates.

On the other hand, there are certainly some programs—I think you are quite right—which involve governmental assistance or Federal assistance, the benefits of which are unequally distributed, and there I could not agree with you more. Obviously, I come from New York State. We find that our Power Authority of New York State, which has benefits of lower interest costs, tax preferences and so on, sells cheap power that goes quixotically, to people in a particular location and not elsewhere. So equalization in some respects, yes, it is a very good goal. But I think it would be a mistake to go to postage stamp pricing because that would involve serious inefficiencies.

Senator GRAVEL. Thank you. I think my time is up. I would like to pursue it further though.

The CHAIRMAN. Senator Curtis.

Senator CURTIS. Mr. Kahn, did I understand you to say that you favored a tax on all energy?

Mr. KAHN. Yes. I think that that is the most effective device for encouraging conservation to a greater degree than the price system alone is going to do. So I think that is a reasonable way to do it. By the way, I would return it to revenues in various ways.

Senator CURTIS. What energy sources are we short of? Do we have a scarcity?

Mr. KAHN. Well, in natural gas, there is an obvious scarcity. Nobody knows how real it is in physical terms as compared with to what extent it is caused regulation of the field price. In the case of oil, it is not so much a scarcity. There is plenty of oil in the world.

Senator CURTIS. I am talking about in the United States.

Mr. KAHN. Well, in the United States, you would have to say oil is scarce in that something like 38 percent of our oil now comes from the outside.

Senator CURTIS. In other words, should not our objective be to conserve scarce fuels and to encourage a substitute of plentiful fuels?

Mr. KAHN. A very good point, sir.

Senator CURTIS. All right. Now, why are you here recommending a tax on energy produced from coal?

Mr. KAHN. Well, I would like to correct a misimpression. I used the possibility of an energy tax as a better way of doing it than inverting the rate schedule, but one of the objections I was going to bring to Senator Gravel about a Btu tax is that we want to encourage shifts, just exactly what you were saying—we want to encourage shifts—from natural gas and oil to uranium to the extent it can be done safely and coal. And so I would be opposed to trying to discourage the use of coal.

Senator CURTIS. Yes; in other words, if we would pick out those uses where there is a substitute.

Coal—they could use coal; they could use water power; they could use nuclear power; and then if we should pick out uses of oil and natural gas, such as running boilers, and put the tax there in order to make a disincentive for not converting to those things that are in short supply, it would make sense.

Mr. KAHN. I agree with that 100 percent.

Senator CURTIS. Now, as a matter of fact, just a blanket tax across all energy consuming, sure, it would reduce consuming energy, but it would also reduce our economy. If we are going to have jobs in this country, jobs result from the expenditure of energy. We had out in Nebraska a man who farmed with a mule. He decide to conserve on food and he cut it down a little percentage all of the time, and he had this idea that someday he could teach that mule to work without any food at all. By the time he got him trained, he died.

Now, this approach to our energy situation by conservation, when it goes beyond eliminating waste, is an attack upon jobs, and our economy and so on. What we need to do is to produce more energy. I hold in my hand a report from South Africa. I visited there this spring. They are very successfully making gasoline from coal without a subsidy, now that the world prices have gone up. They have voted for an enlargement and this article says, "When completed oil from coal will supply 40 percent of the country's requirements, enough to maintain all essential operations in time of emergency. However, this will only be one of the advantages. Around in the eastern Transville Hydert the exact site for the plant has now been chosen, arises a giant new industrial complex, centered on chemical fertilizers and plastic manufacture, providing a spectacular boost to the country's general economic progress in jobs, in the beginning scores of thousands."

Now, what we need in this country is not to curtail the use of energy. It takes energy to run trucks and railroads and factories and to fly our airplanes and our passenger cars. We cannot get along without the tourist industry. We can all get little bits of cars that could not pull anything, but it would put an end to the boat industry. I am getting weary of this idea by just not using any energy we can solve these problems. We have got plenty of energy here if we go after it.

Do you agree that we have got enough coal for maybe 800 or 1,000 years that we know of?

Mr. KAHN. I do not know how many years; but we have got plenty of coal.

Mr. CICHETTI. I would like to offer just one caution about the coal conversion to gasoline, and it is true, I think, that we have hundreds of years of coal under any estimates that one looks at, but that is using coal for the things we have used coal for in the past, and if we were to convert coal to gasoline, most estimates say that we would have only enough coal, if we continue to use gasoline at the rates we have been using it in the past, for maybe 40 or 50 years, and that is a much more realistic deadline that we have to face.

Senator CURTIS. I appreciate your point. Here is what I want to clarify. What we need to do is not just rely on coal for gasoline. At the very time that the policy of this Government should have been to produce more petroleum in this country, the Congress repealed the depletion allowance. But, I want to get on another subject. It has been said by some very knowledgeable people that State ratemaking commissions have contributed to the energy shortage by not allowing reasonable and necessary rate increases. Is that true, Mr. Kahn?

Mr. KAHN. I think on balance I would have to say yes. I am sorry it took me a long time to say yes; I do not want to say it is typical over the whole country. We do not yet have a shortage of electricity. It is still uncertain how much demand is going to increase. In New York State, we are worried about 1981 and 1982. Until then, we have plenty. But still, on balance, yes.

Senator CURTIS. Now one of the factors for providing our energy needs is for those business concerns producing it should have some working capital; is that not right?

Mr. KAHN. Yes. But more than working capital, adequacy of ability to raise fixed capital.

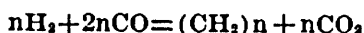
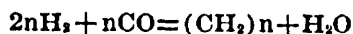
Senator CURTIS. And by working capital, I mean in as broad a sense to expand, and to build, and take care of future needs.

I see my time is up, Mr. Chairman. I ask unanimous consent that this article taken from the South African Scope be printed in the record.

The CHAIRMAN. Without objection, agreed.

[The article referred to follows:]

SASOL 2



These cryptic chemical equations are the chemist's conception of the Fischer-Tropsch oil-from-coal synthesis process.

Locked up through the ages by nature in that formula, and released during the past quarter-century by the ingenuity of man, is as daring a story as any of South

African industrial achievement. Since the onset of the energy crisis, the story—of the synthesis of common elements into fuel gas, and a host of other chemicals—has engaged the keen attention of governments, scientists and industrialists around the globe. And in South Africa, a spectacular new chapter has opened. On December 5, 1974, the Minister of Economic Affairs (Senator Owen Horwood), announced: "The cabinet the day-before-yesterday decided that a second Sasol (short for the South African Coal, Oil and Gas Corporation's plant) be established with a minimum of delay to produce gasoline, diesel and other petroleum products from coal . . ." Estimated to cost initially \$1.5-billion and to be completed within six years, the output of the new plant will be ten times that of Sasol 1.

That is the latest chapter . . . but how did the story begin?

The need for an alternative to natural oil is obvious to all and sundry today. But that was not at all the case when, way back in the twenties, South Africa chemists began turning their minds to those equations at the head of the article. And it was not some screwball vision. As early as 1927, the government published a White Paper on the subject, though for the next couple of decades exploratory work was left to private enterprise. The Anglo Transvaal Corporation sent experts abroad to study synthesis techniques which were being developed elsewhere, more especially by Fischer-Tropsch in Germany and Kellogg in the United States. Anglovaal acquired the rights to these rudimentary processes; but by the time the Second World War was ended, the task of incorporating them in a South African plant had become too complex and costly for it to handle. Accordingly, the rights were transferred to Sasol—which was established by Act of Parliament—and the great state-sponsored venture began.

The technical challenge was immense. The most sophisticated nations had been unable to produce oil from coal commercially; and far and wide the state initiative was pooh-poohed—by scientists, economists, politicians, the press and vested interests. The giant international oil companies had at their disposal apparently limitless supplies of the crude material laid down by Nature in a number of tin-pot Arab states and banana republics. They surveyed the world's requirements—and satisfied them with a confidence matched only by the profits they made. All the oil that South Africa needed was readily obtainable from abroad: the South African Government, the critics declaimed, was squandering the taxpayers' money on a chauvinistic project that was unnecessary and could never be profitable . . . Well, Sasol's last annual report recorded a turnover of \$440-million (an increase of some \$150-million over the previous year) and a taxed profit of more than \$25.5-million.

What had happened in the intervening 25 years to confound the skeptics? The answer, in short, is that a brilliant and dedicated team of scientists and engineers put together a plant the like of which there is no other in the world. This is something of what Sasol does today: from an underground area of 10 square miles it mines and crushes daily 22,000 tons of coal which is fed on 1½-mile conveyor belts to the plant. Daily, it separates from 15,000 tons of air, 2,600 tons of oxygen. The coal is gasified in an atmosphere of oxygen and steam under a pressure of 350 lbs per square inch. Each hour 9-million cubic feet of the gas so produced is purified by cooling to a temperature of minus 85 degrees Fahrenheit and washing with methyl alcohol. The resultant pure gas mixture is the raw material for the synthesis process . . . and, eureka, the water of the Vaal, the coal beneath the surface nearby and the oxygen on the air flow forth in the form of fuel gas, petrol, nitrogen, ethylene, butadiene, propylene, alcohol, acetone, ammonia, sulphur, waxes, tar, carbon dioxide, benzoles, cyanides and styrene (that we know of). And a recent Sasol report informs us: "This story is still in its beginning. Constant research is steadily expanding the range of industrial and consumer products resulting from the reactions represented by the equations above."

When the energy crisis struck in 1973, world interest in Sasol soared. Scientists from many countries vied for its expertise. A German company, Lurgi Mineralöl Technik, stepped up co-operation with South African experts at a pilot plant in Sasolburg on improved methods for producing SNG (synthetic natural gas). Decisive progress was made. Sasol was appointed as consultant for the planning, design, erection and commissioning of the first large-scale gas-from-coal plant in the United States, being built by the El Paso Company of Texas. It was estimated that when El Paso brought its project on stream in a few years, it would be three times as large as Sasol's own plant, and that the process would be providing about 25 per cent of America's total gas needs by the turn of the century.

Meantime, Sasol had been pressing ahead with the improvement of the oil-

from-coal technique; and by the end of 1973, Dr. Etienne Rousseau, the corporation's dynamic chairman, was able to say that "significant future savings in capital cost per unit of production will be possible as a result of recent development work."

This is the background to the decision to build Sasol 2—which, in its turn, will be more than three times larger than the El Paso plant. When it is completed, oil-from-coal will supply some 40 percent of the country's requirements—enough to maintain all essential operations in time of emergency. However, this will be only one of its advantages. Around it in the Eastern Transvaal Highveld (the exact site for the plant has now been chosen) will rise a giant new industrial complex—centered on fertilizer, chemical and plastics manufacture—providing a spectacular boost to the country's general economic progress and jobs, in the beginning, for scores of thousands. The cost of the scheme (which some believe will run ultimately to \$4.5 billion) will be met from three principal sources: the Strategic Oil Fund, export credit finance, and moneys voted by parliament. Since the Oil Fund is fed by fuel users, the levy on them will in due course be raised.

The Johannesburg STAR comments that after Sasol 2, South Africa may never be the same again. It gives these reasons: (1) By 1980, South Africa will be well placed to survive an effective world oil embargo; (2) planning for the future on this massive scale must have an unprecedented effect on confidence in southern Africa's economy; and (3) the investment, industrial development and job-creating potential inherent in Sasol 2 have vast implications. More expensive motoring (resulting from the increased levy) will, the paper observes, be a small price to pay for the stability which Sasol 2 promises to bring.

The CHAIRMAN. Next, we will call on Senator Fannin—if he is here. Well, he left.

Senator Nelson.

Senator NELSON. I came in after Senator Haskell.

The CHAIRMAN. Have we missed you, Senator Haskell?

Senator HASKELL. Yes; so far.

The CHAIRMAN. I offer profound apologies.

Senator HASKELL. No problem at all, Mr. Chairman.

Gentlemen, I think your presentation is extremely interesting. I gather there is unanimity on at least one aspect of this: that the quantity discount aspect of ratemaking should be eliminated and that also there should be instituted an off-peak pricing discount, if you will. I gather that was the thrust of all three of you.

And I think, Dr. Joskow, your remark that you represent utilities, Dr. Kahn regulates them—and I did not know it, but you say that Dr. Cicchetti intervened against them.

Mr. JOSKOW. Yes; he usually intervenes against them.

Senator HASKELL. The fact that you represent these broad spectrums, I think, is extremely interesting.

Now, Dr. Cicchetti, you say that if you took the European experience and translated it as U.S. generating capacity, we would save annually something in the neighborhood of \$3 billion of cost.

Would it be possible—and I ask all three of you this—to translate that into two things: energy savings and also capital cost savings? I do not know whether it would be possible to work back and translate it into that, recognizing, as you pointed out, Dr. Joskow, it would be over a period of time. If that would be possible—I know you cannot do it just sitting right here, but if you could submit it for the record, I think it would be very helpful to those of us on the committee.

Am I asking a possible thing?

Mr. CICHETTI. I can submit some documentation that I have from both France and England, of how they arrived at their particular number.

Senator HASKELL. And could you translate it into the two things I am asking?

Mr. CICHETTI. I think you will find it is primarily capital cost savings, as opposed to an energy savings.

Senator HASKELL. Whatever it is, could you get that? Because when the capital cost savings, to my money, is also energy savings. I would appreciate it if you would do that.

Dr. Kahn, would you be able to do that?

Mr. KAHN. As a matter of fact, I was going to say that these two gentlemen on my right and left have done more work in this area of estimating the responsiveness of demand and the changes in rates—they could supply you with better information than I can.

Senator HASKELL. All right.

Could you do that?

Mr. JOSKOW. Could I comment?

I am somewhat acquainted with Dr. Cicchetti's numbers, and I think they are probably the best available to us, because I know he has recently inquired of both the French and the British with regard to their best estimates in capital cost savings resulting from their introduction of peakload pricing.

But I would like to make two comments, one with regard to the summarization of our remarks. I do not think I would like the record to show that I have taken a position counter to or in opposition to the declining block rate. I think that the declining block rate could still exist as long as it is cost justified. And Dr. Cicchetti and I do have some differences in this area. I would want to clarify the record with respect to that.

With respect to the use of the European experience, I strongly recommend that this committee look at those data with caution, for two reasons: (1) the time dimension, the fact that the British and the French systems have been in existence for about 20 years; (2) that there are probably very significant differences between those two countries, on the one hand, and ours, on the other hand—not the least of which is the fact that we are very heavily a summer peaking country to a significant extent, in my view—and the literature seems to bear this out. A major factor affecting the load patterns of the electric utilities in England and France has been the existence of electric heating. We are dealing essentially with, as I say, winter peaking countries, where we have economic technology available to shift usage of electricity from the peak to the valley during the day, and perhaps across seasons. But across seasons is not really terribly important, so that I commend the evaluation of those data, but seriously caution you against using those data to give you a ball park figure that we are likely, in the next several years—let us say the next 5 to 10 years—to achieve.

Senator HASKELL. Perhaps we could do this, then, gentlemen, perhaps Dr. Cicchetti could submit his figures and perhaps, Dr. Joskow, you could submit something a little bit more accurate. In other words, in terms of where you have reservations. And perhaps you would do the same.

Mr. CICHETTI. I share many of those same reservations; in fact, in my prepared remarks—which, if the mails came through, has arrived to the committee—I talk about some of these same reservations as well, in describing those very numbers. But I would be willing to put a little

bit more flesh on the numbers and explain where they came from for the committee.

Senator HASKELL. I wish you would; I wish all of you would comment as to how near the ballpark the numbers are or where the variations are, because I think this is something we are very much interested in.

Now, Dr. Kahn, you made an interesting observation. You said that where we are compelling people to convert from oil to coal, there was an additional cost and it was a national cost. I assume that you would not—or would you—it should be in the form of a question. We are going to say that in other areas here that new generating facilities shall be on coal. Now, you would not take the position—or would you take the position—that that is a national cost?

Mr. KAHN. I think I would feel less strongly about that. It is the cost of conversion that in many cases is very high and quixotically distributed.

Senator HASKELL. I can understand that. I think it would be helpful—unless it is in your paper—for you to indicate the additional costs for closing the utilities under your jurisdiction. And possibly, if we agree, we can pick out some agreement.

Mr. KAHN. I would be glad to send you a letter I sent to Frank Zarb on that subject.

Senator HASKELL. Fine; we will put it in the record.

[The letter referred to follows:]

JUNE 23, 1975.

MR. FRANK ZARB,
Administrator, Executive Communications, Federal Energy Administration,
Washington, D.C.

DEAR MR. ZARB: We have reviewed the statements submitted by the Niagara Mohawk Power and Central Hudson Electric & Gas Corporations about the possible conversion of the former's Albany generating station and the latter's Danskammer units Nos. 3 and 4, at the hearings held in the above dockets by FEA on June 10, pursuant to the provisions of the Energy Supply and Environmental Coordination Act of 1974. We disagree with portions of the analyses in both statements dealing with fuel costs. But we agree with two significant conclusions reached by both companies: (1) conversion of these generating stations will result in rate increases, and (2) raising the capital necessary to complete the conversions will involve serious financing problems for these companies and their customers.

I proceed to explain both of these observations, and then will suggest what I think should be the proper federal policy in determining who will bear the burden of power plant conversions to coal.

Niagara Mohawk Coal Costs.—The company states that it will be required to burn coal with a sulfur content of not more than 1.1 lb./million Btu to comply with air quality restrictions, unless it installs flue gas desulfurization (FGD) equipment (The statement of W. A. Rumberger, p. 2). My staff's review of existing State and Federal air quality standards, as well as recent air quality information from the State's Department of Environmental Conservation, concludes that Federal primary SO₂ ambient standards are being met in the Hudson Valley Air Quality Control Region, where the Albany station is located. Niagara Mohawk is now burning 2.6 percent sulfur oil at the Albany station, which has 1.4 lbs. of sulfur/million Btu. It appears therefore, that Niagara Mohawk could burn coal with 1.4 lbs. of sulfur/million Btu rather than the 1.1 lbs. sulfur/million Btu it assumes, without having to install FGD equipment.

The cost differential between coal having 1.1 as opposed to 1.4 lbs. of sulfur/million Btu is substantial, as Niagara Mohawk recognizes in its presentation. (See Exhibit A of the Statement of Mr. Winkworth, showing the price differential over time for coal with a sulfur content above and below 1.5 percent.) My staff tells me that, as of April, 1975, the average *delivered* cost of oil at the Albany plant was \$1.63 per million Btu; and it estimates that the *delivered* cost

of coal having 1.4 lbs. of sulfur/million Btu would be very close to that figure. Accordingly, Niagara Mohawk's estimate of a \$15.3 million increase in fuel costs seems too high; fuel costs may well increase very little. And if the OPEC countries carry out their recent threat to raise their oil prices in September, conversion to coal would probably produce savings in fuel costs.

Central Hudson Coal Costs.—Central Hudson burns 2 percent sulfur content residual oil at Danskammer units 3 and 4 (See statement of Mr. Walker, p. 5); its current fuel oil cost is \$1.85 per million Btu (See p. 9 of that statement). It asserts that conversion of these units would require it to use 1 percent sulfur content coal to meet air quality restrictions, unless it installs FGD equipment (page 5). The Danskammer station is also located in the Hudson Valley Air Quality Control Region. Applicable Federal primary SO₂ ambient standards would Central Hudson to burn 1.5 percent rather than 1 percent sulfur content coal at Danskammer. (Two percent sulfur oil and 1.5 percent sulfur coal have 1.1 lbs. of sulfur per million Btu respectively).

My staff tells me that 1.35 percent sulfur coal was delivered to Niagara Mohawk in March and April of this year at a cost of \$41.10 per ton, or \$1.56 per million Btu. After adding about \$5 per ton to this price to cover additional transportation and miscellaneous costs (a generous figure), this coal would cost about \$1.75 per million Btu delivered to the Danskammer plant. Accordingly, Central Hudson's estimate of a \$1,643,000 increase in fuel costs seems too high; its fuel costs may well decrease, especially if the OPEC cartel increases oil prices.

I hasten to add, however, that no one can predict future coal prices with certainty. The coal industry plans to raise Eastern production by 7.2 million tons per year by 1983. It claims Western production will go up 127.3 million tons annually by the same year. My staff believes that the increase in Western production will produce realignments in the traditional markets, with Western rather than Eastern coal being burned in the midwest; Eastern coals should, therefore, be available in greater proportions to East Coast markets. If coal production does not increase as projected, however, conversions resulting in increased demand for coal would cause upward pressures on coal prices.

We have no other significant disagreement with the analyses presented by Central Hudson and Niagara Mohawk. We note that both companies raise serious questions about the technical feasibility of conversion, which you can and should examine carefully. For example, the asserted lack of railroad cars capable of carrying coal to these plants (See p. 15 of Mr. Walker's statement, and pp. 1-2 of Mr. Winkworth's statement) should be investigated with the proper Federal regulatory authorities. We are not in a position to make an independent assessment of this danger. As you know, Section 2(b) of the Energy Supply and Environmental Coordination Act of 1974 requires you to determine that "coal transportation will be available" and that proposed conversions of powerplants are "practicable." Obviously, if these conversions are not technically feasible, an order from you to convert will merely result in shut down of these facilities, a situation we cannot afford, especially in light of the importance of the Danskammer units to Central Hudson's customers in the near term.

II

Assuming these conversions are technically feasible, we are concerned principally with the problems of financing these projects, and with the increases in electric rates that they will produce. It is clear that electrostatic precipitators with better than a 99 percent collection efficiency, as well as associated equipment, will be needed at both stations. These will involve substantial increases in operating costs. Reducing Central Hudson's estimate of increased annual revenue requirement (See p. 9 of Mr. Walker's statement) by subtracting the amount attributable to increased fuel costs, the likelihood of which we have questioned, produces a figure of about \$5.5 million. The conversion should therefore require an average rate increase of at least 5 percent for Central Hudson's customers. For Niagara Mohawk, it appears additional annual revenue requirements would amount to \$8.8 million (after subtracting the company's estimated \$15.3 million increase in fuel costs), requiring a minimum rate increase on the order of 2 percent.

You must assess the capital investments that these companies estimate the proposed conversions would require—\$25.5 million by Central Hudson, and about \$27 million by Niagara Mohawk—in the light of their current weakened financial condition and their other investment obligations over the next several years. Both companies make this point in their statements to you.

An additional capital requirement of \$25.5 million over the next two years would severely strain Central Hudson's financial position. The \$25.5 million figure represents about 8 percent of this company's existing capitalization. Central Hudson currently covers its interest obligations 2.7 times; a \$25.5 million mortgage debt issuance at 10 percent interest would reduce its pro forma pre-tax coverage, based on actual earnings for the year ending March 31, 1975 to 2.1 times. This is barely above the minimum 2 times coverage required by its first mortgage bond indenture. The company would obviously be risking its AA Moody's bond rating, and its customers would bear the increased interest costs associated with a derating.

Although we have not had time to do a full analyses, I believe this impact on customers would be in considerable degree additive to the required 5 percent rate increase I estimated earlier to permit the company to raise the added capital in ways that would *not* produce a deterioration in its interest coverage, given the market's current evaluation of its equity, we would have to give it a substantially higher return on equity, and therefore substantially more than the 5 percent rate increase. Incidentally, the company's bond rating is especially important in view of its planned financing of \$148 million of construction to meet future demand for power in its territory by 1980.

Niagara Mohawk's ability to finance \$27 million on reasonable terms over the next two years to comply with a conversion order is also questionable in view of its recent experience. I am painfully aware of this since our Commission had to consider the company's financial situation when granting it a very large rate increase recently. Effective September 11, 1974, we allowed Niagara Mohawk to increase electric rates by \$36 million on an annual basis (which was exactly what it asked for). A month later, despite the rate increase, the company was unable to market either preferred stock or thirty year bonds. It had to settle for \$125 million of seven year bonds at an interest cost of 12.82 percent. Later in the year, its interest coverage declined to 1.93 times and the price of its common stock was so close to par value—below which point sales are legally prohibited—that common stock sales were out of the question. It had to postpone a planned \$100 million bond issue and a \$60 million preferred stock issue until 1975.

On February 26, 1975, we granted an additional \$43,650,000 rate increase. The company's financial position did not improve substantially afterwards. The market price of its stock was about 60 percent of its book value. In March, it had to reduce the planned \$100 million bond issue to \$50 million, and the planned \$60 million preferred stock issue to \$40 million. The rates on the sales of these issues were high—10.2 percent and 10.6 percent respectively. Under these circumstances, any additions to this company's capital investment requirements that are not absolutely necessary to assure reliable service to its customers would obviously be foolish.

I realize that these various cost burdens and financing difficulties could in theory be handled with sufficient rate increases. Indeed, if you were uncharitable, you might observe that the companies would not be in their present precarious position with respect to raising new capital if we had been more generous in our rate awards.

I call to your attention, however, that we gave Central Hudson every cent it asked for in its last rate request; that, as I have already observed, we gave Niagara Mohawk almost all it requested and that had we given it all the difference in its present financial situation would be negligible: that Central Hudson's rates, because of the company's heavy reliance on oil-fired generation, are among the highest in the country; and that the economy is still in a state of grinding stagflation.

Moreover, there is a matter of principle involved here. I suggest that it is wrong, as a matter of national policy, to require the customers of Niagara Mohawk and Central Hudson to carry the entire burdens of the rate increases and capital investments associated with the proposed conversions. Both of the plants in question originally burned coal and were converted to oil at least in part because that was the most efficient way to reduce pollution and comply with the new environmental laws. Now, for reasons of national security, it is highly desirable that these plants should be switched back to coal.

The burden of carrying out and paying for a policy whose purpose is to reduce the nation's dependence on oil should fall upon everyone, not just the customers of those companies whose plants have been chosen for conversion. To the extent that converting oil-fired plants to coal reduces the country's dependence on for-

elgn oil, everyone benefits: in terms of improvement in our balance of payments position, in terms of trade in *all* commodities between the United States and the rest of the world, enhanced national security, and possibly decreases in our aggregate energy costs.

The Congress apparently recognized this fact when it passed the Energy Supply and Environmental Coordination Act of 1974. The primary purpose of the Act (Section 1(b)) is "to provide for a means to assist in meeting *the essential needs of the United States* for fuels . . ." Unfortunately, the Congress did not provide a means for sharing the costs in a manner consistent with the distribution of the benefits.

I suggest that this inequity must be removed if the conversion program is to be fair and acceptable to consumers in the territories of Central Hudson, Niagara Mohawk, and all other utility territories throughout the country that have plants which will be converted. The Federal government should make available the capital necessary to effect the conversions, funded either out of general tax revenues, or by taxes on consumers of energy throughout the country. One can argue that the latter people will benefit to the greatest degree from this program and should bear all of its costs; it would be just as proper, however, to fund the program from general tax revenues, since all consumers will benefit from the improvements in balance of payments and national security that the conversion program would foster. In either event, the transfer of the cost burden of the program from the few to the many will substantially reduce its impact on individual consumers and the financial burdens on the individual utility companies affected.

I urge that before issuing any orders to convert these power plants to coal, you bring these considerations to the Congress. The current formulation of the program is unfair to the customers of Central Hudson and Niagara Mohawk. They should not be forced to bear a disproportionately large share of the costs of a program whose purpose is to benefit the entire country.

Sincerely,

ALFRED E. KAHN.

Senator HASKELL. Let me also ask you this: The chairman is very interested, as am I and, I assume, other members of the committee, possibly all of the committee, in this insulation of homes. The chairman talked in terms of inverted rates, and on the other hand, you would prefer flatout rates with offpeak pricing. The chairman made a very interesting suggestion on the possibility of financing this, and perhaps at least—perhaps you three gentlemen could submit your comments in writing on the chairman's suggestion.

You all represent different viewpoints, and I think the big problem in insulation is to be sure that the guy can do it. In other words, maybe it only takes \$800, and maybe we give a tax credit of \$200. But he has got to raise that \$600 some other place. So I would appreciate written comments on that. And bear in mind, we are probably going to get to marking up this bill next week, and therefore your comments, to be timely, should be in the early part of next week, if possible.

Thank you, Mr. Chairman.

(The following letter was subsequently received from Mr. Joskow:)

NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.,
New York, N.Y., July 21, 1975.

HON. FLOYD K. HASKELL,
New Senate Office Building,
Washington, D.C.

DEAR SENATOR HASKELL: At the close of the hearing before the Senate Committee on Finance on Friday, July 18, you asked for additional comments on the capital costs savings likely to be achieved from peak-load pricing and on Senator Long's suggestions for insulation financing and ratemaking to aid the poor.

As I indicated at the hearing, to the best of my knowledge no estimates have yet been made of the capital cost savings that are likely to be achieved when peak-load pricing is in full-scale use in the United States. I am acquainted with

the figures cited by Dr. Cicchetti on the British and French experience, but believe that these figures—recognizing that they are at best rough estimates—allow only on inference that the savings in this country will be considerable. As I stated in my prepared testimony, there are significant differences between this country and France and England both in the way electricity is supplied and in the patterns of usage.

It may well be that the foreign experience provides a basis for extrapolation to projected U.S. savings, but I would expect that the time required to reach the comparable level of savings would be even longer than the twenty years of experience upon which those figures are based. My anticipation of a somewhat slower rate of reduction in peak-load demand and, hence, capital requirements here arises from several factors.

First, introduction of peak-load pricing even for just large-volume sales will be piecemeal in this country; both England and France have government-owned systems, an arrangement which permitted universal introduction of a peak-load pricing scheme at a point in time.

Second, ours is a much more energy, and particularly electricity, intensive economy than is theirs. The ability to shift may therefore be more limited. Furthermore, the English and French experience was achieved during a period when alternative sources of energy were more readily available than is likely to be the case in the future.

Third, a significant factors in the achievement of reduced peak capacity requirements in England and France was the fact that both of these countries are winter-peaking as compared with the United States which is largely summer-peaking. The availability, particularly in England, of technologically and economically feasible devices for heat storage, undoubtedly had a significant ameliorating impact on load growth. Until such time as devices that permit storage cooling are available in this country, we cannot anticipate a comparable impact on load growth.

The difficulty we face in projecting the effect of peak-load pricing stems, in large measure, from our lack of knowledge of the extent to which consumers will either curtail consumption on the peak or shift that consumption to other time periods, i.e., the elasticity of peak demand. A number of experiments are now under way that may add to our knowledge in this area. In addition, the study to be conducted jointly by the Edison Electric Institute and the Electric Power Research Institute, which is referred to in my testimony, is very likely to permit better estimates than are now possible.

To repeat essentially what I said in my testimony, I believe that, despite the fact that the benefits to be derived from peak-load pricing will take a relatively long time in coming, prompt movement toward implementation of that form of pricing is essential. It would be an error, however, to believe that current estimates of the capital requirements of the electric utility industry should be subjected to downward adjustment to reflect the "savings" to be derived from that form of pricing.

I have no problem with Senator Long's position that tax and other incentives should be developed to promote insulation use, so long as the benefits to be derived from energy savings can be shown to exceed the costs of the program. I do not believe, however, that the manipulation of electricity rate schedules through rate inversion or special rates for low volume users is appropriate where such rate manipulation involves a significant deviation from cost incurrence. Consumers should be charged, to the extent feasible, the costs they impose on the electric system. If, under such a pricing principle, we find that an unacceptable burden is placed on the poor and/or the aged, then some means should be found to aid these classes of our society to pay their energy bills. To use reduced rates for low usage—the so-called lifeline rate—to attempt to achieve this objective would lead to a condition under which significant numbers of the poor and aged would not be benefitted and, conversely, significant numbers of higher income persons would be benefitted.

The lifeline rate concept has received increasing attention as electric rates have escalated. I do not feel it is appropriate in this letter to expand on why I think such rates will not provide the benefits their supporters allege. I am, however, enclosing a copy of a recently published article by my colleague, Dr. Joe Pace, which sets forth those reasons in some detail.

I want to thank you for the privilege afforded me in being invited to testify before the Committee on Finance. Please feel free to call upon me for any further assistance I may be able to provide.

Very truly yours,

JULES JOSKOW.

The CHAIRMAN. Next to question is Senator Nelson.

Senator NELSON. Mr. Chairman, I regret I was detained and could not arrive here in time for the presentation. I am very pleased to welcome Dr. Cicchetti here from the State of Wisconsin. He is a man of great distinction in our State, and we are pleased to have you here.

Since I did not hear the testimony, I would yield my time. Senator Haskell can have it, or anybody else. I would yield my time because I did not hear the testimony.

The CHAIRMAN. Well, then, you will yield it to Senator Dole; he is next.

Senator DOLE. I am in the same position as Mr. Nelson. I will yield it back to the chairman.

Senator PACKWOOD. I have one question I would like to ask.

The CHAIRMAN. Yes. Senator Packwood.

Senator PACKWOOD. It has been suggested that consumers of electricity would be more cautious if they actually understood how much electricity they were using or how much they were paying.

Is it physically possible to make electric meters read, in a sense, like gasoline meters, so a housewife could go out and watch her dryer working and at the same time look at the meter running?

Mr. KAHN. As a matter of fact, I think Dr. Joskow has looked at metering technology. If you have a simple kilowatt-hour meter, I do not see any reason why you could not do what you suggest—though perhaps at very great cost, since you would have to be constantly changing the rate.

Senator PACKWOOD. That is why I ask is it physically possible I can read a kilowatt meter, anyone can if they know what they are doing, but it would be a lot simpler if it read like a gasoline tank and you could see the dollars pouring away.

Mr. Joskow. Anything that you want to read with regard to electric consumption is physically possible. If we can send men to the moon and telemeter them, we can telemeter and measure electric consumption in any way you want. The real problem is the cost of such metering. Right now and today, the metering technology is, you might say, at two levels. We have very good meters that can meter, as Dr. Cicchetti was saying, by two intervals of the day. We call them two-dial meters. There is certainly at the research level and to some extent the development level more sophisticated electronic metering which will be able to read meters remotely at whatever specified intervals or time you want it. Now, if you wanted to tie specific meters to specific services in the home—the air conditioning, the electric dryer and what have you—you can do that, but each time you do that, you add dollars to your costs. Electronic metering today probably cannot be put in at a cost of less than somewhere on the order of \$100 to \$150 an individual service. And that is relatively limited electronic metering. There is not likelihood that you are going to really save the kind of costs that are implicit in a meter that might cost \$300 or \$400 through any reasonable manipulation of the customer's usage patterns.

Mr. CICCHETTI. I would certainly agree with everything Dr. Joskow just said. When you look at the future, I think there are two ways that tariff reform will take place; two possible ways. One is the form that has the central meter reading and also communicates with maybe a set of lights back to households when it is they are using electricity and

whether it is expensive or not. That is one way that we might see future development. Another way might be that preferential, lower price schedules will be offered customers who allow the utility to curtail the quality of service or affect the use of appliances at a certain time, particularly in heating or air conditioning.

Now, the State of Arkansas right now has an experiment underway where they have several thousand homes whose air conditioners are being controlled centrally. And on very warm days, when the system would be peaking, those air conditioners are turned off. These are window units, and only the fan is blowing for maybe an hour or 2 hours during these peak periods. And I think in the future we will see more and more of this kind of thinking that requires communication between the home and the utility. One way might be over the power-line; one way might be with radio transmission. But I think more and more we will see that form of electricity service being developed in this country.

Mr. KAHN. Senator, we really have not answered your question directly. We suspect that the gasoline pump way of doing it is going to be more costly than it is worth, because we would rather use those metering dollars as a means of getting time of day calculations and signals. I think the kind of signals Dr. Cicchetti is talking about are quite likely—flashing lights and that sort of thing.

Senator PACKWOOD. Like a scoreboard.

Mr. KAHN. Right.

Senator PACKWOOD. I have no further questions.

The CHAIRMAN. Thank you very much gentlemen for your appearance here today.

Mr. KAHN. Thank you.

[The prepared statements of Messrs. Kahn, Joskow, and Cicchetti follow:]

STATEMENT BY ALFRED E. KAHN, CHAIRMAN, NEW YORK STATE PUBLIC SERVICE COMMISSION

I am honored by your invitation to talk to you about certain aspects of the energy tax bill that you are considering.

As I prepare this brief introductory statement, I do not have a copy of the bill before me. I understand, however, that, among other subjects, you are interested in considering the possible reform of electric rate structures as a means of encouraging conservation. I understand, also, that the bill contains various inducements to electric companies to convert from the use of oil to coal as fuel for their generating stations. These are two subjects in which I have an intense interest, and I will confine myself to them in these introductory comments. I will of course be happy, however, to discuss with you any other parts of the bill, which I will have had an opportunity to study by the time of my testimony.

I

I have for at least the last seven years been publicly arguing the importance of reforming electric (as well as other public utility) rate structures, to relate the rates of various categories of customers more closely to the respective costs of serving them, and particularly in such a way as to discourage wasteful use. During the past year, in which I have been its chairman, the New York State Public Service Commission has taken several very important steps in that direction; and we plan to do more.

The principal function of rate structuring in the past has been simply to effect a fair and equitable distribution of total company revenue requirements among customers. Until recently, the most enlightened way of doing this has been on the basis of full allocations of total revenue requirements among the various

service classifications, with a view to equalizing the rates of return between them.

Rates designed in this way served the industry and the public reasonably well in periods when general inflation was only moderate, and its effects on costs were more than offset by technological progress and the progressive achievement of economies of scale. The balance between these offsetting forces has been badly upset in recent years. In these circumstances, it has become increasingly apparent that rates fashioned on the traditional basis may fall very far short of achieving the purposes of economic efficiency, environmental protection, and conservation.

The only economic function of price is to influence behavior—to elicit supply and to regulate demand. This supply function is taken care of primarily by providing a sufficient flow of *total* revenues. The most important criterion of a rate *structure* today, in my judgment is: does it induce consumers to behave in such a way that, as a group, they derive the maximum satisfaction from the limited total resources that society has available to serve them? This means that rates must be based preponderantly on costs.

This is not to suggest that the efficiency function of a rate structure is in basic conflict with the more traditional purposes. Most of us would agree, I think, that relating the price we charge individual customers for individual purchases to the costs those purchases impose on society also serves equity: it seems only fair that every purchase bear the cost that it imposes on the rest of us. But there are ways in which a pricing system constructed on the interest of economic efficiency will differ from one whose primary purpose is to effect an equitable distribution of the company's total revenue requirements.

The first, and most fundamental, difference is that economic efficiency requires that prices be calculated on the basis of marginal or incremental costs. The economic function of pricing is predicated on the assumption that demand will in fact be responsive to it—and price can fulfill its role only by including customers to take more or less, depending upon whether the price is higher or lower. Obviously, then, the comparison that a customer should make is between the additional satisfaction that he gets from taking a little more (or that he loses in taking a little less), on the one hand, and the corresponding, incremental costs (or cost savings) to society, on the other.

There is one important way in which electric rate schedules have traditionally violated this principle: typically, a customer is charged some amount for a small initial block of kWh of consumption, and then progressively lower rates per kWh for subsequent blocks, with the effect that the more he consumes, the lower the price he pays—an obvious inducement to increasing consumption. This arrangement has had at least one general justification: since a large share of the costs of supply—notably most of the costs of the distribution system of metering and billing customers—are a fixed amount of dollars per customer, regardless of how many kWh he consumes, average costs per kWh do indeed decline as the customer takes more and more. But this is not a justification for lower marginal rates—i.e., lower rates for each *additional* kWh. It is a justification for a lump sum monthly charge to each customer, reflecting those fuel costs, and then a *uniform* charge per kWh to all customers, whether large or small, unless of course there other respects in which the costs of serving them differ. There is no inherent reason why the customer whose monthly consumption is small should be faced with a price for an additional kWh that puts greater pressure on him to conserve than a customer whose consumption is large.

I am pleased to report, therefore, that in our last major rate decision involving the Consolidated Edison Company, just a few months ago, we completely eliminated the traditional declining block rates for residential customers. And we have enunciated a policy that all other companies will have to prove to us that such declining block rates as they still have are indeed cost-justified.

A second requirement of rates whose purpose is to achieve economic efficiency or conservation is that they be based on *current or future* costs. Costs that have already been incurred, in the past, can no longer be saved. To the economist, sunk costs are bygones that should be ignored if decision-making is to be rational. A rational businessman does not turn down business that will cover his variable costs, merely because it does not also cover all of the sunk costs that might be allocated to it; nor does he take on sales that cover depreciation and return on historic or book investment but do not cover incremental costs, in circumstances where the latter exceed the former. (Please observe, I refer here to a "rational businessman," not necessarily to an electric utility executive!)

Fully distributed costs, in contrast, have a very large historical or sunk component—depreciation and return based on dollars originally invested, and embedded or historical costs of debt capital. A rate structure designed to achieve economic efficiency must somehow reconcile the essentiality of basing at least some rates on incremental costs with the embedded character of total revenue requirements.

Third, a pricing system based on incremental costs must recognize the wide variation in cost of service, depending on the time of consumption relative to the system peak. It is a simple economic fact that the costs society will incur if consumption is increased on peak, and the costs it will save if consumption is decreased at that time, are the costs of providing that incremental capacity, and of operating existing capacity with the *least* efficient equipment; the corresponding incremental capital costs of service that is definitely offpeak are zero, and the operating costs those of the company's relatively efficient equipment.

So long as rate structures fail to reflect peak responsibility principles, the construction of new capacity will be systematically and inefficiently subsidized, and ratepayers as a whole (and, to the extent of regulatory lag, stockholders as well) will be bearing the burden of that subsidy, and of the excessive costs it produces. The incurrence of these capital costs must be subjected to a probing *market* test: this will not be the case until sales at the time of peak demand are charged a price that reflects the full incremental costs to society of making them.

Although generalizations of this kind are inevitably unfair to the exceptions, I think it is fair to say that the electric industry itself has not been quick to follow these principles. Although industry spokesmen have in recent months been expressing an increasing willingness to examine their possible applicability, there remains in much of the industry's public statements an attitude of skepticism if not outright hostility. This attitude is in part understandable: the companies are naturally worried about the effects of new kinds of rate patterns on their net revenues, at a time when most of them are hard-pressed financially.

No reasonable regulator can object to experiments, or to the need for caution in adopting new pricing procedures. On the other hand, the need for reform is urgent. If in fact incremental costs are markedly above average revenue requirements, then every day that passes in which we do not make progress in relating rates to the former is a day in which the companies are experiencing unnecessary revenue deficiencies, encouraging economic waste, and accumulating burdens on their customers generally. And if in fact rate structures seriously violate peak responsibility principles, then every day that passes in which we do not move to bring them more closely into compatibility with those principles is a day in which we encourage unnecessary construction of capacity, and the perpetuation of needlessly low utilization of capacity and needlessly high costs. And it is a day also in which we deny customers the opportunity to change their consumption habits in ways that will reduce the cost burden they impose on the companies, and that will at the same time offer them some possibility of escape from the crushing burden of electric rates.

We cannot know with precision to what extent subscribers will alter their consumption habits in response to altered price signals, because, above all other reasons, we cannot predict the kinds of technology that will develop as a result.

All we can be sure is that habits will change, technology will respond. Our first job is to provide the correct signals.

II

On the matter of electric plant conversions to coal, I have only two rather general observations I would like to make.

First, these conversions can well prove to be very costly for the companies involved—in terms of the impact on their costs, in terms also of their limited abilities to raise the necessary capital—and therefore for their already hard-pressed ratepayers. Second, it seems to me quite unjust for those financial burdens to be placed simply on the customers of those companies. Let me explain both of these observations, briefly.

There are three generating stations in New York State subject to the recent reconversion order of the Federal Energy Administration. According to our calculations, the cost will require a rate increase of at least 5% for one of the companies involved, Central Hudson Gas and Electric. (The company itself contends the cost increase will be substantially greater.) And Central Hudson's rates are already among the very highest in the country, because of its very heavy dependence on imported residual oil for its fuel.

For the other company affected, Niagara Mohawk Power, we estimate reconversion will require an additional investment on the order of \$27 million. We are genuinely concerned about the ability of Niagara Mohawk to raise this additional capital, in view of its recent financial experience. I am painfully aware of this since our Commission had to consider the company's financial situation when granting it a very large rate increase recently. Effective September 11, 1974, we allowed Niagara Mohawk to increase electric rates by \$36 million on an annual basis (which was exactly what it asked for). A month later, despite the rate increase, the company was unable to market either preferred stock or thirty year bonds. It had to settle for \$125 million of seven year bonds at an interest cost of 12.82 percent. Later in the year, its interest coverage declined to 1.93 times and the price of its common stock was so close to par value—below which point sales are legally prohibited—that common stock sales were out of the question. It had to postpone a planned \$100 million bond issue and a \$60 million preferred stock issue until 1975.

On February 26, 1975, we granted them an additional \$43,650,000 rate increase. The company's financial position did not improve substantially afterwards. The market price of its stock was about 60 percent of its book value. In March, it had to reduce the planned \$100 million bond issue to \$50 million, and the planned \$60 million preferred stock issue to \$40 million. The rates on the sales of these issues were high—10.2 percent and 10.6 percent respectively. Under these circumstances, any additions to this company's capital investment requirements that are not absolutely necessary to assure reliable service to its customers would obviously be foolish.

I realize that these various cost burdens and financing difficulties could in theory be handled with sufficient rate increases. Indeed, if you were uncharitable, you might observe that the companies would not be in their present precarious position with respect to raising new capital if we had been more generous in our rate awards.

I call to your attention, however, these facts: that we gave Central Hudson every cent it asked for in its last rate request; that, as I have already observed, we gave Niagara Mohawk almost all it requested and that had we given it all, the difference in its present financial situation would be negligible. I remind you, in addition, how very high rates have already risen, and that the economy is still in a state of grinding stagflation.

Moreover, there is a matter of principle involved here. I suggest that it is wrong, as a matter of national policy, to require these particular companies and their customers to carry the entire burdens of the resulting rate increases and capital investments. The burden of carrying out and paying for a policy whose purpose is to reduce the nation's dependence on oil should fall upon everyone, not just the customers of those companies whose plants have been chosen for conversion. To the extent that converting oil-fired plants to coal reduces the country's dependence on foreign oil, everyone benefits: in terms of improvement in our balance of payments position, in the terms of trade in *all* commodities between the United States and the rest of the world, in enhanced national security, and possibly in decreases in our aggregate energy costs.

The Congress apparently recognized this fact when it passed the Energy Supply and Environmental Coordination Act of 1974. The primary purpose of this Act (Section 1(b)) is "to provide for a means to assist in meeting *the essential needs of the United States* for fuels. . . ." Unfortunately, Congress did not provide a means for sharing the costs in a manner consistent with the distribution of the benefits.

I suggest that this inequity must be removed if a conversion program is to be fair and acceptable to consumers in the utility territories throughout the country that have plants which will be converted. The Federal government should make available the capital necessary to effect the conversions, either out of general tax revenues, or out of taxes levied on consumers of energy throughout the country. If the bill before you moves in that direction, I support its purpose.

PREPARED STATEMENT OF JULES JOSKOW, SENIOR VICE PRESIDENT, NATIONAL
ECONOMIC RESEARCH ASSOCIATES

I am here today to tell you, briefly, only two things. First, that electric rate reform is making significant progress in this country. Second, that appropriate reform is not likely to have a significant downward effect on the electric utilities' enormous capital requirements during the reasonably foreseeable planning period.

The rate reform to which I refer is the movement toward rate structures which reflect the different costs incurred in supplying electricity at different times of use. Such rate structures are usually characterized as peak-load, time-of-day, or time-of-use rates. It is a form of pricing with which a number of European countries, most notably England and France, have had extensive experience and is one which is currently being urged upon state regulators by the Federal Energy Administration, by various intervenor groups and by some electric utilities.

In response to those calls for action, a number of state regulatory commissions have initiated "generic proceedings" to investigate various alternative ratemaking proposals with special emphasis on the peak-load pricing concept.

In California, hearings were held on this subject during the spring and that proceeding is now in the brief writing stage.

The Public Service Commission in New York State has also initiated a "generic proceeding" on rate structure. Testimony on the "state of the art" with respect to costing and metering by time of use has been filed in that case by several of my colleagues at NERA and hearings are set to commence in September. The testimony was sponsored by the seven privately-owned utilities providing service in that state. I hasten to add that the fact of joint sponsorship should not be taken to imply that every company agrees with all aspects of the positions our witnesses have taken on peak-load pricing. The fact of the joint sponsorship, however, can be taken as indicative of these utilities' willingness to cooperate in a joint effort to fully investigate the viability of this ratemaking concept.

Florida and Massachusetts are two other states studying rate structure reform—hearings in Massachusetts were held this June to hear company witnesses; they are expected to reconvene late this summer to hear from "outside" parties.

And most recently, the State of Maryland has set down a generic proceeding, investigating issues similar to those in California.

The State of Wisconsin, however, is perhaps the most advanced in implementing peak-load pricing. That state has foregone the "generic proceeding" route and, instead, has ordered the utilities under its jurisdiction to introduce peak-load pricing into their rate structures as soon as the necessary studies are completed. It is likely that the first company to present such a rate structure to the Wisconsin Commission will be the Wisconsin Electric Power Company. My colleagues at NERA are working with WEPCO personnel to meet a September 1 deadline.

Finally, the National Association of Regulatory Utility Commissioners (NARUC) passed a resolution at its annual meeting this past December requesting the Edison Electric Institute (EEI) and the Electric Power Research Institute (EPRI) to prepare a joint recommendation for an investigation of costing and ratemaking with particular emphasis on peak-load pricing. The study plan that was developed is quite extensive—it will go into questions of various costing methodologies, demand elasticities of total use, demand elasticities at the peak, metering technology, load management, storage heating and storage cooling facilities, etc. The Executive Committee of NARUC has approved this study proposal and it is my understanding that EEI and EPRI are now in the organizational stage. It is estimated that this study will take one year to complete.

Undoubtedly, I have omitted a number of other instances of activity in the area of rate reform, but what I have described I think demonstrates the intensity of activity in this area.

While it would be a gross overstatement to say that the concept of peak-load pricing is universally accepted—a number of industrial intervenors have voiced strong opposition in a number of proceedings—there seems to be general agreement among economists that such a pricing scheme, if feasible, is a rational and economically sound way of pricing since it will lead to a more efficient allocation of resources than is possible under the present system of average pricing based upon historic costs. I do not plan here to discuss the pros and cons of peak-load pricing. Suffice it to say that I believe it makes good economic sense and that reasonable implementation is possible. When such a system of costing and pricing reaches a level of general application, I believe we will see some reduction in capacity and, hence, capital requirements due to the fact that differentially higher prices will be charged at the peak when, even though demand elasticity may be lower than average, it is unlikely to be zero. How much reduction there will be and in what time period, however, is a matter of conjecture. While we have begun to learn a good deal about the extent to which total usage is affected by price changes, we know little about the extent to which higher prices at the peak will reduce demand at the peak.

I believe, however, that any significant reduction in capital requirements that will arise from the use of peak-load pricing will take some considerable time in coming. While it certainly is not a new concept—as I indicated earlier, England and France have used it for pricing electricity for some 20 years—the experience in those countries is not directly transferrable to the United States.

For one thing, generation systems in those countries are “closed”; ours are interdependent, employing inter-ties, exchange sales, pools, etc. This leads to a much more complex set of costing problems than they have faced. As another illustration of the differences, we are in large measure a summer peaking country; England and France are winter peaking. It appears clear that, to a great extent, the load improvements attained in those countries came about through the availability of storage heating. Until such time as the customers of our summer peaking companies have a storage cooling counterpart available to them, significant improvement in the winter-summer peak differentials is not very likely.

While I count myself among those who strongly favor movement toward peak-load pricing, I am very familiar with the many problems that must yet be solved and am too old a veteran of regulatory wars to feel that the current forecasts of capital requirements should give much or, indeed, any weight to the reduction in capacity requirements during the next decade that will be generated by the introduction of peak-load pricing.

I recognize that in saying this I take a great risk—the risk that my remarks will be taken to suggest a “go slow” attitude toward peak-load pricing. Such an inference would be incorrect. I anticipate beneficial effects in the long run, but we will never achieve those effects if we do not get started some time, and I see no reason to wait.

While I believe that it is premature to modify current capital requirements forecasts to factor in any dampening effects arising from peak-load pricing, I do believe that there is justification for making reasonably certain that those forecasts do give appropriate recognition to the growth dampening effects of anticipated changes in overall price levels, i.e., that they should take into account the price elasticity of total usage. Our knowledge of these kinds of effects is becoming increasingly better and, with rising price levels, the effects have become increasingly more important. Most utilities, to the best of my knowledge, are attempting to include these effects in their current load forecasts and many are relying on the kinds of studies described in the paper by my colleague, Mr. Louis Guth, which I am offering to this Committee as part of my testimony.¹

In sum, then, I do not believe that this Committee should look to rate reform as a significant factor affecting the electric industry's capital requirements for the current and reasonably projectable future. While I have not had the opportunity to review in depth the provisions of HR 6860 or related proposals which would provide more immediate relief from the capital formations problems of the utility industry, I and my colleagues will be glad to undertake such a review and, if we feel our comments could be of assistance to the Committee, we will be pleased to submit them for your consideration.

STATEMENT BY CHARLES J. CICHETTI, DIRECTOR OF WISCONSIN OFFICE OF EMERGENCY ENERGY ASSISTANCE, MADISON, WIS.

THE DESIGN OF ELECTRICITY TARIFFS

Introduction

The design of electricity tariffs as well as their level has been a source of consumer outrage. Many thoughtful critics wonder out loud, “How can volume discounts for electricity be offered at a time when energy conservation is widely advocated and each year electricity prices are increased because of growth in use”?

Consumers are upset over their increasing electricity bills and angered by the conflicting explanations given by utility spokesmen. In 1973 they were told that increasing prices were due to the higher costs of increased consumption, but in 1974 the same spokesmen blamed higher prices on conservation efforts.

¹ The paper referred to is made a part of the Committee files.

There is little comfort from the fact that within the industry there are simple explanations for the apparent inconsistency in these two statements. But many, and their ranks are increasing, feel that a different tariff structure would, in addition to making better economic sense, eliminate much of this confusion over tariff schedules by communicating varying costs directly to the consumer.

Behind the conflicting explanations for rising prices is the concept referred to in the industry as "load factor". On the one hand, if increased usage at times in which system peak is likely to occur makes it impossible to avoid the need for new capacity, the cost of building new generating capacity will result in increased unit prices. According to utility spokesmen, this was the case in 1973. On the other hand, the greater the use of existing facilities, the greater benefits there will be in holding down costs and prices for all customers. This latter phenomenon explains the 1974 statements, when conservation apparently led to a reduced use of existing facilities without diminishing the need for capacity and thus resulting in higher average costs. The effort to design tariffs which incorporates both these considerations simultaneously has been the main thrust of my involvement in the electricity tariff controversy in the United States.

Eliminating volume discount pricing and the tariff philosophy of accountants, who do not seem to have been informed about changing use patterns, and substituting time of day discounts is the particular reform I have stressed. I will discuss the reasons why I have come to this position, how it may be implemented and then discuss some of the other tariff reform alternatives offered, especially with low income consumers in mind.

Time of day pricing of electricity

First I shall list each of the ten reasons I believe "time of day" electricity price reform makes the most sense and then I shall discuss each in turn. The ten reasons are as follows:

1. Cost minimization for the utility.
2. Equity and fairness in tariff structure.
3. Social welfare maximization and economic efficiency.
4. Load factor management.
5. Reducing environmental externalities.
6. Energy conservation.
7. Earning stability.
8. Tariff stability.
9. Consumer benefits.
10. Industrial protection.

1. Cost minimization

Efficiently managed electric utilities attempt to minimize costs in different ways. First, the systems planner and engineer attempt to minimize the cost of meeting what they consider to be the future demands and load pattern for the utility and its connecting systems. They do this by using various sophisticated engineering and computer techniques. Their success in these matters is often imitated by many countries around the world. Additionally, electrical utilities practice economy dispatching for the operation of the electric system at any given point in time. The unit cheapest to operate is called on line to provide service to meet demands at a particular time and place. Once again, elegant and sophisticated, economic and engineering models are used to practice economy dispatching. The simple fact is that electric utilities cost minimize in both the operation and the expansion of their systems. In the practice of this cost minimization, it is understood that the cost of a kilowatt-hour or electricity varies over time. The first desirable feature of time of day electricity pricing is that it will attempt to track the cost minimization calculation of the system planners and the utility's economy dispatchers by reflecting this cost pattern in the tariff structure. The system engineers' knowledge of cost would be communicated to consumers and consumers demands and willingness to pay in the reverse direction.

2. Equity

Economists are not the best ones to discuss the question of fairness or equity when it comes to electricity prices. The reason for this is that economists usually try to avoid taking any stand on whether or not two alternatives are fair or equitable. That is, economists are more comfortable at making allocation or efficiency decisions than in making social equity decisions. However, it

is frequently asked at electrical utility regulatory proceedings whether or not time of day pricing will be fair or equitable contrasted with alternative pricing systems. My response to that has usually been that by pricing a kilowatt-hour of electricity for all customers on the basis of the actual cost of the utility would be the fairest and the most direct way of pricing electricity imaginable. It would be fair in that it would price all similarly produced kilowatt-hours from a cost standpoint alike. Distinctions would not be made based upon total levels of consumption over a billing period and in this way if we use as our fairness criterion the cost of a kilowatt-hour as it varies with time, I believe, that we can claim that equity and fairness have been increased as contrasted with the present system of volume discount pricing. The present arbitrary and often subjective practice of cost allocation would be virtually eliminated since kilowatt-hours produced at the same time would be priced alike other than for voltage differences.

3. Social welfare maximization and efficiency

The main public policy rule of economics is that to achieve an efficient allocation of society's scarce resources, and at the same time to maximize the social welfare of an economy for a given income distribution, the cost of each good and service consumed by that society should be priced on the basis of the incremental or marginal cost involved in producing and distributing that good or service. Setting second best considerations aside to be adjusted after the basis tariff structure is determined, "time of day" pricing is a pragmatic attempt to bring this very elegant mathematical policy rule into regulatory proceedings and into practice by the electric utilities in the United States. Consumers would benefit from more stable electric prices. Time of day discounts, that will make it possible for consumers to take advantage of lower cost consumption, will benefit themselves and the utility. Time of day penalties, which will indicate to the consumer when it is that electricity is expensive from a capacity expansion standpoint and operating standpoint, are the very essence of the pragmatic attempt to translate the economist's notion of an efficient allocation of resources into the tariff schedules of electric utilities.

4. Load factor management

As indicated in "1" above, electric utility management attempts to minimize the cost of operating and expanding its systems. I believe strongly that one of the greatest benefits of "time of day" pricing is that it will add an additional factor to the objective function of system planners when they consider the various ways in which cost minimization might be achieved. I believe that when a system's planner considers the cheapest means of expanding an electrical utility system to meet growing loads, that one of those options that should be considered by the system's planner is the possibility of offering discounts to existing customers in order to encourage a change in load patterns and a change in peak consumption habits on the part of consumers. If it is cheaper to give discounts to existing customers, and thereby encourage a shifting in use, rather than to acquire a more expensive new investment and/or undertake more expensive operating costs, I believe the tariff approach should be undertaken and, if available, it would be willingly undertaken by the nation's utilities. "Time of day" pricing, along with the generous use of interruptible tariffs for the larger volume customers, will, I believe, greatly hold down the need for new generating and transmission capacity in the United States. Note that, frequently, interruptible rates are down-played in the U.S. because it is pointed out that no single firm could afford a long interruption. However, in other countries several industrial customers are sometimes packaged into an interruptible group in which no single firm has to be interrupted for the entire peak period, but collectively, the capacity saving can be great and so should the size of the discount. In these ways the need for new capacity can be reduced without necessarily diminishing the use of energy and the concomitant increase in economic activity and jobs for the nation.

5. Environmental externalities

Environmentalists entered the debate on electricity pricing just prior to consumer and low income groups who were concerned with rising prices. For the most part, environmentalists have been opposed to the external social cost associated with the construction and operation of electric generating plants and the transmission systems that connect such generating plants with the consumers of electrical energy. Since "time of day" pricing is expected to reduce the need for new generating and transmission capacity, environmentalists, who are concerned about such matters, would find that under "time of day" pricing, the

amount of new electrical generating and transmission capacity needed for the United States, would be less than under any alternative form of electricity pricing that might be considered. On the operation side, many electric power plants have peaking units which are old generating plants which are often very inefficient to operate. Such plants are typically fossil fuel users and are the most polluting from a particulate and sulphur dioxide standpoint. Because "time of day" pricing would shift use away from such inefficient, and therefore, polluting units, "time of day pricing" is also expected to have a desirable pollution-avoiding effect.

6. Energy conservation

Many people in the United States are concerned with our uncontrolled and seemingly unending growth spiral of energy consumption. "Time of day" pricing would discourage the most expensive aspect of this energy consumption by helping to avoid the use of new and more expensive generating and transmission facilities. Time of day pricing would also result in a shift to more energy-efficient base load and intermediate load units and away from inefficient peaker units and old fossil fuel plants which are inefficient from an operating standpoint. It is quite possible, however, that if we measure energy in terms of total kilowatt-hours consumed, as opposed to total amount of energy that is required to meet a given load, that time of day pricing might actually encourage a greater use of electrical energy. To some this greater use may seem inconsistent with energy conservation, but "time of day" pricing will improve the energy efficiency of the actual level of electricity consumed in the United States, and that, I submit, is a positive improvement in energy conservation.

7. Earning stability

I believe that one of the serious problems today in electric tariff controversies is that many have selected a tariff design objective which is inappropriate. To many the goal of electricity tariffs is to achieve gross revenue stability. I think this a short run and foolish objective for those who adopt it. Electric utility gross revenue stability can of course be achieved by charging as much money "up front" as is possible and which the electric regulatory commissions will permit. In this manner the goal of gross revenue stabilization can be achieved. But that leaves very little revenue that can effect the discretionary use patterns of the customers of an electric utility. It also means retaining volume discount or promotional pricing. It, therefore, means that nobody will be getting signals as to when it is cheap to consume electricity from the standpoint of generating capacity cost or system operating cost. A pricing system, based on "time of day" costs, that attempts to tie revenues for the utility and costs for the utility together is the essence of time of day pricing. But the objective that the pricing system is meant to achieve is earning or net revenue stability, and not the incorrect goal of gross revenue stability. The controversy surrounding electricity tariffs often becomes a disciplinary conflict with accountants, who are taught and trained to think in terms of gross revenue stability, and economists, who are taught and trained to think about earnings or net revenue stability. The two are in conflict. Needless to say, I believe strongly that the economist's position which closely follows the engineering cost minimization position is the most desirable pricing system for our nation's electrical utilities.

8. Tariff stability

There is no rule or law of nature that requires the unending round of electric utility revenue increases to continue unabated year-in and year-out. The customers, the investors, the regulators, the utilities themselves must and would all find a common interest in ending this vicious and unending spiral. By pricing electricity in a way that varies with the costs the utility expends over time, I believe this chain can and will be broken by helping the utility and the customers of the utility find tariff stability. This objective will be furthered because changes in consumer use patterns will result in changes in revenue and costs that will move in the same direction and tend to offset one another.

9. Consumer benefits

As an economist perhaps the best reason that electricity pricing reform makes sense for the nation is the expected consumer savings. Recently, the British and French, who have been practicing time of day pricing for almost twenty years, have been asked to estimate what they think the annual savings of total electric utility cost are by having time of day pricing installed for industrial customers in both countries and on an optional basis for residential customers in both

countries. Total installed generating capacity in both countries is quite similar to one another in total size. Both have approximately 30,000 megawatts of installed generating capacity. They both have estimated a similar savings in annual cost for that level of installed capacity of about a quarter of a billion dollars per year. These estimates do not include savings in operating costs that are undoubtedly associated with the change in the time pattern of use of electricity.

If we look at the United States, which has an installed capacity of about ten times either France or England, a similar annual savings would be approximately two-and-a-half to three billion dollars per year for the capacity cost savings alone. Additionally, the French have made another calculation. They have also estimated what the savings would be if, in fact, they sold the same amount of electrical energy today, but using the load patterns that existed twenty years earlier when time of day pricing was first introduced. The French estimated that their annual savings would probably be five to six times the quarter of a billion dollar savings that I have already mentioned. Additionally, there are significant operating cost savings that are expected in the United States. If our industry were as responsible as the French and the English, annual savings of more than ten billion per year could be expected. By holding down costs all consumers will benefit. Furthermore, by offering time of consumption discounts all who can and do switch will save additional money.

10. Industrial protection

Industrial uses of electricity in the United States were priced in such a way that individual customer load factors were improved. Today this incentive is in conflict with economic, environmental and conservation objectives. Industrial customers are typically good system load factor customers, who would benefit from time of day pricing. However, the volume discount pattern of pricing does not provide the pattern of incentives that will encourage them to save the utility money. Time of day pricing will encourage the good system load factor customers to become even more so. They will also encourage very poor individual load factor customers, who use short duration but intense power to shift such erratic use to off peak discount periods.

In today's hostile political climate volume discounts are untenable. Replacing them with time discounts will not destroy industry and cost much needed jobs; instead I believe it will benefit them.

With such dramatic savings to be gained, whether we characterize it using any of the ten objectives that I have mentioned above, I believe that there is a strong and undeniable case for time of day pricing in the United States. With benefits for consumers, environmentalists, industrialists alike "time of day" pricing is, in my view, compelling. With that strong belief in mind, I will now turn to the second part of my remarks, namely, how the particular problems of low income consumers can be taken into account.

3. The how of time of day pricing

Time of day pricing has many names. Sometimes it is called peak load pricing; sometimes it is called incremental or marginal cost pricing. Each name attempts to be descriptive, but because there are several names that might be used, we can infer that none of the titles by themselves is sufficiently all-encompassing to describe the many characteristics that are implied by any of them. If one thinks in terms of incremental or marginal costs, it is important to understand that in there are 8,760 hours in a year, several voltage levels, and various generating stations and customer load centers. Therefore, the number of possible margins that might be used for setting marginal cost prices is extremely large. Electricity tariffs, therefore, have to be based upon a compromise between the reality of a virtually unlimited number of margins and the pragmatic requirement that electricity tariffs must be understood by the various customers of the electric utility. The traditional separation of cost for electrical utilities, into generating, transmission and distribution, along with distinguishing between energy and capacity costs, is a desirable first cut that it is useful to retain when describing the time pattern of the structure of the electric utility's cost. This pattern of cost, as it varies over time, can then be used to develop tariffs which are simple and easily understood by the customers of the electric utility system.

Economists have used a device that goes under the Latin phrase *ceteris paribus*, meaning "other things being equal." To the mathematician, when that phrase is utilized, it means taking a partial, rather than a total, derivative. In short, it

means holding things constant, which are otherwise likely to vary. In determining the marginal cost of the various dimensions of electric utility cost use of the *ceteris paribus* or partial derivative concept makes life much less complicated than it otherwise would be.

Let me explain how this works by referring to a concept which has received quite a bit of attention in electricity tariff debates. The concept to which I am referring is called "Long run incremental cost" (LRIC). It is used to determine the capacity cost of the electric utility system looking into the future. It is determined by estimating what the future demand for the utility will be in the years immediately ahead, for example, over the next ten-year period along with the expected pattern of that future load. Such projections are a basic ingredient for designing the least cost plans of the electric utility system by adding plant and equipment to its currently available system. Once the development plan to achieve the least cost expansion and operation for the electric utility in the near future has been determined, the appropriate way for calculating "long run incremental capacity cost" is to look at the cost that would be entailed if demand were to increase in such a manner that the entire plan was moved forward by one year. The difference in the present value of the two cost structures converted to a per kilowatt (KW) cost basis is the "long run incremental capacity cost". If re-optimization would take place and that information is available it should be used. In practice this might reduce to the cost per KW of moving a single plant planned for the next 5 to 10 years forward by one year.

An alternative, if information is more readily available, would be to ask what would be the reduction in cost if the entire plan were postponed by one year. For a large electric utility system like those found in the United States the difference between the two approaches is not expected to be great. The calculation thus made uses the concept of holding other things constant, *ceteris paribus*; it is quite simply the partial derivative of cost holding all things constant other than the level of supply, which is required to meet the expected level of demand.

When calculating long run incremental cost there are likely to be differences in fuel costs if new more efficient plants were moved forward or postponed one year. It is appropriate to net out such cost savings or penalties from the capacity cost in making such a calculation; this step has sometimes been overlooked or omitted by some who mistakenly limited the concept to capacity cost differences. I would like all those who participate in electricity pricing discussions to make certain that the correct concept is being utilized. The system planners will be more likely to understand the economists, when the proper definition is used.

If one looks at the operating side of an electric utility system once again a partial derivative concept might be utilized to measure marginal costs. Indeed, economy dispatch makes use of a concept called system lambda. System lambda is simply the derivative of the total operating cost of providing electricity with respect to the quantity of electricity supplied. Operating costs are minimized by the system dispatcher for an electric utility by utilizing the available unit with the lowest system lambda at any given time and place in order to meet the load pattern of demand placed upon the electric utility. System lambda varies over time and across places and it is, therefore, a very important concept that reflects quite dramatically the time pattern of costs.

Transmission costs are an important ingredient of the cost structure for the electric utility. They vary incrementally based upon the voltage level that the electricity is being transmitted at as well as the distance and the quantity of electric transmission that is taking place. One can once again use a partial derivative, *ceteris paribus*, calculation in order to calculate the extra cost of transmission at different times over different lengths and at different voltage levels. Variations in transmission costs calculated incrementally can and should be reflected by an electric utility in its time of use cost structure. The basis for this calculation of incremental costs is more long run than operating costs but closer to the present than incremental generating costs. The basis for the variation in costs is both extra line miles and transformer capacity per KW of additional demand at the various voltage levels.

Another major category is distribution cost. I distinguish between distribution and transmission costs by including in distribution costs that component of transmission cost that can be easily identified with a particular customer or group of customers further down the distribution and transmission system. Transmission costs on the other hand are those costs of moving electricity from generating plant to consumer which are more common or collective to all customers who are sup-

plied in a similar geographic region. When it is possible to calculate the additional costs of supplying (including metering) a particular customer at a particular voltage level these can be used to establish the distribution or customer cost component of supply.

The final step in analyzing costs is most important because it is the basis for the assertion that a kilowatt-hour is not a homogeneous commodity from the cost standpoint. There are several ways of incorporating that simple fact into the final calculation that can and must be made before tariffs can be designed. There are 8,760 hours in a year. However, each hour is not equally likely to have demand exceed the available supply of the utility. By the available supply of capacity of the utility I am of course speaking about the generating and transmission capacity which limit the ability of the utility to meet the demands that might be placed upon it. Additionally, the likelihood of demand exceeding supply must also take into account the fact that we are talking about demand relative to an expected or anticipated supply, not the nameplate generating capacity of the system in question. Therefore, scheduled plant maintenance and repair schedules, which one has prior knowledge of and which will mean certain units are unavailable during certain times of the year, must be brought into the calculation of the probability or likelihood of demand approaching or exceeding the capacity of the electric utility.

Once the above has been determined one can calculate the probability of a loss of load, that is, the probability of demand approaching or exceeding the available capacity of the electric utility. It is important in recognizing the time pattern of this probability of demand exceeding supply to assign the cost of expanding the electric utility systems, the long run incremental cost of generation and transmission capacity, to those hours for which the likelihood of demand exceeding supply is great relative to those hours of the year for which it is small.

For some electric utility systems there might be some intermediate or shoulder periods for which the probability is not quite as great as those hours which we might identify as peak as opposed to those hours which we might identify as off peak. There is no simple generalization that might be made in advance to fit every individual electric utility system in the United States; nevertheless it is possible to define those hours (typically about 1000 hours) in which we think the cost of expanding the system when demand increases is greater than those when demand growth does not imply capacity expansion.

If we've done all the above we can calculate for those hours, which are similar in terms of peak, off peak, and intermediate probability of loss of load, the cost of running the system expected to operate during those periods and assign the incremental generating and transmission costs to peak hours on either a kilowatt or kilowatt hour basis (Depending upon whether we want to perform an additional step of Division). In addition, we can determine transmission costs at different voltage levels, and customer costs further down the distribution system. Once we've done that the structure of costs for designing tariffs is complete.

The tariffs that would logically follow from such cost structure would not be so difficult for the industrial customers of an electric utility who would readily understand them. Therefore, we do not need to worry about major additional simplifications to develop tariffs for that class. Additionally, most large industrial users also have metering equipment currently installed for which we can measure use patterns sufficiently detailed to encompass the cost structure described above after it is translated into a tariff structure for this group. The residential and lower volume customers present a greater simplification problem. I will discuss more on that below. For now, I strongly urge that once this basic cost information is known that "time of day" prices for industrial customers be implemented along these lines with due speed throughout the entire United States.

To some the above may sound too theoretical. Therefore, I will now describe the actual experience of France and the United Kingdom in setting "time of day" varying rates. In a general way there are some similarities in the pricing systems of these two countries. First, since the 1950's both countries have adopted the economic and engineering principle of marginal cost pricing and have been moving forward in the direction of implementing "time of day" pricing. Today, almost all industrial customers in both countries consume electricity under "time of day" and seasonal pricing structures. Smaller customers in both countries, after paying basic customer fees, are charged for electricity according to either a flat kilowatt-hour tariff or an optional "time of day" tariff. In France about 20 percent of the domestic customers select such a "time of day" pricing plan.

The percentage of kilowatt-hour sales in the United Kingdom is greater. Overall, residential customer consumption is substantially less in both countries than in the United States, and both countries have weather sensitive winter-peaking loads. The customers who have adopted the "time of day" pricing option are most likely to be the heating customers.

The French distinguish between their customers very finely. For the industrial customer the price per kilowatt-hour varies over five time periods: Peak, winter and summer full hours (intermediate), and winter and summer slack hours (off-peak). They further vary their rates by region and voltage levels. The customer also pays a fixed charge to cover both the distribution costs of the system that depend directly on the client's own peak consumption and a portion of the costs that are intermediate between collective costs and the individual customer related costs. This latter refinement is related directly to the large hydroelectric proportion in the French system.

A formula is applied in order to give a price incentive to customers who adjust their capacity requirements to system needs. If use at more costly times increases, the customer pays a penalty. If alternations in use patterns are made to benefit the system, prices are reduced. Setting aside "time of day" variations in energy charges and other use category effects, this contractual formula has been estimated to postpone the need to construct a new generating unit of about 700 megawatts in size for a full year. A further saving of about 1,300 megawatts is attributable to the industrial tariff or *tarif vert* for a combined estimate of 2,000 megawatts in a system peak of roughly 30,000 megawatts.

Further adjustments are made for high load factors, self-generation, emergency and short-term customer needs. Such refinements are primarily made in the fixed charge. The basic charge for a contracted kilowatt is about \$55 per year. It is higher for self-generation and lower for emergencies. Additionally, the energy charge varies by a factor of about six to one in the base tariff and nearly ten to one in the short use emergency tariffs between peak and off-peak. The variation is less for the standby service. The basic peak energy charge is about five cents per kilowatt-hour.

Low voltage domestic customers are sold electricity under the universal rate. Such customers have a contracted fixed monthly charge and a proportional (flat) energy charge. Circuit breakers are used to limit loads. Each tariff usually has a day-night as well as a flat version. Those selecting the day-night differential option pay slightly more than one dollar per month for additional metering costs. The day-night difference is about two to one for an eight hour night period.

In the United Kingdom, there are area distribution boards who purchase bulk power from the Central Electricity Generating Board. Each board pays an annual capacity charge with various adjustments, as well as an energy charge before fuel cost adjustment of about 1.6¢ per kilowatt-hour for daytime and early evening peak months, about .65¢ per kilowatt-hour for other daytime and evening purchases, and less than .5¢ for all sales between 11 p.m. and 7 a.m. throughout the entire year.

Area boards set their tariffs based upon this purchase schedule. A typical industrial customer is likely to pay a customer charge and a monthly varying capacity charge (with as much as about a ten to one difference between peak and off-peak monthly charges). Day-night differences of about 50 percent are in effect on the energy charge for periods of nighttime use. These are typical of an eight-hour duration. Converting to a U.S. price basis this would have been approximately 1.25¢ per kilowatt-hour charge in the daytime and 0.75¢ per kilowatt-hour charge at night before fuel costs adjustment and peak monthly demand charges of about \$7 per kilowatt in peak months falling to less than \$1 per kilowatt in the off-peak months.

Special terms for interruptible and/or flexible industrial customers with a greater proportion of the revenue collected in the kilowatt-hour charge are also utilized. Prices during peak might be as much as 4¢ per kilowatt-hour but less than one-fourth of that during the nighttime off-peak hours. Capacity charges are collected on a lower (about half the normal) price schedule. But during potential peak periods (up to 50 hours per year), the customer could face a capacity charge typically more than twice the normal peak monthly charge.

The hallmark of the pricing systems in France and the United Kingdom is that they are pragmatic attempts to have prices track costs. The principles articulated above are utilized to design electricity tariffs. This pragmatism is also reflected in the domestic charges in the United Kingdom: since domestic cus-

tomers are billed quarterly in a staggered manner, seasonal billing is not economic. The basic price is a flat charge of about 3¢ per kilowatt-hour. Previously, available off-peak heating tariffs are maintained, but closed to new subscribers. These offered customers eleven hours of off-peak energy for heating only at about half the normal price. Currently, an optional day-night tariff is offered with a slightly higher daytime price (less than 5 percent), a higher quarterly charge (about \$2.40 per quarter) for extra metering, but an eight hour nighttime price of about 40 percent of the daytime price.

It is possible to learn from this European experience, but it cannot be directly transferred to our own country and, therefore, we must consider how to implement "time of day" pricing in the United States. Some of the problems are frequently mentioned by those concerned with "time of day" pricing reform; the questions of meter availability and cost, the impact of consumer response and the so-called shifting peak problem, the problem of allocating cost during a phase-in period between those on the new tariffs and those not, and the subsidiary question of how to deal with large volume versus small volume users.

The question of metering availability is really a very significant question for the smaller volume users. As already noted the cost of metering is trivial when compared to the monthly bills of the large industrial users, but for the smaller users we must proceed carefully and make certain that we do not undertake tariff reform for which the benefits to be derived are less than the costs. But that is not our only question with meter availability. There are also technical breakthroughs in metering on the horizon that might make some of these currently available meters seem quite primitive. A challenging question for all to consider is whether or not we should go forward with "time of day" pricing reform unless we know when some of this new metering technology might be available and what its cost might be.

The second problem area is predicting consumer behavior. Implementing "time of day" pricing is not something you do and then forget. Load research and monitoring must be continued in order that, with any prospective changes in use patterns, modifications in the pricing practices of one schedule or another may be realized in order to help avoid creating new problems and new costs. In short, system planners must be able to use pricing incentives in order to find ways of helping to hold down costs. In the final analysis, system planners will pick the cheapest solution for all customers and for the utility as well when it comes to deciding what is the best way to supply system needs. The introduction of "time of day" pricing and the associated consumer response to the calculations of the system planner would be a dramatic cost saving reform.

There is also a problem of allocating cost between various customer categories, especially when some of the users will be put on "time of day" pricing (typically the larger volume ones). How will the revenue requirement be allocated between these groups? What will happen if one group generates too much revenue and another group too little revenue? Those are really challenging questions that the regulators must begin to tackle.

There are various implementation plans for the large volume users. Let us consider three options. First, we might have a two-part tariff with customer charges based upon the customer's maximum demand to recover demand cost and a time-varying energy charge with capacity costs of generation and transmission factored into it on a peak kilowatt-hour charge. Second, we might have a three-part tariff with a customer charge to recover the distribution cost, a time-varying energy charge (with the highest running cost plant during peak hours serving as the peak kilowatt-hour charge), a capacity charge based upon the hours of the day and perhaps months of the year that consumption occurs. Third, an interruptible tariff with very large discounts is possible due to very low capacity cost responsibility. Penalties for failure to accept interruption, however, should also be high.

"Time of day" and seasonal discounts as a substitute for industrial volume discounts makes sense for customers and utility alike. Accordingly, it is important to demonstrate this fact for industrial users by performing typical bill analyses as well as surveying these users through statewide manufacturing associations. Plans to do this have been tentatively made in several States. Consumer understanding, even for large volume customers, is an important step.

The final question for large volume users is to determine the speed of implementation. Several states are moving to the position that cost-based tariff structures (as the economist and engineer rather than the accountant would de-

scribe them) must be implemented for industry, but there are still options present. First, all large customers could be placed on cost-based tariffs and their level could be constrained by current revenue allocation formulas between the various customer classes. Second, cost-based tariffs could be implemented and any excess revenue anticipated could be used to reduce customer cost and off-peak prices in order to create the maximum incentive for system cost reductions by keeping all excess revenue in the class. Alternatively, other classes could be subsidized if excess revenue were to be generated. This latter step is probably illegal and it is not good economics, but it has political support in some circles. Third, optional "time of day" tariffs based upon actual cost could be offered, with future revenue increases for the class being placed disproportionately on those who refuse the option. Even if use patterns do not change when metering costs are trivial, as they are for the industrial class, "time of day" pricing is superior to the existing accountant's approach as a cost allocating device. It is, therefore, important to implement it to the greatest extent possible for the industrial users. We think it will be good for both that user category and for the utility and, therefore, for all customers alike.

For the smaller volume users, there are several approaches, but in this category avoiding uneconomic metering cost is a more significant constraint. The various alternatives being considered for implementation can be summarized as follows. First, you could develop "time of day" schedules and meter a sample of customers in the category in order to find typical use patterns by time of consumption, and then use this data to develop a "time of day" rate for class-wide bills. In addition, you could offer an optional meter for those customers who think they are atypical and can save money if they install meters at their own expense.

A second approach is to start with the larger small volume customers and implement time-of-day pricing for them. If in retrospect the cost savings outweigh the metering cost, the "time of day" pricing could be extended to the next largest of the small volume customers and the analysis repeated. This process could be repeated as long as the benefits exceed the cost. Third, tariff experiments can be undertaken to measure the response of customers to "time-of-day" varying tariffs and their willingness to shift use away from peak. Such experiments could compliment the first two alternatives, but customer compensation is absolutely essential in these experiments.

It is my view that, for residential customers, plans to implement either of the first two approaches should not be delayed by any pricing experiment. But only by pricing experiments and load monitoring research, even after new tariffs are introduced, can we determine how to design tariffs and manage loads. By now we all agree that total class revenues can be collected in many ways even with the "time of day" adjustment. Only by such experiments can one find the level of sensitivity that can best track actual costs, manage loads and have the greatest impact on reducing the cost of generating electricity.

Finally, a tariff option can be offered in a wide variety of formats even for the smaller volume users. The fact that both the British and the French ultimately went this route should not be overlooked. There are several different forms of tariff at the low volume level that can be considered. First, a two-part tariff with a customer charge and a time-varying kilowatt-hour charge could be implemented. A second alternative would be to have a load limiting three-part tariff with a customer charge, time-varying energy component on a kilowatt-hour basis, and a subscribed maximum demand with charges varying for excesses at different times. Third, less complicated load limiting tariffs with seasonal emphasis and with or without time-of-day varying energy charges could also be considered. And, finally, various combinations based upon metering availability and day-night and seasonal variability can be introduced and considered.

Note once again that it is important not to implement tariffs if the cost of metering outweighs the benefits in utility cost savings. This may be decided upon by the individual customer in the case of residential customers, but it is important to go forward with time-of-day metering for industrial customers, if only as a cost allocation improvement device and because we think that it will benefit both the utilities and industry. Time of consumption discounts as a practical, economically efficient and politically desirable alternative to volume discounts is a reform whose time has come. When understood, its beneficial effects will be widely embraced. The development and demonstration of an applied methodology and implementation strategy are now the tasks at hand.

4. Other tariff reforms

Time-of-day pricing reform, which in the eyes of utility executives responsible intervenors promote, is not the only reform recommended by citizen activists. Some suggest "inverted rate pricing" or large volume penalties. Some recommend so called "lifeline rates" and some recommend public ownership. Reversing the current practice of volume discounts and creating volume penalties is sometimes offered as a panacea both because of the rising cost problems in industry faces, and also because it is fair. But reversing the "tilt" would be likely to lead to large volume user cutbacks or abandonment of service that would result in higher prices for the remaining customers. Additionally, any conservation that took place under such "inverted rates" would erode revenue at the most highly priced portion of the schedule. Unlike time-of-day pricing there is no guarantee that this reduced use would correspond to the highest costs of the utility. Therefore, inverted rates are likely to lead to serious earnings and revenue erosion problems. Thus, rather than breaking the annual rate increase chain, they are likely to extend it.

Another category of pricing reform is sometimes proposed. It is the so-called "lifeline rate." Its intended purpose is to help the poor and the elderly. It would make electricity available at a very low, or even zero, price for a given level of use. Viewed as a tilt in the direction of the poor it would convert electric utilities and public service commissions into welfare agencies. All the problems of insuring that non-poor do not benefit would be present, e.g. adding additional meters in two family homes, luxury apartments, second homes, etc.

Economists frequently embrace the acronym TANSTAAFL (there ain't no such thing as a free lunch), which quite simply means that providing KWH's below cost requires a decision to tax other customers and/or stockholders to make up the subsidy. Such decisions are not easily made by electric utilities or PSC's and in fact may be illegal.

Income redistribution is undoubtedly necessary but it is the job of government, not private regulated industries. Legislatures and elected officials must do their jobs, while always keeping in mind that what poor people need is money. If a legislature passed a lifeline tariff and provided the money for subsidy directly to the utility or to the customers in the form of an energy stamp, or explained who should pay into the fund to finance the subsidy I believe electric utilities and PSC's would have less trouble with poor-people-oriented or tilted electric rates.

Finally in this regard I believe that many of the current advocates of electricity pricing reform, who have a pro low income stance, are missing a very fundamental point. First, let me underscore the fact that I think declining block volume discount pricing must be eliminated. Fifty years ago electric utilities used to peak in the evening when residential users of electricity all turned on their electric lights. Most tariffs in the U.S. today are designed with either high front end separate charges or very high prices for the initial kilowatt-hour of electricity consumed.

Proponents of volume discount or high front end pricing argue that this is the way to collect the fees from consumers to pay for large generating and transmission costs. But new capacity is not built for a lighting load in the U.S. Instead it is typically built for a space conditioning load. Further, a separate charge for potential peak hours of electricity use to collect generating and transmission capital outlays should be adopted, especially for the large volume industrial, commercial and residential users.

The low income electricity user whose use is primarily off peak is paying a full share of generating and transmission capacity at a time when their contribution to peak is either zero or trivial. If we could meter time of use at very low cost, this factor should, and with the reform I have advocated, would be recognized in a way that would lower electric bills for the low income consumer. Short of low cost metering, I believe participants in electricity rate proceedings should insist that all generating and transmission costs should be eliminated from the customer charge and early block charges. In most states, if only meter costs and specific customer-oriented distribution costs were permitted to be collected up front and all other costs collected on a flat (or time varying basis), the reduction in low volume consumer bills would be staggering. Additionally, such a tariff is much closer to the economists' notion of incremental cost pricing than the tariffs currently in existence. Such a change is both more economically efficient and pro low income and for these reasons I find the argument in favor of this step compelling.

When I view the future of energy prices, the potential of a rapid reform of electricity pricing makes me relatively optimistic. I think we shall be well down the road towards redirecting the wasteful thinking of American industry and consumers by providing ways to save money and energy.

The CHAIRMAN. Is Mr. Peterson of Lehman Brothers here?

Mr. David B. Kenney, vice chairman of the board of Days Inns of America, on behalf of the American Hotel and Motel Association.

While you are getting situated, Mr. Kenney, permit me to say I am sorry that you were not able to appear a little earlier while Senator Talmadge was here, but I would urge you, you might look him up in his office to explain what you are saying, because I believe you have some thinking somewhat at variance with his. He is one that you would want to hear your testimony. I believe I am more familiar with your position, and you are really testifying before the wrong Senators in that respect. You ought to be testifying before someone that has a difference of opinion with you, but go right ahead.

STATEMENT OF DAVID B. KENNEY, AMERICAN HOTEL AND MOTEL ASSOCIATION

Mr. KENNEY. Well, I spent a couple of minutes with Senator Talmadge yesterday.

Mr. Chairman, members of the committee, my name is David Kenney. I am vice chairman of the board of Days Inns of America, and I am appearing on behalf of the American Hotel and Motel Association to summarize the association's previous statement that expresses the views of the hotel-motel industry on energy legislation.

The hotel-motel industry is a \$10 billion industry, employing over 1 million people. It depends exclusively for its livelihood on travel. Travel is dependent on the availability of fuel.

The association is opposed, without qualification, to: one, gasoline rationing, and two, any direct mandatory allocation programs, including those which would ban the sale of gasoline for 12 to 24 hour periods. The association would oppose a severe quota system which could lead to a mandatory allocation program.

Our opposition to mandatory allocation programs stems from the experience we had during the Arab oil embargo. In this connection, we are equally concerned with the danger of a quota system. A severe quota on imports would reduce the availability of crude oil severely, and thus lead to mandatory allocation. In early 1974, the hotel-motel industry suffered because of the mandatory allocation program, which included a Sunday ban on the sale of gasoline. It should be pointed out that this fact resulted in a virtual loss of weekend business.

Speaking for Days Inn, we operate directly, or through our franchises, approximately 250 motels, representing around 40,000 guests. In addition, we are also involved in the operations of restaurants and gas stations. In our case, the motels are primarily on interstate highways, and built for the traveling, moderate-income family that cannot afford more expensive lodging. Due to inflation, the advent of the budget motel was greeted with resounding praise from the general public, but last winter, gasoline shortages put corporations within our industry, and the many individual businessmen who own hotels in deep financial difficulty. Due to the energy crisis, chainwide occupancy in

the summer months of 1974 dropped approximately 25 percentage points from the previous year.

At the same time, while we and others were feeling the energy crunch and occupancy crunch, money became almost impossible to obtain. Our prime supplier of gas became difficult on credit terms, cut out using our credit cards, and discontinued our cash discounts.

Fortunately, though, we somehow survived the crisis. But during our fiscal year ending last September, we did lose \$4.3 million, notwithstanding a very profitable June, July, and August. If the embargo had lasted 1 more month, we would have been forced into bankruptcy. This year our business has rebounded, and if another oil crisis does not appear, our company and other motel operators probably will survive. Unfortunately, many did not survive, and loan moratoriums are common in our industry. Days Inns were forced to lay off almost one-third of our work force, with the majority being unskilled labor from the minority races.

To further demonstrate how our Nation's economy is affecting the hospitality industry, let me give you an example of the skyrocketing utility rates we are experiencing. One of our motels in the Disney World area of Florida experienced an electric bill of \$8,400 and a fuel surcharge of \$11,255 in just 1 month. With low occupancies, we are unable to pass these costs along.

In short, the motel owner is forced to endure low occupancies, higher minimum wages, sky-high utility costs, and the inability to borrow from banks. We are in a depression, not a recession, and are depending on enough gasoline for our tourists. I honestly do not believe we can economically endure another year similar to 1974.

As you can see, the result of the 1974 mandatory program was financial chaos for a large number of highway-oriented hotels and motels. Some did not recover sufficiently to make their mortgage payments. Foreclosures were common, but would have been more numerous except that the holders of the mortgages have a deep dread of taking over the operation of the hotel-motel properties.

In December 1973 to February 1974, occupancies nationwide for highway-oriented businesses were off 26 percent from the prior year. Weekend business, which had been 65 to 75 percent occupancy, dropped to 20 to 25 percent.

A return to a mandatory allocation program, regardless of the method used, would cause unfair and inequitable treatment and result in the total failure of many tourist and travel-oriented businesses, with substantial increases in unemployment.

We recognize that there is no easy way to solve the energy problem and to reach our goal of energy independence. But we believe that the steps which should be taken should be those which do the least damage to the American way of life. An increase in tax on the importation of crude oil offers no panacea for our industry. There will be hardships, but the hardships will be more equitably distributed among all facets of business and labor. After all, it is not just some energy which must be conserved, it is all energy. It is not just some industries or some Americans who must participate in the conservation of energy, it is all industries, all Americans. We believe that a tax on the importation of crude oil is the most equitable method of dealing with this problem. It should be a graduated tax and should be coupled with strenuous conservation measures.

Graduation in the tax and, if need be, certain exemptions from it, could be provided for in the legislation. The President's conservation proposals and goals appear to us to be the proper vehicle upon which certain required deviations could be made.

In terms of conservation, we believe that the Congress and the administration should continue their support of the 55-mile per-hour ban. We, on the other hand, support unequivocally any congressional proposals to educate the public to the need for, and the means of, achieving energy conservation. This could be accomplished through greater funding for the FEA to develop an education program through the Division of Public Education in the Office of Conservation and Environment.

Our association has established an energy task force to make recommendations to the industry and the traveling public on ways to bring about even greater savings of energy than heretofore. The task force has the following functions:

Energy Information Center—to develop a center to collect, store, and disseminate data to property members, lodging industry corporations, government where appropriate, and member associations.

Education—to develop short- and long-range programs of study for all levels of innkeeping industry employees.

State regulatory agencies—to monitor the actions of State public service commissions, et cetera, to assure that public utilities in each State accord the industry fair and reasonable treatment.

Energy audit—to oversee the keeping of records on the industry's usage of energy by public accounting firms so that voluntary reports to the Government on hotel-motel energy usage and savings may be prepared regularly.

In conclusion, we would like to point out that on April 29, 1974, the Senate agreed to Senate Resolution 281, which read in part:

* * * that it is the sense of the Senate that in any allocation of energy supplies or other actions by Federal departments and agencies to alleviate the energy shortage, proper consideration should be given to the provision of adequate supplies of energy to all segments of the tourism industry.

Our purpose in bringing this fact to your attention is because it, one, points out the essentiality of our industry to the Nation's economy, and two, recognizes that fuel is our lifeblood.

On the latter point, this committee should know that, contrary to what some people may believe, the amount of domestic petroleum fuel consumed for tourist travel is only 12 percent.

The American Hotel and Motel Association appreciates this opportunity to appear before you and asks only that you consider carefully the impact that mandatory controls and quotas may have upon our businesses and employees.

Thank you.

The CHAIRMAN. Senator Haskell?

Senator HASKELL. I have no questions, thank you, Mr. Chairman. Thank you, Mr. Kenney.

The CHAIRMAN. I just want to make one observation, and that is that during the recent energy crisis, at the time of the Arab oil boycott, your industry was declared by Mr. Simon and his people to be a nonessential industry, and they proceeded to adopt a program that just clobbered your industry, did they not?

Mr. KENNEY. That is correct, sir.

THE CHAIRMAN. It almost wrecked you. I would think if anybody could stand it, it would be an established firm like Holiday Inn could make it. But I talked to the man who was in charge of the Holiday Inn in my hometown, and he told me that once they closed those filling stations down on Sunday, every traveling salesman headed home on Friday, to be sure he was not caught on the highway on Sunday; so that Friday, Saturday and Sunday, all 3 days, he was empty. He was all right on Monday through Thursday, but the last 3 days of the week he was just absolutely dead.

Now, your people, at least in this area, did do something to try to stay alive. I think your people found some way to buy some gasoline, and made it known that if a fellow would stay at Days Inn, you would put a tank of gas—you would fill the tank to start him on his way to the next stop, did you not?

MR. KENNEY. We ran it through our reservation center, the same as renting a room. They bought their gas ahead of time, so we had gas sitting there waiting for them. That is the only thing that kept us alive during that energy crunch.

THE CHAIRMAN. I was aware of that, because a man who was a friend of mine was headed back toward Louisiana, and somehow he managed to work it out, the way he would drive from one Days Inn to the next Days Inn. And I think if he could not do any better, he would rent a room so he could get a tank of gasoline.

Now, the industry suffered very severely in spite of that approach, did it not?

MR. KENNEY. That is correct.

THE CHAIRMAN. I do not think we ought to just clobber you for the benefit of someone else, if we can spread the burden more evenly. I do not believe your people should be regarded as nonessential industry, certainly not one to be dispensed with.

MR. KENNEY. We agree with that. But we keep hearing it still that we are a nonessential industry.

THE CHAIRMAN. I do not feel that way, and I want you to tell all of your members that this Senator does not think that you are nonessential and to be dispensed with.

Senator Gravel? Senator Curtis? Senator Fannin?

SENATOR FANNIN. Thank you, Mr. Chairman.

Certainly, I consider tourism essential. Coming from the State of Arizona, we are very dependent on your industry, and of course we feel that you perform many services other than from the standpoint of vacationing. We have many industries in our State that certainly rely on this industry—for instance, Greyhound has their national headquarters in Arizona, and we have constant travel into our State from people all over the Nation.

Your industry is very essential in that respect; and I do not discount the tremendous value of tourism nor the necessity for it. Is it a very vital industry.

One matter that I think is very important, and I know that you share our concern, is the attempt to save energy—no doubt it has been a goal of your own company, as well as the industries involved in the Ameri-

can Hotel/Motel Association. I have been very desirous, and have supported a program to utilize solar energy in many areas in which you are located. This could be tremendously helpful in any part of the country, but more beneficial in places like Florida, which you referred to, and in the Southwest and Southern States. But do you think your industry would be receptive to a program where you would start, to the greatest extent possible, utilizing solar energy?

Mr. KENNEY. Senator, the American Hotel/Motel Association is doing research on how to conserve on energy, how to use other sources of energy. And this certainly would be one of the ways we would like to find out how we can use it.

Senator FANNIN. Well, I have people specializing in that, and I would be glad to have them get in touch with you.

Mr. KENNEY. We would be delighted.

Senator FANNIN. I am particularly concerned about fossil fuel utilizations where it might be consider somewhat of a luxury, like swimming pools. I do not feel that any swimming pool in America should be heated by natural gas, which is in short supply, or even electricity or oil. We know that this job can be done by solar energy. And that is true around the country. Do you know whether or not you have given any consideration in any of your operations to utilizing solar energy for heating swimming pools?

Mr. KENNEY. In our particular chain, we have not, and I think only because it has never come up. I do not know if any of the other chains—I know the Sheraton has a very big program on conserving energy. We all try to share the thoughts and go through the American Hotel/Motel Association, and probably the biggest waste of energy in our industry is the customers. And we have got a massive education program going on that—leave the room with the air-conditioners on, all of the lights on. We all try to get our maids around to the rooms immediately, but we are trying to educate the customers by putting signs in the bathrooms, on the doors as you are leaving—everything to tell them to turn off that air-conditioner, turn off the lights as you are leaving.

Senator FANNIN. They open the door when it gets too hot, or vice versa when it gets too cool. They simply open the doors.

Mr. KENNEY. Yes, it just kills me.

Senator FANNIN. I am certain that is absolutely essential, but I trust you will look into the possibility of solar energy, because it is inexhaustible. It is the energy of the future. I know that I did not discuss with you the great potential we have as far as the generation of electricity. But that is one of the phases of activity in which we are very much involved at the present time.

I trust you will look into the possibility, and then we will try to furnish you information, and encourage you to do so. I have introduced legislation that would give a tax incentive for that purpose. Do you think it would help to have a tax incentive, such as a faster write-off?

Mr. KENNEY. I think a tax incentive always seems to help. I think it is an exciting program. I really do not know how much has been done in our industry on it, but we will find out. We would love to have the information.

Senator FANNIN. Then with your cooperation, I would like to send you copies of the proposal, and get your comments, because my amendment applies to commercial structures as well as residential, and I think it is highly essential to do everything we possibly can to utilize solar energy, which is inexhaustible.

You bring out the problems you are having on shortages. Is that true today, even under present conditions, concerning gasoline?

Mr. KENNEY. No; there is not much shortage of gasoline. We have not had any shortages recently. We are just worried about what could happen if it came up again.

Senator FANNIN. You do not feel that travel is being affected today in any appreciable amount by the fear of gasoline shortages?

Mr. KENNEY. No; I do not think so.

Senator FANNIN. Thank you very much, Mr. Kenney. We will be in touch with you.

The CHAIRMAN. Thank you very much, sir.

Senator Nelson?

Senator NELSON. No; I have no questions.

The CHAIRMAN. Next we will call on Mr. Stephen—

Senator DOLE. Mr. Chairman?

The CHAIRMAN. Yes?

Senator DOLE. I have no questions. I read the statement. I find myself in essential agreement. I do not find any cure for some of the problems, but I am sympathetic with the industry, especially to the extent that it is having an effect in Kansas, I assume that Mr. Kenney's statement was made a part of the record?

The CHAIRMAN. Yes; it was.

Senator DOLE. Thank you.

Mr. KENNEY. I think the one thing that some people do not understand is, in 46 of the 50 States, tourism is in the top three industries. In three States, it is the No. 2 industry.

[The prepared statement of Mr. Kenney follows:]

STATEMENT OF THE AMERICAN HOTEL & MOTEL ASSOCIATION

SUMMARY

The hotel and motel industry is a \$10 billion industry employing over one million people. The mainstay of the industry is travel, and travel requires fuel.

The industry is totally opposed to:

1. *Gasoline rationing*—Conditions today are so unlike World War II, e.g. the interstate system, suburbs and highway-oriented businesses, that imposition of a rationing program would be a bureaucratic nightmare and cause great hardship to the hotel-motel industry and its employees.

2. *Mandatory allocations and Sunday bans*.—Programs which curtail the free-market system and which limit the sale of gasoline for any 12 to 24 hour periods, such as the Sunday ban during the Arab oil embargo, place an unfair economic hardship on the hotel and motel industry and its employees.

3. *Severe quotas*.—Quotas, by their very nature, create shortages. A SEVERE quota could lead to mandatory allocations and/or rationing, each of which could be unfair and inequitable to the hotel-motel industry and its employees.

The industry recommends that ALL AMERICANS "conserve energy" and to this end favors:

1. *Increased taxes*.—The industry prefers as an alternative to a tax on "excessive" gasoline use, something along the lines of the President's approach.

2. *Consumer education*.—The industry favors greater funding for the FEA to

develop an education program through the division of public education in the office of Conservation and Environment.

It also feels that the states should do more to enforce the 55-mile per hour speed limit.

STATEMENT

The American Hotel & Motel Association is a federation of hotel and motel associations located in the fifty states, the District of Columbia, Puerto Rico, and the Virgin Islands, having a membership in excess of 8,000 hotels and motels, containing in excess of 900,000 rentable rooms. The American Hotel & Motel Association maintains offices at 888 Seventh Avenue, New York City, and at 777—14th Street, N.W., Washington, D.C.

Mr. Chairman and members of the Committee:

My name is David B. Kenney, Vice Chairman of the Board for Days Inns of America, Inc. I am appearing on behalf of the American Hotel & Motel Association to summarize the Association's prepared statement that expresses the views of the hotel-motel industry on energy legislation. I am representative of the highway-oriented sector of our industry which, in the winter of 1974, suffered irreparable harm as a result of certain mandatory fuel allocation programs imposed by the federal government in consequence to the Arab oil embargo.

The hotel-motel industry is a \$10 billion industry, employing over one million people. It depends *exclusively* for its livelihood on travel. Travel is dependent on the availability of fuel.

The Association is opposed, without qualification, to:

1. Gasoline rationing, and
2. Any direct mandatory allocation programs, including those which would ban the sale of gasoline for 12 to 24 hour periods.

The association would oppose a *severe* quota system which could lead to a mandatory allocation program.

GASOLINE RATIONING

We are opposed to gas rationing and believe that it should be looked to only as an *absolute last resort*.

Our opposition to gas rationing stems from the "unfair" and "inequitable" experiences of World War II. Even though World War II rationing lasted only a couple years, it was fraught with "black markets" and "discrimination". Since 1948, we have experienced a "suburban sprawl", with the ensuing result of little, if any, public transportation available to newly established businesses or to newly constructed homes. While the federal highway system has opened up previously remote and isolated sections of our country, it has also led to the establishment of millions of highway-oriented properties and to the creation of job opportunities for many millions of Americans. It has, at the same time, placed a total dependency on the "auto" for the continued existence of both. In 1948, there were 26 million registered autos in the United States; today, there are over 100 million—four times as many. Many of these autos are required by employees to reach their places of employment on these new highways which were constructed within the last two decades. The imposition of a "gas rationing" system today would make the problems of the "forties" pale beyond belief.

MANDATORY ALLOCATION PROGRAMS—QUOTAS

Our opposition to *mandatory allocation* programs stems from the experience we had during the Arab oil embargo. In this connection, we are equally concerned with the danger of a QUOTA SYSTEM. A *severe* quota on imports will reduce the availability of crude oil *SEVERELY*—and thus lead to mandatory allocations. In early 1974, the hotel-motel industry suffered because of the "mandatory allocation programs" which included a *Sunday ban on the sale of gasoline*. It should be pointed out that this fact resulted in a virtual loss of weekend business. At that time, AH&MA, in cooperation with Quality Inns, had surveyed properties along the Atlantic Coastal Region to determine the impact of gasoline shortages and received the following information:

EXAMPLE NO. 1—VERMONT

Statewide, hotels and motels are experiencing serious problems due to the gasoline shortage.

Occupancies statewide are off approximately 35 percent.

All phases of innkeeping are experiencing the shortage, whether they be in ski areas, along highways, or located in cities.

Although earlier in the year the lack of snow had a direct economic impact on the ski areas, the advent of snow did not bring the hoped for relief. The gasoline shortage is adversely affecting ski areas which once had excellent weekend business. It has been reported to us that the Friday-Monday ski business is in "shambles." Interestingly, the occupancy factors surrounding the week or more vacationer to the ski areas remain relatively good.

The great loss in weekend business in the ski areas is also affecting the occupancy rate in city and roadside hotels and motels.

City hotels and motels which in the past received a substantial amount of business from skiers to the area are now reporting an almost zero rate of occupancy on weekends. These properties are also experiencing a substantial decline in occupancies during the week, many reporting between 30-35 percent.

EXAMPLE NO. 2—NEW JERSEY

According to a spokesman for the New Jersey State Hotel-Motel Association, occupancy is down—particularly in the resort areas of Southern New Jersey. In the past several months since mid-December and up through Washington's birthday, state-wide occupancy is down 31.3 percent. Gross revenues are down 42.9 percent.

However, Northern and Central geographical districts show an increase in occupancy from 2 to 19 percent.

Decreases in February and March weekend business is showing a decrease of 33 percent. This is verified by surveys sent in by all of their members.

Overall trends show a decrease in occupancy of 8 percent in December 1973 as opposed to December 1972.

In the 4th quarter of 1973 as opposed to 1972, occupancy is down 2.5 percent.

Gross sales are down 4.14 percent in December 1973 as opposed to December 1972.

Occupancy was down 2.91 percent in December 1973 as opposed to December 1972.

Employment was down 5 percent in December 1973 as opposed to December 1972.

The following figures are for the February 15-March 15 time period in Atlantic City, a year-round convention resort center in Southern New Jersey:

1. The American Association of School Administrators which historically attend their annual meeting with between 20,000-25,000 members had only 16,777 in attendance.

2. National Association of School Principals, which usually number 10,000, had only 6,277 in attendance.

In explanation of numbers 1 and 2, overall no-shows were from a tri-state and eastern regional area which constituted automobile traffic.

3. Overall business during Washington's birthday was down as much as 50 percent in the Atlantic City area.

EXAMPLE NO. 3

Quality Inn—Colony, Williamsburg, Virginia (59 rooms)

Not open in January. Open one less day in February 1973 than in February 1974.

February 1973—Gross room revenues—\$5,744.

February 1974—Gross room revenues—\$1,990.

The gas situation has had a devastating effect on weekend business at this property. During the weekend of February 8-9, 1973, they rented 24 rooms. This same weekend in 1974, they rented 9 rooms. During the Washington Birthday 3-day weekend 1973 (February 15-17) they rented 114 rooms. During this same weekend in 1974 they rented 23 rooms. During the weekend of February 22-23, 1973, then rented 45 rooms. During this same weekend in 1974, they rented 9 rooms. During the weekend of March 1-2, 1973, they rented 45 rooms. During the weekend of March 4-5, 1974, they rented 7 rooms. As of March 3, 1973, they had already booked 33 rooms for Good Friday (Easter weekend). As of March 4, 1974, they have booked 3 rooms for Good Friday (Easter weekend).

EXAMPLE NO. 4

Quality Inn, Cave City, Kentucky (101 rooms)

This motel historically is 85 percent transient business and 15 percent commercial.

January 1974—Gross room revenues—20% less than January 1973.

February 1974—Gross room revenues—41% less than February 1973.

Occupancy is off similarly. The Saturday-Sunday weekend business during the December 1973-February 1974 time period had an occupancy of 11 percent, whereas the December 1972-February 1973 time period had an occupancy of 45 percent. The drop-off in business here can be pinpointed directly to the gas shortage. The December 1973-December 1972 time period was off by 24 percent.

Restaurant.—December 1974-December 1973—Gross room revenues—Off 18%. January 1974-January 1973—Gross room revenues—Off 20%. February 1974-February 1973—Gross room revenues—Off 20%.

Work Force.—Previously employed 6-7 maids—Now employ 3. Previously employed laundry workers on a 6-day week. Now they work a 3-day week. Previously employed 2 front desk clerks in the morning and 2 in the evening. Now employ only 1 in the morning and 1 in the evening.

Maintenance.—Previously employed 1 full-time maintenance worker plus a helper. Now employ 1 part-time maintenance worker.

Waitress.—Previously, based on 3 shifts, employed 18. Now employ 13.

Kitchen Assistants.—Previously employed 3 kitchen assistants. Now employ 1.

Managerial Trainee.—Previously employed a managerial trainee. This position has been eliminated.

EXAMPLE NO. 5

Quality Inn—Hal Orrs, Rocky Mount, North Carolina (52 rooms)

January 1973—Gross room revenues—\$20,776.

January 1974—Gross room revenues—\$14,372.

February 1973—Gross room revenues—\$20,274.

February 1974—Gross room revenues—\$10,062.

1973 calendar year room revenues—\$240,000.

Projecting on the basis of the first two months of this year, the 1974 gross is \$140,000. The voluntary Sunday closing of gas stations has effectively harmed their Friday, Saturday and Sunday business. Before the closings, this motel's theory was that weekends would be off but that weekdays would be up, thereby having a normal effect.

On Friday, Saturday and Sunday, this motel is averaging 10 rooms per night. Saturday was previously a 100 percent occupancy day. This was because Rocky Mount, North Carolina, is a natural mid-way point. This is where I-95 terminates for people traveling from the metropolitan Washington, D.C. area to Florida. People would leave on Friday and would stop in Rocky Mount for their first night en route to Florida. Similarly, with people who were winding up their vacations in Florida and driving North, the same reasoning would apply.

Work Force.—Previously employed 13 hourly people on the motel payroll. They have had to terminate 5 . . . 3 maids, 1 housekeeper, and 1 laundry operator. Of the 4 maids remaining, whereas they used to be on a 40-hour week, they are now on a 35-hour week.

Restaurant.—In the restaurant in this particular motel, their business is off 40 percent for January-February 1974, or \$25,000. The restaurant was normally open, and had been for the last 20 years. 7 days a week from 6:00 a.m. to 9:00 p.m. Now the restaurant is closed each day from 2:00 p.m. to 5:30 p.m. They used to employ 17 full and part-time people in the restaurant. They now employ 7.

Kitchen staff.—Previously employed 8 employees. Now it totals 3.

Waitresses.—Previously employed 8-10, some part-time. They now have 3 full-time.

Because of this situation, they have already applied for and have received a 6-month moratorium on mortgage payments from their local bank. All of their corporate assets (owned by a family corporation) which are readily converted to cash have been exhausted.

EXAMPLE NO. 6

Quality Inn, Florence, South Carolina

Approximately 90 percent of their business is transient tourist. This is an I-95 property.

January 1973—Gross room revenues—\$31,715.
 January 1974—Gross room revenues—\$17,323.
 February 1973—Gross room revenues—\$36,803.
 February 1974—Gross room revenues—\$16,674.
 January 1973—Occupancy—64.6%.
 January 1974—Occupancy—39.2%.
 February 1973—Occupancy—85.5%.
 February 1974—Occupancy—42.7%.
 December 1972—Saturday Occupancy—75%.
 December 1972—Sunday Occupancy—46%.
 December 1972—Monday Occupancy—43%.
 December 1973—Saturday Occupancy—18%.
 December 1973—Sunday Occupancy—12%.
 December 1973—Monday Occupancy—22%.
 January 1973—Saturday Occupancy—79%.
 January 1973—Sunday Occupancy—54%.
 January 1973—Monday Occupancy—71%.
 January 1974—Saturday Occupancy—17%.
 January 1974—Sunday Occupancy—11%.
 January 1974—Monday Occupancy—44%.
 February 1973—Saturday Occupancy—98%.
 February 1973—Sunday Occupancy—76%.
 February 1973—Monday Occupancy—72%.
 February 1974—Saturday Occupancy—13%.
 February 1974—Sunday Occupancy—9%.
 February 1974—Monday Occupancy—37%.

The preceding figures have purposely been set forth as they have to dramatize the severe drop in occupancies for January and February 1974 when compared with the same months in the preceding two years.

Work Force.—February 1973 payroll was approximately \$5,600. February 1974 payroll was approximately \$4,400. It has added to it a wage increase of about 5% as compared to February 1973.

The number of people on the staff has been reduced, and they are bringing in people on a day-to-day basis to fill their needs.

Restaurant.—Percentage-wise it is off by approximately the same percentage as the room revenues. This being an Interstate motel, the volume of food is almost in direct proportion to the volume of room sales. The restaurant had been open from 6:00 a.m. to 10:00 p.m., 7 days a week. It is now open from 6:00 a.m. to 10:00 a.m., and from 4:00 p.m. to 10:00 p.m.

It should be pointed out that for many enroute to Florida, this motel has served as a first-night home away from home. Because of the ban on Sunday sales, weekend business, as you can see, has been totally wiped out.

EXAMPLE NO. 7—FLORIDA AND GEORGIA

The preceding illustrations, it should be pointed out, are not isolated examples. For instance, twelve motor inns representing 1,025 rooms, 4 of which are Quality Inns and located in Georgia and Florida, are all Interstate locations (I-95 and I-75). They are not so-called terminal destination motels. That is, they cater to the transient and 92 percent of their business normally comes from transient travelers.

The overall occupancy for these twelve motels from the first week of December to February is off 26 percent from the prior year. The weekend business which similarly was 65-70 percent and made up of people traveling to Florida is now 20-25 percent. The impact was felt at the beginning of December right after the so-called gas scare. People who operate these twelve motels believe that a mandatory Sunday closing would virtually close down their facilities on weekends.

Samplings made by the Florida Hotel & Motel Association, a member of AH&MA, reflect that some properties, particularly those serving the Interstates, are down in occupancy as much as 75 percent over last year.

Although it is true that certain markets in Florida do not appear to be adversely affected by the gasoline shortage, such as Palm Beach, declines in occupancy this year over last have been felt in the following areas in the following ways:

	<i>Percent decrease</i>
Pensacola	15.0
Fort Walton Beach.....	5.0
St. Petersburg.....	15.0
Fort Lauderdale.....	5.0
Miami Beach.....	12.0
Jacksonville	13.0
Clearwater	12.0
Lakeland	21.6

Speaking for Days Inns, we operate, directly or through our franchisees, approximately 250 motels, representing around 40,000 guest rooms. In addition, we are also involved in the operation of restaurants and gas stations. The overall budget motel segment of the lodging industry has grown rapidly in the past few years, and now represents over 100,000 rooms. In our case, the motels are primarily on interstate highways and built for the traveling, moderate-income family that cannot afford more expensive lodging.

Due to inflation, the advent of the budget motel was greeted with resounding praise from the general public. But last winter, gasoline shortages put corporations within our industry and the many individual businessmen who own the motels in deep financial difficulty. Due to the energy crisis, chain-wide occupancies in some months of 1974 dropped approximately 25 points from the previous year.

At the same time, while we and others were feeling the energy crunch and occupancy crunch, money became almost impossible to obtain. Our prime supplier of gas became difficult on credit terms, cut out using our credit cards, and discontinued our cash discounts.

Fortunately though, we somehow survived the crisis, but during our fiscal year ending last September, we did lose 4.3 million dollars, notwithstanding a very profitable June, July and August. If the embargo had lasted one more month, we would have been forced into bankruptcy. This year our business has rebounded and if another oil crisis does not appear, our company and other motel operators probably will survive. Unfortunately, many did not survive and loan moratoriums are commonplace in our industry. Days Inns were forced to lay off almost one third of our work force, with the majority being unskilled labor from the minority races.

To further demonstrate how our Nation's economy is affecting the hospitality industry, let me give you an example of the skyrocketing utility rates we are experiencing. One of our motels in the Disney World area of Florida experienced an electric bill of \$8,400 and a fuel surcharge of \$11,255 in just one month. With low occupancies, we are unable to pass these costs along.

In short, the motel owner is forced to endure low occupancies, higher minimum wages, sky-high utility costs, and the inability to borrow from banks. We are in a depression, not a recession, and are depending on enough gasoline for our tourists. The budget motel industry has invested millions in the past few years and has given the moderate-income families low-cost travel, in addition to helping the lodging industry focus on providing a wider spread of cost packages for the tourist, regardless of his means. I honestly don't believe we can economically endure another year similar to 1974.

As you can see, the result of the 1974 mandatory program was financial chaos for a large number of highway-oriented hotels and motels. Some did not recover sufficiently to make their mortgage payments. Foreclosures were common, but would have been more numerous except that the holders of the mortgages have a deep dread of taking over the operation of the hotel-motel properties.

In December 1973 to February 1974, occupancies nationwide for highway-oriented businesses were off 26 percent from the prior year. Weekend business, which had been 65 to 75 percent occupancy, dropped to 20 to 25 percent.

A return to a mandatory allocation program, regardless of the method used, would cause unfair and inequitable treatment and result in the total failure of many travel-oriented businesses—with substantial increases in unemployment.

THE TAX APPROACH

We recognize that there is no easy way to solve the energy problem and to reach our goal of energy independence. But, we believe that the steps which should be taken should be those which do the least damage to the American way of life. An increase in tax on the importation of crude oil offers no panacea for our industry. There will be hardships, but the hardships will be more *equitably* distributed among all facets of business and labor. After all, it is not just some energy which must be conserved, it is ALL energy. It is not just some industries or some Americans who must participate in the CONSERVATION of energy, it is all industries, all Americans. We believe that a tax on the importation of crude oil is the most equitable method of dealing with this problem. It should be a graduated tax and should be coupled with strenuous "conservation measures".

Graduation in the tax and, *if need be*, certain exemptions from it, could be provided for in the legislation. The President's conservation proposals and goals appear to us to be the proper vehicle upon which certain required "deviations" could be made.

CONSERVATION

We believe that Congress and the Administration should continue their support of the 55 mile per hour ban.

We, on the other hand, support, unequivocally, any Congressional proposals to "educate the public" to the need for, and the means of, achieving energy conservation.

This could be accomplished through greater funding for the FEA to develop an education program through the Division of Public Education in the Office of Conservation and Environment.

Our Association has established an "Energy Task Force" to make recommendations to the industry and the traveling public on ways to bring about even greater savings of energy than heretofore.

That Task Force has the following functions:

1. *Energy Information Center.*—To develop a center to collect, store and disseminate data to property members, lodging industry corporations, government (where appropriate) and member associations. This committee will also oversee the development of an Energy Conservation Manual.

2. *Education.*—To develop short and long-range programs of study for all levels of innkeeping industry employees. To insure that such training programs are properly conceived and developed, the Industry Advisory Council will hold a conference of educators (university and industry).

3. *State Regulatory Agencies.*—To monitor the actions of state public service commissions, etc., to assure that public utilities in each state accord the industry fair and reasonable treatment.

4. *Energy Audit.*—To oversee the keeping of records on the industry's usage of energy by public accounting firms so that voluntary reports to the government on hotel-motel energy usage and savings may be prepared regularly.

In conclusion, we would like to point out that on April 29, 1974 the Senate agreed to Senate Resolution 281, which read in part:

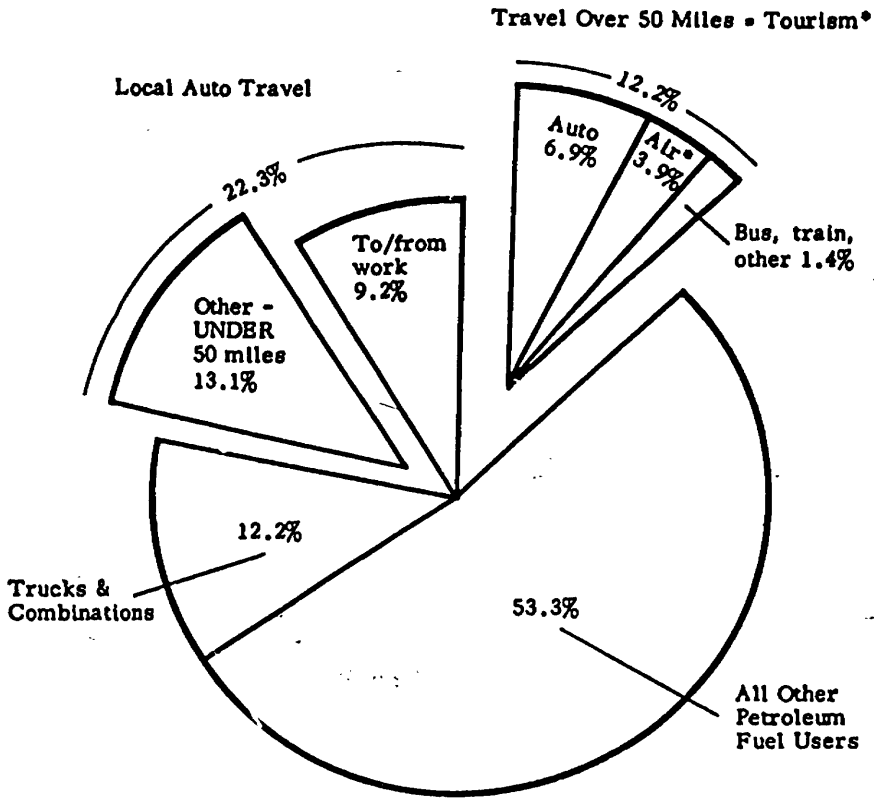
* * * That it is the sense of the Senate that in any allocation of energy supplies or other actions by federal departments and agencies to alleviate the energy shortage, proper consideration should be given to the provision of adequate supplies of energy to all segments of the tourism industry.

Our purpose in bringing this fact to your attention is because it: (1) points out the essentiality of our industry to the Nation's economy; and (2) recognizes that fuel is our lifeblood.

On the latter point, this Committee should know that, contrary to what some people may believe, the amount of domestic petroleum fuel consumed for tourist travel is only 12 percent.

The American Hotel & Motel Association appreciates this opportunity to appear before you and asks only that you consider carefully the impact that mandatory controls and quotas may have upon our businesses and employees. Thank you.

Tourist Travel* Uses Only 12% of Domestic Petroleum Fuel Consumption**



*Tourism as defined by the National Tourism Resources Review Commission, (Destination U.S.A., Vol. 2, page 4).

**U.S. consumption in 1972 reached 251,396 million gallons.

Source: Discover America Travel Organizations; American Petroleum Institute, Annual Statistical Review, 1956-1972; C.A.B., forms 41.

The CHAIRMAN. Thank you.

Next, we will hear from Mr. Stephen Ailes, of the Association of American Railroads. Mr. Ailes, does the rail industry still have some problems? I thought we had taken care of all of your problems.

STATEMENT OF STEPHEN AILES, PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS, ACCOMPANIED BY F. E. BARNETT, CHAIRMAN, BOARD OF DIRECTORS AND CHIEF EXECUTIVE OFFICER, UNION PACIFIC RAILROADS; W. GRAHAM CLAYTOR, JR., PRESIDENT, SOUTHERN RAILWAY SYSTEM; AND JOHN P. FISHWICK, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NORFOLK & WESTERN RAILWAY, CO.

Mr. AILES. Mr. Chairman, I am accompanied here this morning by Mr. John Fishwick on my right, who is the president and chief executive officer of the Norfolk & Western Railroad; and by Graham Claytor down there on my left, who is president of Southern Railway; and by Frank Barnett, who is chairman of the board and chief executive officer of Union Pacific.

I have a brief statement that I would like to make first, and then I would like to turn to them. I would appreciate it if my statement could be put in the record in the interest of time, and I will summarize it very briefly.

The CHAIRMAN. Without objection, that will be done.

Mr. AILES. The statement makes the obvious point that the railroad industry is of vital importance in the Nation's energy program. For instance, on the subject of coal, which has been discussed here at some length this morning, the estimates that coal can double in production to 1.2 billion tons in 1985 places a heavy burden on the railroad industry, and one that we are quite prepared to meet. We are confident that we can increase our capacity to haul coal, as fast as the coal mines can produce it. There is no question but what that obligation and the obligation of all of the traffic places quite a burden on the capital programs of this industry.

Our fuel efficiency, which is substantially greater than trucks, and even water carriers, because of circuitry, also is going to place a capital burden on this industry over time, and the capital problem makes the tax issues which are before you of tremendous importance to use.

Now, the railroads are confronted with strong competition from truck and water, which have a sort of depressing effect on our rates. As a result, even the best money earners in the business have net earnings which are low in comparison with all of the rest of American industry, which really fall short of providing the funds that are needed to enable us to take full advantage of the technological advances that are occurring, to provide all the cars and locomotives and whatnot that we need.

The inability to generate internally the funds needed for essential capital improvements has meant that as working capital in this industry has declined, debt has increased. Capital outlays have exceeded retained income, and depreciation by more than \$5 billion in the last 10 years.

Thus, it is not surprising in this industry that we have a great interest in and want to focus on capital recovery programs, such as the investment tax credit, rapid amortization, and so on.

I have some material in my statement about leverage leasing, which is very important to the weaker railroads in the industry that do not have a substantial tax liability. We simply want to make the point in passing, because these other gentlemen will not talk about that, but that also continues to be of major concern to the industry.

With your approval, Mr. Chairman, I would like to turn to Mr. Fishwick. He is going to talk primarily about the need of the industry to realize tax reductions for substantial investments, and the costs of grading and tunnel bores, and the other major area of frozen railroad investments not now subject to tax deduction, track.

Mr. Claytor will focus primarily on the provisions in H.R. 6860 relating to the needs of the industry for 5-year amortization of new investment in certain railroad operating property and rolling stock in lieu of longer depreciable lives for tax purposes.

And then Mr. Barnett will discuss needed revisions to permit 5-year amortization without a reduction in the available investment tax credit of 10 percent and needed revisions to eliminate withdrawal of benefits by operation of the preference tax.

If that is all right with you, sir, I will turn to Mr. Fishwick.

Mr. FISHWICK. Mr. Chairman, gentlemen, I have filed a statement with the committee, and if it is agreeable to the chairman, I would like to summarize what I said in that statement.

As Mr. Ailes has said, the railroads have an important role to perform in connection with energy. Transportation, of course, consumes a lot of energy. The railroads are relatively, compared to other forms of transportation, energy efficient, and anything we can do to improve the efficiency of our operation will, of course, save energy. At the same time, it looks as though, at least over the next decade, we are going to rely much more heavily on coal as a source of energy, and the railroads are going to have to perform a major role in moving that coal to the consumer.

Now, what do the railroads need in order to perform both of those functions; that is, consume relatively less fuel for the work they do, and second, to make coal available as a more substantial and more contributing factor to the Nation's energy requirement? Well, obviously, we have got to modernize our plants. We have got to build more efficient yards. We have got to extend lines. We have got to buy more equipment, if we are going to haul all of the coal that is available and handle it efficiently.

Now, Mr. Ailes referred to the fact that the railroads' problem is really a cash flow problem. Over the last 10 years, railroads have spent \$5 billion more for capital expenditures than their total cash flow. And at the same time—

Senator NELSON [presiding]. \$5 billion on capital investment, in excess of cash flow?

Mr. FISHWICK. In excess of total cash flow. So we are really depleting ourselves. We are building up tremendous debt. At the same time, we are not generating enough money to pay for it. And consequently, the fortunes of the railroads have gone down, and this is the basic reason why we have the bankruptcies in the East, and the bank-

ruptcy in the Rock Island, and other railroads that are in bad financial condition.

Now, I do not believe that all of the railroad problems can be solved by this committee, in connection with this bill. But you can make a start. You can do something that will be of substantial help to us.

I want to focus on two things. One is, all of our grading and tunnel bores, prior to 1969—

Senator NELSON. All of our what?

Mr. FISHWICK. All of our grading on which our tracks are built in and all of our tunnels, are nondepreciable, and they are frozen assets. We never get that back, the money that we put into that property, until we go out of business or abandon a particular line, or abandon a tunnel, which means that we go bankrupt, or until we get permission from somebody to abandon a particular portion of line.

Now, in 1969, this committee and the Senate passed, in connection with the Tax Reform Act of 1969, included a provision which would enable us to amortize the cost of all this grading over a period of 50 years, recognizing that railroad properties wear out and become obsolete. In the conference, and as passed by both Houses, that provision was put in with respect to the future, and that is, anytime we do any grading or building any tunnels after 1969, or from the beginning of 1969, we could amortize that over 50 years.

But we still have this big block of investment made from the time the first locomotive ran, and until 1969, that was absolutely frozen. What we think you should do is again do what you did in 1969, in the hopes that the House will join with you this time. And let us put this big block of investment prior to 1969 in the same category that the post-1969 investments in track and tunnels are.

Senator FANNIN. Mr. Chairman, could I ask what percent would that involve? What percent preceded 1968?

Mr. FISHWICK. Practically all of it.

Senator FANNIN. That is what I imagined.

Mr. FISHWICK. What we have invested since 1969 is very little, and it will not build up to a substantial amount for another 100 years.

Senator FANNIN. So the action taken in 1969 was of very little benefit.

Mr. FISHWICK. Very little benefit.

Senator FANNIN. Thank you.

Senator CURTIS. May I ask a question there? You would make the track and tunnels, and the other things eligible for this tax treatment?

Mr. FISHWICK. Right.

Senator CURTIS. But all of that benefit would not be payable at once. You would take the present value and start out from here, 50 years from now?

Mr. FISHWICK. Yes; we start it over 50 years, so you would deduct 2 percent a year. So it is a big amount of money, but it is recouped over 50 years. But now it is not recouped at all. And we have, on our railroad, in the last 2 weeks, a peculiar situation. One of our tunnels has been there for about 75 years, and all at once, it collapsed. Now, we can write off the amount that is in that tunnel now, but we should have

been able to write it off over a period of 75 years. Now we have to go in there and maybe spend above five times as much money as the original tunnel costs to replace that tunnel.

Now, there is another big block of frozen assets in the railroad industry.

Senator HASKELL. Mr. Chairman, may I ask a question along these lines? What do you do—I mean, obviously, it is a huge capital expense. What do you do for ratemaking purposes? Does the ICC make you take some portion of that tunnel off? How do you handle that for other purposes? How do you handle that for profit reporting purposes?

Mr. FISHWICK. The unfortunate thing about the railroad industry, as compared with the utility industry, is, they could take their investment, and there is a real problem as to whether they are entitled to 8 percent, 9 percent, or 10 percent, or some percent on their investment, figured on some basis. The return of the railroads on their investment is so low that we never have that problem. We are talking about, in terms of the railroad industry, of 2 percent, 3 percent, over all of these years, and that is the reason why we have this tremendous cash flow problem. So we never really get to a position of a reasonable return on investment that we have got any problem. So by any standard, you have got to have more than 3 or 4 percent on your investment. And this is the key problem of the railroad industry.

We have not been able to earn a reasonable rate of return on our investment, and therefore, we have a small cash flow. Therefore, we cannot modernize the way we should. And it is a big problem that the country has to face, and this is one thing this committee can do to help us.

Senator HASKELL. I guess maybe another way of getting at it—maybe you just do not ever write it off. How about for terming it in your annual report to stockholders? How do you treat, for that purpose, these tunnels?

Mr. FISHWICK. It is not a matter of significance for your stockholders, the relationship between the investment—

Senator HASKELL. In arriving at net income report that you report, I think the Norfolk investment is—

Mr. FISHWICK. We do not depreciate it at all.

Senator HASKELL. At all?

Mr. FISHWICK. No. It is absolutely frozen.

Senator HASKELL. Not for any—

Mr. CLAYTOR. Not for any purposes.

Mr. FISHWICK. It really is something that is a cost, but it is becoming obsolete, and we have no recovery through any deduction.

Senator HASKELL. In any way?

Mr. FISHWICK. In any way, for any purpose.

Senator HASKELL. Thank you.

Mr. FISHWICK. Now, the second big block we have in that same category is all of our track. All of the track is nondepreciable. What we do there is, when we replace it in kind, we treat that as an expense, and we only add to our frozen investment any betterments or additions to the track. So we have got a tremendous sum of money here, that we have made from the time the first steam locomotive, 100 years ago, that is frozen. No other industry has that kind of a frozen investment.

Senator NELSON. What were the policy reasons for not allowing this to be depreciated. There must have been some rationale? What was it?

Mr. FISHWICK. I really do not know. It was just historic, I suppose, from the days when the railroads were very profitable and taxes were not significant, and this was figured into a rate base, and therefore, you know, if you did not depreciate it, I suppose you kept your rate base up. But in today's world, we just have some money there we can never get out for tax purposes. And if we were permitted to get this money out over a period of 50 years here, it would result in an improvement of the railroads' cash flow. And it is something that we think is germane to this bill, and which could be constructively done by this committee, to add something to the cash flow of the railroads, to enable us on the one hand to reduce relatively our consumption of fuel and more importantly, and needed, is to enable us to upgrade our properties to handle the tremendous volumes of coal that will have to be handled by the railroads if we are to solve the energy crisis.

Thank you very much.

Senator NELSON. Does anybody else have a statement?

Mr. AILES. Yes, sir, Mr. Claytor.

Senator NELSON. All of you, if you have prepared statements, they will be printed in full in the record, and if it is convenient for you, we would appreciate it if you would summarize your main points.

Please go ahead.

Mr. CLAYTOR. Yes, Mr. Chairman. I will summarize my statement as briefly as I can. I am Graham Claytor, president of Southern Railway, with headquarters here in Washington.

The provisions with which I would like to particularly deal are contained in the House bill, and relate to 5-year amortization of new investment in railroad operating property and rolling stock in lieu of longer depreciable lives for tax purposes. Now, while the amortization provisions for railroad rolling stock are important, especially in easing and expediting acquisition of additional hopper cars for coal service, I shall direct my remarks primarily to amortization of operating roadway improvements.

This is a less familiar, and in my opinion, equally or more important concept. The object of roadway amortization provisions is to make it possible for the members of our industry to undertake now badly needed capital improvements to our roadway plans, but improvements that are currently beyond our means from a cash viewpoint, without this tax assistance.

The considerable efficiency that these improvements would bring about are directly related to our energy problem, and I think properly in an energy bill.

It has already been pointed out by Mr. Ailes and others that railroads are the most efficient of all of the modes in consuming energy, and these efficiencies can be significantly improved if we can go forward quickly with needed roadway improvements.

Timing is very important, because many of these improvements are needed now in order to enable us to move among other things the increased amounts of coal that are substituted for oil and gas for burning by utilities. I will mention more on this later.

The provisions I am particularly advocating now, of course, are contained in the bill that has been passed by the House. These provisions

call for the writeoff for tax purposes, over a 5-year period, of investments not only in rolling stock but also in new, improved, and relocated track, communications signals, traffic control systems, new classification freight yards, facilities for loading and unloading trailers, and a vast variety of other needed improvements to the physical plant. Under existing law, the recovery of our investment in these assets through tax depreciation is realized over very long periods of time, or as Mr. Fishwick has pointed out with respect to some of these investments, it is not realized at all.

In the case of our roadway improvements, for example, the recovery period for tax purposes is frequently 25 to 30 years, and in some cases, as long as 40 years; with new gradings, 50 years. Moreover, under our method of accounting, the cost of upgrading our rails is charged to our capital account and not recovered through depreciation at all until such time as the track is replaced at some time in the future.

Now, this provision of the House bill would permit railroads to recover the cost in part through tax deductions over a 5-year period. I really look on this proposal not so much as a tax incentive provision as a tax enabling provision.

The railroad industry does not need an incentive to do the job, since this implies that we need to be motivated to act. We have all of the motivation you can have, but what we do not have is the cash, or rather the opportunity to generate cash to accomplish the needed improvements.

Now, the problem the industry has is that most roadway improvements projects of this type are difficult, and in some cases, impossible to finance through any ordinary channel. We can only do most of this work if we can pay for them out of our accumulated cash. Now, these tax provisions will give us that cash at an early date, so that we can go forward with those projects now, when they are needed. And in that connection, I should emphasize that the provisions we are talking about are tax deferrals, not tax forgiveness.

The important thing is timing. They would enable us to get the cash now and make these investments now, and otherwise, the investments would have to be deferred for a number of years. To give you just an example or two, in the energy area, we have extensive plans on our railroad, for increasing the capacity of a number of our lines, and in some cases, branch lines, to provide additional heavy coal service to powerplants that are being constructed and will burn coal. We have already completed a portion of this improvement by upgrading our line out in Indiana between New Albany and Princeton.

But we have a great deal more to be done. In Georgia, for instance, we have got 10 miles of new line to be done to take care of a new Georgia power company plant at Yates. We have got to build a connecting track of another 10 or 15 miles. We have got about 16 miles of investment directly related to enabling us to build up our plant to handle coal. That is going to be done, hopefully, in the next 2 to 3 years.

We need to relocate a 4,500 foot tunnel out in Indiana, on our main line, on a coal line, which is located on a 3-percent grade, which is probably one of the steepest main line grades in the country, a very inefficient operation in which you have to double freight trains and push them over the hill. It takes a long time, and you waste a lot of energy to do this. That tunnel, built 100 years ago, ought to be bypassed. It

will take \$16 million to do that. We cannot finance that. That is \$16 million that has got to come out of our cash flow.

The savings, the return on investment would be very high, obviously, something that would increase the efficiency of our operation and also enable us to give a lot better service. But if we could write that tunnel off in 5 years, the improvement in our cash flow would enable us to fit it into our program now, and not be put where it presently is, which is hopefully to be started perhaps 10 years from now.

This is the kind of problem that I think we really need to face up to.

Senator NELSON. So these provisions on which you are commenting here are all specific provisions of the House-passed—

Mr. CLAYTOR. In the House-passed bill. This is in the bill, as passed.

And in conclusion, I should mention that applicability of the amortization provisions to roadway plant projects, as distinguished from just equipment, is not new in the Internal Revenue Code. It was done during the Korean war. And our experience with that provision at that time was a most interesting one that I think is highly relevant. We had a bottleneck in Atlanta, in the early 1950's, in our major yard, where our two mainlines crossed. Using the fast amortization provisions of the code that were put in at that time, we were able to spend \$17 million to rebuild that yard. And that was an awful lot of money in those day. It is still a lot of money, but, the same improvement today would cost three or four times that.

But the \$17 million we spent made that into what was then the most modern classification yard in the world. And that yard has served our railroad since, in a way that has repaid its value to shippers four or five times over. But we could not have done it. We had no financial means to get that yard built at that time, had it not been for those provisions.

We are faced with this same problem now, not only we on Southern, but the railroad industry, and we think this would be a really important investment in our transportation future, to get these provisions enacted.

Mr. AILES. Frank Barnett has a statement.

Senator NELSON. If it is all right with you, we will let the rest of the witnesses testify, and then we will question them when they have finished.

Mr. BARNETT. Thank you very much.

My name is Frank E. Barnett. I am chairman of the board of directors and chief executive officer of the Union Pacific Railroad Co.

I have a written statement, which I will appreciate having appear in the record. I will try to summarize it very briefly.

Senator NELSON. It will be printed in full in the record.

Mr. BARNETT. Thank you, sir.

I appear to urge on this committee the adoption of certain proposals which will permit our industry to generate sorely needed capital with which to underwrite the staggering plant and equipment modernization program required at this time. More specifically, I urge that this committee enact section 422 of H.R. 6860 which would add to the Internal Revenue Code a new section 190 providing for 5-year amortization of certain qualified railroad equipment and road property; to modify section 424 of the bill to allow a full investment tax credit

based on the actual useful life of section 190 property; to amend existing code section 46 to increase the present limitation on investment credit with respect to sections 184 and 190 property to 100 percent of the tax; and to amend section 57 of the code to eliminate as an item of tax preference the amortization of rolling stock imposed under section 184.

My colleagues, Mr. Claytor and Mr. Fishwick, have adequately demonstrated the pressing problems faced by our industry. The as yet unanswered question is from what source or sources will the industry realize the dollars required.

I believe there is total agreement that, to the extent possible, the railroad industry itself should be looked to as the primary source of these funds. However, it is true, as my colleagues have stated, that the industry must rely on internally generated cash flow to meet its capital requirements.

Thus, we heartily endorse and urge the immediate enactment of section 422 of the bill which opens up to us a new source of capital—an increase in after-tax dollars which will be generated by taxpaying roads from the amortization of specified equipment and road property.

In its present form, the bill would permit the rapid amortization of railroad equipment and new road property, which is most welcome to us. However, the bill also restricts these intended benefits by limiting to two-thirds the amount of investment credit which would otherwise be available with respect to this property. There is no such restriction in the bill in its original form, and the reason for its inclusion now is unclear.

The allowance of the 5-year amortization for certain road property and equipment is particularly timely in view of the national attention which has been given to poor track conditions plaguing certain members of our industry. These conditions stem from involuntarily deferred maintenance programs which have been forced upon these members by a lack of capital. Year-end statistics for 1974 indicate that, as of that date, we were faced with some \$2.8 billion in accumulated deferred maintenance, as well as some \$4.2 billion of sorely needed projected capital improvement programs.

In view of our industry's unquestioned need to immediately undertake these expenditures, it is totally inconsistent for the Congress to provide us with the means of generating needed cash by enacting section 190 and then to nullify the impact of such legislation by restricting the amount of available investment tax credit in the same legislative proposal.

The Congress has clearly manifested its intent that the investment credit be fully utilized by our industry as a means of generating cash and sufficient capital to rectify the accumulated deferred maintenance program which now faces us. Accordingly, this committee should also remove the limitation of the application of the tax credit to 50 percent of tax and increase such limitations to 100 percent of tax liability.

I cannot stress too strongly to this committee that the intent of the Congress to permit our industry to generate the necessary capital funds can be most expeditiously accomplished by increasing the limitation on the credit to 100 percent of tax.

The necessity of a fully augmented fleet of rolling stock, which I might mentioned is our long sought after goal, is only one side of the

coin. Car utilization which would be facilitated by acquisition of communication facilities, additional trackage and other qualifying property, and this is no less important than car acquisition.

Thus, we strongly urge this committee to consider with respect to the railroad industry, a 100 percent of tax limitation upon use of otherwise available investment tax credit in lieu of the existing 50-percent limitation.

Finally, and perhaps the most critical area to which I would like to address my testimony concerns the inclusion of section 184 amortization as a tax preference item under section 57. Under section 184, an election can be made to amortize over a 5-year period the cost of new railroad rolling stock. This provision was added by the Tax Reform Act of 1969, but its intended purpose was blunted by its inclusion as an item of tax preference. Furthermore, its purpose was totally frustrated when it was deleted as an item of qualified section 38 property.

Senator HASKELL. Excuse me, Mr. Chairman.

What is qualified section 38 property?

Mr. BARNETT. Certain items of depreciable road property and equipment.

Mr. Chairman, I have a specific example, using dollars, of the effect of the proposals which I have suggested in my written testimony, which I will not burden the committee with at this time. It is in the written testimony.

However, I might say that for 1975 proposed acquisitions my proposals would produce, a cash increment for 1975, of just over \$5 million for the Union Pacific Railroad Company as compared with existing law. That \$5 million would represent the down payment, so to speak, on \$25 million of new equipment, since we follow the normal financial practice of placing a 20 percent down payment on a year's conditional sales agreement or equipment trust.

That concludes my testimony, or rather my summary of my testimony.

Mr. Chairman, I would be glad to try to answer any questions.

Senator NELSON. Is there any other testimony?

Mr. AILES. No, sir.

Senator NELSON. Thank you very much, gentlemen.

On the list here, Senator Haskell is next to question.

Senator HASKELL. Thank you very much, Mr. Chairman. I think I have asked the questions I wanted to ask during the course of the testimony.

Senator NELSON. Senator Curtis.

Senator CURTIS. Mr. Barnett, I am not sure—were all of the things you are urging to be done included in the House bill?

Mr. BARNETT. No, sir, they were not.

Senator CURTIS. The matters to which Mr. Fishwick referred are in the House bill?

Mr. FISHWICK. Are not. The ones that I referred to are not in the House bill.

Senator CURTIS. Oh, I misunderstood.

Mr. CLAYTOR. The ones that I wanted are in the House bill.

Senator CURTIS. Did you work harder on the House side than the others? [General laughter.]

Mr. CLAYTOR. Senator Curtis, I think all of us want all of the things. It just so happens that in dividing up our testimony, I took the items that happened to be already in the House bill. But we are equally interested in all of these.

Senator CURTIS. Mr. Barnett, were any of your requests covered in the House bill?

Mr. BARNETT. Yes, sir, the 5-year amortization of equipment and new road property are included in the House bill.

The things which were not included in the House bill are increasing the limitation on the use of the investment tax to 100 percent of tax; removal of section 184 amortization from tax preference tax; and basing the investment credit on useful life not amortizable life.

Senator CURTIS. Now, you are referring to the yearly limitation in appliance? You can take the tax credit, but not beyond 50 percent of the tax liability.

Mr. BARNETT. Yes; that is it.

Senator CURTIS. Is there a carryforward at the present time?

Mr. BARNETT. Yes; there is. I think it is 7 years.

Senator CURTIS. So what you are urging does not increase the amount of tax credit you would eventually get?

Mr. BARNETT. No, sir.

Senator CURTIS. But it would make it available immediately?

Mr. BARNETT. It makes the cash available right now.

Senator CURTIS. Now, I also want to be sure I understand why the 5-year amortization of rolling stock carried in the 1969 act did not carry all of the benefits that the Congress anticipated.

What was your point in reference to that?

Mr. CLAYTOR. The 1969 act gave us 5-year amortization on the rolling stock, and I believe that expired last year. We at least had to choose between the investment tax credit and the 5-year amortization. We had an election, and we could not take both. This bill will allow both.

Senator CURTIS. Which bill?

Mr. CLAYTOR. The House bill. It does allow both.

Mr. BARNETT. But it does cut the credit down to two-thirds of the 10 percent, so that, in effect, it becomes a 6 $\frac{2}{3}$ percent credit instead of a 10 percent credit.

Mr. CLAYTOR. We would like to have that changed.

Mr. BARNETT. And that is what we are requesting be changed to allow the full credit, even though, for income tax purposes, we do have the 5-year amortization.

Senator CURTIS. Did that 1969 act enable you to build or acquire more rolling stock?

Mr. BARNETT. I can answer for my own road. I know it did, and I am sure it did for others.

Senator CURTIS. We were very much interested in it, because of the need for grain products at the time in my particular section of the country.

Mr. BARNETT. Of course. And just a little further west, Senator Curtis, we have a very crying need for coal hoppers for Wyoming coal.

Senator CURTIS. What is the present situation?

Have the railroads had to borrow a lot more money, and have you been able to borrow it?

Mr. BARNETT. The answer to both questions is—well, the answer to your first question, have we required more money, yes. We have—we, Union Pacific, have put more than \$1 billion in the railroad equipment in the last 6 years.

The answer to your second question, have we been able to do it—Senator CURTIS. Now, you have done this with borrowed money?

Mr. BARNETT. Four-fifths of it would be borrowed.

Mr. CLAYTOR. On equipment.

Mr. BARNETT. On equipment; and we have also had a good many additions to the track structure, which we have had to generate out of our own internal cash flow.

Senator CURTIS. I do not think I have any further questions, Mr. Chairman.

Senator NELSON. Senator Fannin.

Senator FANNIN. Thank you, Mr. Chairman.

Gentlemen, you have given very fine testimony.

I am quite interested in what was said about the capacity that you have for hauling coal. You need larger cars.

Are you referring to jumbo cars, or what do you call those cars that carry volume coal?

Mr. BARNETT. We call them coal hoppers.

Senator FANNIN. I am interested in the capacity to haul the coal, the timing involved. This is all connected with the type of equipment that can be utilized.

Are we providing in this legislation an incentive for you to utilize these larger cars consistent with what is being done with the ICC and in not giving you a rate structure that would encourage the utilization of those cars?

Mr. BARNETT. In the first place, as to our capacity, there is no doubt in my mind that the railroads have or can acquire the capacity to haul all of the coal that can be mined within the time it takes to get these mines started. We have a leadtime on starting up a coal mine of 2 to 3 years. We are watching them very closely in our territory and making sure that our equipment will meet the needs that we can see coming.

Our coal business last year roughly doubled over the year before, and it will roughly double again by 1976 or late 1975. We will be there with a great sufficiency of coal hoppers to handle that.

Senator FANNIN. And as far as the other problems you would have in maintenance and in the other equipment needed, will you have ample services, then, to provide it?

Mr. BARNETT. We in the Union Pacific will. It is possible that some of the marginal roads will not be.

Senator FANNIN. Are you involved at all in the slurry line program?

I know so many of the railroads do have the pipelines.

Mr. BARNETT. No, sir, we are not. The only coal slurry pipeline is the Black Mesa Line, which is owned by Southern Pacific.

Senator FANNIN. I am familiar with that one.

Senator HASKELL. Would the Senator yield?

As I recall, the railroads were not big on the coal slurries. [General laughter.]

Senator FANNIN. I understand there is quite a bit of competition. I have noticed some of the statistical information that has been fur-

nished in that regard. But at the same time some of the railroads are very much involved in petroleum pipelines, and gas pipelines.

Mr. BARNETT. We have one; we have a petroleum pipeline which goes from Coulton, Calif. to Las Vegas, Nev., and Santa Fe has two.

Senator FANNIN. I realize the tremendous costs when you are talking about a 16-mile line to serve a utility.

On that comment, I started thinking about whether that would be served better by a slurry line or something like that; but I realize the tremendous costs to get into the processing of that would probably be prohibitive. But I think, as we look to the future, we have to try to analyze what can be done.

Certainly, it is of tremendous benefit to the Nation if we give you the incentives to go forward as rapidly as possible. Because if we do not, then we run up against the problem of, services not being available; we have made these changes, and then we cannot service the different plants that have changed over. So it is a false economy for us not to get this operation underway as rapidly as possible.

And I was, Mr. Barnett, concerned, as was the Senator from Nebraska, with page 9 of your statement regarding amortization being totally illusory, because it cannot be used to the benefit of most taxpayers—I hope by the time this legislation is completed that we have thoroughly covered the error that was made previously in writing legislation.

From what you have said, if we accept your recommendations, that will be done. Is that correct?

Mr. BARNETT. Yes.

Thank you very much, sir.

Senator FANNIN. Thank you all for your testimony.

Mr. FISHWICK. Sir, may I add something to the question you raised about the ability of the railroads to finance these coal hoppers?

You have here three of the relatively prosperous railroads in this country. But I think we are all going to have a very serious problem in financing cars, because the market for any railroad security is very poor and getting worse, as a result of the bankruptcy of the Penn Central. You can only go to market so many times with equipment trust certificates, which is about the only way we can borrow money now. A lot of the institutional people and the insurance companies are no longer interested in railroad securities, because of the uncertainty of the Penn Central situation.

Now, on our own railroad, if we have to handle the projected tonnage, increase in tonnage, it will require us, if we remain at our present state of efficiency, to retain three times the number of coal hoppers in the next 2 or 3 years than we have been acquiring over the last 10 years. This is a substantial additional amount of financing that has to come out of an already tightly financed market.

In addition, the railroads have, in the next 5 years, to roll over \$700 million of bonds. Some of these bonds are rated very poorly, and there is a very great difficulty in rolling over these bonds at all. And there is going to be a great deal of difficulty for even the strong railroads to roll over these bonds, so that the market for financing for railroads is going to be exceedingly tough in the next 5 years.

Frankly, I think that even many strong railroads may have to resort to leases of equipment so that the borrowers can get somebody else's

name on the paper, in addition to the railroad, you know. To finance this it is going to be a very serious problem for the railroad industry. Anything that can be done to increase the cash flow from the investment in cars will be of great help to the whole railroad industry.

Senator NELSON. Thank you very much, gentlemen, for your very valuable testimony.

Mr. AILES. Thank you, Mr. Chairman.

Mr. FISHWICK. Thank you, Mr. Chairman.

Mr. CLAYTOR. Thank you, Mr. Chairman.

Mr. BARNETT. Thank you, Mr. Chairman.

[The prepared statements of Messrs. Ailes, Fishwick, Claytor, and Barnett follow:]

STATEMENT OF STEPHEN AILES, PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS

My name is Stephen Ailes, president of the Association of American Railroads. In this capacity, I represent railroads which operate 99 percent of the trackage, employ 98 percent of the workers, and produce nearly 99 percent of the revenues of all Class I railroads in the Nation.

I am accompanied by Mr. John P. Fishwick, who is president and chief executive officer of the Norfolk and Western Railway; Mr. W. Graham Claytor, Jr., who is president of the Southern Railway System; and Mr. Frank E. Barnett, who is chairman of the board of directors and chief executive officer of the Union Pacific Railroad. Before calling on them, however, I have a brief statement I would like to make by way of introduction.

We wish to express our appreciation for this opportunity to present views regarding the House-passed bill, H.R. 6860, cited as the "Energy Conservation and Conversion Act of 1975," specifically the business tax provisions of Title IV.

The railroad industry is of vital importance to the Nation's energy program and its potential success. Most forecasts, including those of the Federal Energy Administration and its Project Independence, call for a doubling of coal consumption by 1985. No doubt much of it will move by railroad. We are satisfied that the railroad industry can meet such an increased demand—however, there is no question but that it will require huge capital programs for the improvement of plant and facilities as well as for acquisition of additional equipment.

Also, railroads are more fuel-efficient than their competitors (about 3 or 4 to 1 over motor carriers), and, as the Nation's energy problem becomes more acute, public interest will require rail service to increase. Every effort needs to be made to assure our ability to handle additional traffic and take advantage of our ability to conserve scarce fuel.

We are pleased to be able to focus your attention on the needs of the railroad industry and the important part that any tax program and incentives play in helping us serve this Country's transportation and energy needs. It is our desire to present to the members of this Committee an up-to-date view of our industry and what particular tax provisions and proposals will best assist us in our transportation services to the Country. In doing so, the railroad industry is fully mindful of and grateful for the help this Committee has given to us over the years—help which has assisted us in performing our responsibility.

The railroads of America represent the backbone of the Nation's freight transportation systems. They operate more than 200,000 miles of line in continental United States and employ more than half a million workers to whom they pay \$8 billion annually in wages and other benefits. Although other modes of transportation have experienced more rapid traffic growth in recent years than have the railroads, the railroads still handle 39 percent of all domestic intercity freight traffic. Their market share last year increased and amounted to a record-breaking 854 billion ton miles, and they moved the average ton mile for about 1.8 cents.

In the inflationary environment of recent years, railroads have been confronted with such strong competition from other modes that they have been unable to meet rising costs by making commensurate increases in their freight rates. As a result, even the best money earners among the railroads have rates of net earnings which are low in comparison with other industries and which fall short of providing funds needed to take full advantage of technological advances and to

provide all the freight cars, locomotives and improved facilities a dynamic economy requires.

Inability to generate internally the capital funds spent for essential capital improvements has resulted in declining working capital and mounting debt. Although actual capital outlays have exceeded retained income and depreciation by more than \$5 billion in the past ten years, the industry's own studies and those of the Department of Transportation clearly show that real needs are far greater than the amounts which have actually been spent.

Thus, it is not surprising in a capital intensive industry, such as ours, that we have a great interest in, and will direct our remarks exclusively to, capital recovery programs such as the investment credit and rapid amortization provisions of H.R. 6860 which we strongly support.

In recent years, because of the inadequacy of internally generated funds, the weaker carriers, in particular, have turned in the direction of equipment leasing. This is reflected by the sharp increase in annual charges for equipment rents which in 1973 reached \$986 million for the industry as a whole, more than five times the comparable expense 20 years earlier. Because of their inability to generate taxable income as that term is defined in the Internal Revenue Code, they have derived little or no *direct* tax benefits from the investment tax credit or from the 60-month amortization provisions. They have, however, derived very substantial economic benefit from the availability to equipment lessors of the investment tax credit and ADR depreciation, or in lieu of both, the amortization over a 60-month term of the cost of new railroad rolling stock placed in service since December 31, 1969.

Extension of 60-month amortization to cover capital costs of classification yards, trailer and container loading facilities, and communications, signal or traffic control systems would also provide benefits to such railroads through the leasing route.

Leasing is mainly of the "leverage type" in which the owner-lessor provides the down payment and borrows the remainder, typically from a bank or other institutional lender. Particularly in the case of a marginal railroad seeking financing, the institutional lender will not be willing to make the loan except in the presence of a substantial down payment. The availability of the tax benefits motivates the owner-lessor to put up the down payment. Without the tax benefits, a marginal railroad would likely be unable to finance new equipment at all and, if so, only at excessive interest rates.

During its consideration, the Committee has reviewed various tax topics through panel discussion. We feel that this is an excellent manner in which to present the industry's views and therefore have the chief executive officers of certain member roads present. They are here today, accompanied by their tax advisors, to aid the Committee in considering the tax programs which are important to the continued running of the railroads and their ability to meet the demands of the Nation's energy problem.

If it meets with the Committee's approval, and in order to conserve the Committee's time, each of these gentlemen will present his testimony on particular capital recovery proposals and when all have concluded will be available for any questions members of the Committee may have.

Mr. Fishwick will deal primarily with the need for the industry to realize tax deductions for its substantial investments in the cost of grading and tunnel bores and the other major area of frozen railroad investments not now subject to tax deductions; i.e., track. Mr. Claytor will focus primarily on the provisions in H. R. 6860 relating to the needs of the industry for 5 year amortization of new investment in certain railroad operating property and rolling stock in lieu of longer depreciable lives for tax purposes. Mr. Barnett will discuss needed revisions to permit 5 year amortization without a reduction in the available investment tax credit of 10 percent and needed revisions to eliminate withdrawal of benefits by operation of the preference tax.

I would like to introduce to the Committee John P. Fishwick, president and chief executive officer of the Norfolk and Western Railway.

STATEMENT OF JOHN P. FISHWICK, PRESIDENT AND CHIEF EXECUTIVE OFFICER,
NORFOLK & WESTERN RAILWAY CO.

It is not news to this committee that the railroad industry in the United States today is in a difficult financial situation. At the same time that we are looking to our railroads as the most energy efficient form of transportation, a severe financial crisis has developed in the industry.

The truth is that the railroad industry for years has failed to generate sufficient cash flow to sustain its operations and adequately maintain its physical plant. In the past ten years, the industry has made capital expenditures in excess of its cash flow by over \$5 billion, an amount about equal to the total net income of the railroads over that period. Even with these expenditures, many railroads have had to neglect plant and equipment and have not been able to make other capital expenditures needed to modernize facilities and improve service.

Unless there is a marked change in the economic environment, the railroads' cash flow problems may be more acute in the future. Over the next decade, many economists anticipate inflation to continue at a rate appreciably higher than that which existed in the 1960's and to which we have been accustomed. This will make it even more difficult than it has been in the past for the railroads to replace their equipment and facilities as they wear out. Moreover, in the next five years, the railroads will have to refinance bonded indebtedness aggregating \$700 million at substantially higher interest rates. In fact, many railroad companies may have difficulty in rolling over their bonds, especially if bondholders of the Northeast bankrupt railroads are dissatisfied with their treatment in the restructuring of those railroads. Institutional investors already are shying away from railroad debt obligations, even equipment trust certificates.

In addition to the problems of replacing existing equipment and facilities, recognition must be given to the increasing demands which the current energy situation will place on railroads. The increasing emphasis on coal development will require investments in lines and improved track to serve the mines and will also require additional investment in hopper cars and the equipment necessary to move the coal. It has been estimated that utilizing coal in place of oil for electrical and industrial purposes, which is the goal of the National Petroleum and Natural Gas Conservation and Coal Substitution Act of 1975, would require doubled coal production by 1985. This will require billions of dollars to expand the railroads' car and locomotive fleets and to modernize and expand tracks and yards. Appropriate tax recovery is necessary to make the cash available.

Cash generation problems represent serious challenges not only for the financially troubled railroads in the East and Midwest but for the more solvent roads as well. In the midst of cash flow shortages, railroads are struggling to make the needed expenditures for technological advances to better serve the transportation needs of the country. Examples are increasing use of computers in automatic car identification and location, the development of automated classification yards, advanced signal and communication systems and specialized freight cars and containers. Investments of this type represent opportunities for increased productivity and better service to shippers and the consuming public. All these investments require capital which is difficult to obtain because of the industry's low return on investment and problems in cash flow.

The amortization provisions already contained in H.R. 6860 as passed by the House will be a substantial help to the industry in generating capital if the deficiencies in that bill are corrected. Specifically, it is vital that full investment credit be allowed on the basis of the actual useful life of the property. Also, amortization deductions on rolling stock allowed by this legislation should be eliminated as preference items.

In addition, I believe it is important for this committee to recognize, as it has previously done, the need for the railroad industry to realize tax deductions for its substantial investments in the cost of grading and tunnels. Railroads capitalize their very substantial costs for grading and tunnels, but generally have been unable to depreciate them because of uncertainties as to the length of the useful life of these assets. In the Tax Reform Act of 1969, this committee and the Senate passed legislation which would have permitted railroads at their option to amortize all railroad grading and tunnel bores on the basis of a 50-year life. However, the provision on grading and tunnel bores was amended in conference to permit deductions only for costs incurred after 1968. Thus, present law grants only very partial and minor relief and perpetuates the historical inequity of railroads' inability to recover their investment in these assets acquired before 1969. This committee should now act to enlarge present law to cover pre-1969 investments in grading and tunnel bores over the same reasonable 50-year period now available for new investment.

Grading and tunnels are productive assets used in our business. Grading, simply stated, is the foundation for our track structure. It is not in any way a land improvement. Obviously, we would not be able to operate without incurring costs for grading and tunnels to provide the base for our track. They are business

assets for us like the business assets of any other industry. Railroads are the only industry with such substantial frozen costs in business assets which cannot be recovered by tax deductions. We believe fairness requires that we be permitted for tax purposes to recover our investment in them over a reasonable period of time.

The reason we have not heretofore been able to depreciate these assets lies in the fact that the useful life of grading and tunnel bores is not measured by their physical life but rather by their usefulness in our business. Inability to predict precisely when these assets will become obsolete and thus no longer useful in our business has generally precluded railroads from sustaining depreciation deductions. Only in a few cases, spur lines serving coal mines, for example, where we believe we can show the end of the asset's useful life is tied to the mineral resources, are we able to ratably recover the cost.

Recently the United States Tax Court recognized that obsolescence is indeed inherent in railroad grading and tunnels and permitted one railroad on the basis of the facts proved in the litigation to recover its cost in these investments. While this is a welcome judicial recognition of the principle that tax recovery should be allowable on these investments, other cases are still in litigation and their outcome is uncertain. Nor should railroads be required to utilize their already scarce cash flow in expensive and lengthy litigation to prove the precise remaining useful lives which would be required under these decisions. Rather, we believe that these cases, along with the large-scale abandonments of track which are being proposed in connection with the Eastern railroad reorganization plans, graphically illustrate the equity of this committee making it clear through legislation that railroads are entitled to a reasonable recovery of their investments in these assets.

If railroads are permitted these deductions it will enable them to make needed road improvements which have to be financed from internally generated funds because railroad mortgages preclude new financing for most road projects. At the same time improved cash flow will help finance equipment purchases.

It is important to recognize that the railroad industry is now experiencing a period of rapid technological and economic change. Certainly 50 years does not at this time seem too short a period over which to recognize the recovery of existing business investments in grading and tunnels. This committee has previously recognized that these deductions should be allowed and I hope you will again.

At the same time we believe it would also be appropriate for this committee to act with respect to the other major area of frozen railroad investments not now subject to tax deductions. These large track investments are presently capitalized and we are unable under the retirement-replacement method of depreciation to realize deductions for their obsolescence. Under retirement-replacement depreciation, annual depreciation deductions are measured by the cost of replacements unless lines of track are actually retired. Since the bulk of our work on rail and ties involves a replacement to existing lines, the annual deduction amounts substantially to the costs of the replacement. The result has been the accumulation by the railroads of large amounts of frozen investments in track, representing the original cost of the track structure plus betterments. Under present tax rules no deduction of this amount is assured until the track is finally retired at some time in the future. This involves the same wasteful deferral of tax deductions as in the case of grading. It freezes large amounts of investments which are becoming obsolete and permits no recognition of that obsolescence. To recognize this economic and technological obsolescence we believe it would be appropriate for railroads to be allowed tax deductions to recover the frozen investments in track accounts over a reasonable period of time similar to that for grading. This could easily and appropriately be implemented along with the legislation on grading and tunnels.

This is a particularly good time for Congress to permit tax deductions on grading and tunnels and to permit the recognition of obsolescence on track costs for railroads. Cash flow needs are particularly compelling. We believe railroads, as the most energy efficient form of transportation, can make a real contribution to the nation's economic strength. Through the development of coal resources, railroads can play a vital part in reducing our dependence on other forms of energy. To meet this challenge, however, we need the cash flow that can be produced by constructive tax legislation such as that being presented to you today. By this action, your committee can provide a fair and equitable capital recovery system for the railroad industry and thus make an important contribution to the

recovery and continued well-being of this industry as a vital part of the American economy.

STATEMENT OF W. GRAHAM CLAYTOR, PRESIDENT, SOUTHERN RAILWAY SYSTEM
ON RAPID AMORTIZATION OF ENERGY-EFFICIENT RAILROAD PROPERTY

My name is Graham Claytor. I am President of Southern Railway Company with headquarters here in Washington, D.C.

I am appearing today on behalf of the railroad industry as well as for my own company to urge adoption of the tax provisions in the "energy bill" affecting railroads. The provisions with which I will particularly deal relate to five-year amortization of new investment in certain railroad operating property and rolling stock in lieu of longer depreciable lives for tax purposes. These tax provisions will help make it possible for members of the railroad industry to undertake new capital improvements to their roadway plant that are urgently needed to improve the efficiency and quality of railroad service but which are beyond their means from a cash viewpoint to undertake without this assistance. These efficiencies are directly related to our energy problem.

At the outset I should point out that, in the main, these provisions would create a deferral of income taxes rather than outright tax reduction. It is only a difference in the timing of the tax liability that produces a favorable cash flow to help meet the capital requirements of our industry. The benefit of this tax deferral will improve the cash position of many railroads and help meet the increasing cost of rebuilding worn-out facilities. The railroad companies of this country operate through a network of interconnecting systems, so that improvements in the plant of one or more railroads will help all roads provide better service.

It seems to me particularly appropriate at this time to provide additional incentives—or more properly, ways and means—to the railroad industry to upgrade its operating plant. The movement of heavy goods by rail has been proven to be the most energy-saving method in the national transportation network, with the possible exception of water carriers. As a consumer of energy, railroads are most efficient, consuming 670 BTU's per ton mile in contrast to 2,800 BTU's by truck and 42,000 BTU's by airplane.

Over the past 18 months the need to substitute coal for petroleum as a principal source of energy for our public utilities and manufacturing plants has become a matter of paramount importance. Improved rail facilities are required to haul the increasing amounts of coal being mined for our electric power plants. While several other railroads serve far larger coal reserves than we on Southern; we haul a greater tonnage of coal than any other single commodity. Accordingly, we have extensive plans for increasing the capacity of a number of our rail lines that directly provide coal service. We are undertaking these projects as rapidly as we can, given our financial limitations. We have upgraded the main line of Southern in Indiana between New Albany and Mt. Carmel to accommodate heavy unit coal trains. In Georgia we plan to lay 10 miles of new heavy rail to provide expanded coal service to the Georgia Power Company at Yates, and another connector track from Brice to Relay, Georgia, over which unit coal trains from Indiana will operate. These two projects alone in the State of Georgia will cost upwards of \$6 million. Aside from coal that originates on Southern lines, we receive coal from connecting railroads in Virginia, West Virginia, and Kentucky to destinations in the Carolinas and Georgia.

If we are to accelerate our efforts to provide this expanded coal-train service we will need expanded financial resources. We look to five-year amortization of new additions and improvements to rail to help us considerably.

In his testimony before this Committee on Monday, Secretary Simon put us on notice that "... this nation has about a third of all the recoverable coal reserves in the world, and at 1973 levels of consumption we have enough coal to burn for 800 years. . . . Our goal of 1.2 billion tons per year of production by 1985 will not be achieved if we do not remove government impediments and create incentives for expanded production. This must include *improved transportation facilities* as well as the opening of new mines." (Emphasis added). In his testimony, the Secretary took no exception to our proposals for amortizing railroad improvements.

The House-passed Bill provides for the writeoff for tax purposes over a five-year period of investment in communication signals, traffic control systems, the construction of railroad classification freight yards, facilities for loading and unloading trailers and improvements to our tracks. Under existing law the recovery of our investment in these assets through tax depreciation is realized over long periods of time—or not at all. In the case of roadway improvements, the

recovery period for tax purposes is 25 to 30 years and in some cases is as long as 40 years. Moreover, under our method of accounting the cost of upgrading track is charged to our capital accounts and is not recovered through depreciation until the track is replaced sometime in the future. This provision of the House Bill would permit railroads to recover the cost, in part, through tax deductions over a five-year period.

I really look upon this proposal not so much as a tax incentive provision but rather a tax "enabling" provision. The railroad industry does not need the incentive to do the job, since this implies we need to be motivated to act. We have the motivation but what we urgently need is the opportunity to generate cash to accomplish the tasks.

Rapid amortization of railroad assets is not new to the Internal Revenue Code. In the Tax Reform Act of 1969 five-year amortization was permitted for railroad rolling stock, including locomotives. This law expired in 1974 but was extended through 1975 by the last Congress. This bill would extend fast amortization of rolling stock through 1980. During the Korean War the railroads were permitted a five-year write-off of improvements to roadway facilities and yards in order to move goods more expeditiously in support of our national interest. Tax deferral through the fast write-off of investments in new and improved roadway property and expanded yards helped us significantly during the Korean conflict.

By way of illustration, there is one project I would like to call particularly to your attention because it typifies in a striking way the benefits that can result to shippers and the communities we serve. Atlanta, Georgia, is the junction for our Washington to New Orleans main line, and for our St. Louis-Louisville to South Georgia and Florida main line. Traffic through this point in all directions has always been very heavy. In 1956, under the Korean War fast amortization provisions, we requested and received authorization for reconstruction of our main line freight yard in Atlanta to handle the increased traffic. At a cost of some \$17 million we completed a substantial enlargement and automation of this facility, making it not only our largest classification yard on Southern Railway but the most fully automated yard in existence at that time. As a result of this expenditure, which we could not have financed without the special amortization provision applicable at that time, we have been able to handle a steadily increasing volume of traffic expeditiously and efficiently. Without these improvements, in fact, we would not today be able to handle anything like the traffic volume now moving through Atlanta; and the service over our entire system, end to end, would be suffering accordingly.

Looking to the future, a five-year write-off would enable us to move ahead with railroad line relocations designed to speed up and increase the efficiency of our system. Every major railroad has a number of these projects on the drawing board; I will refer to a typical one on Southern because I know it best. We have a 4300 foot tunnel at Duncan, Indiana, nine miles west of Louisville, on our main line to St. Louis. Tunnels consistently create problems because of load-size restrictions; and in this case, in addition, the tunnel is approached by and is located on one of the steepest main line grades in our system. The only adequate solution to this bottleneck is to close this obsolete tunnel and construct a new line about six miles in length around the base of the mountain. The change would result in reduced operating costs, improved service reliability, and faster service. The construction cost, however, will be in excess of \$12 million and without substantially improved cash flow we cannot, in the foreseeable future, afford to commit this much of our limited cash resources to this project. If, however, we could write off this investment for tax purposes over a five-year period, our improved cash flow would enable us to go forward with this and similar badly needed improvements. Because of the after-acquired property clauses in our mortgages, it is very difficult and in some cases impossible for railroads to finance projects of this sort, and our only recourse is to pay for them out of our accumulated cash.

As I stated earlier, this bill also extends to 1980 the five-year amortization of railroad rolling stock originally adopted in 1969. The existence of this provision can be particularly helpful in the modernization of our freight car fleet. Coal carrying roads, including Southern, will particularly need many additional hopper cars, and this opportunity to recover part of the cost over a five-year period will be of great assistance in our ability to meet these demands. The increased capacity to move coal will help the utilities to convert petroleum consuming plants to coal and aid substantially in the effort to reduce dependence upon foreign source petroleum.

We were especially gratified that the Ways and Means Committee and the House of Representatives were responsive to this matter and adopted these provisions in this important energy legislation. We urge your favorable consideration and adoption of these provisions as part of our National effort to improve our energy conservation in these critical times.

STATEMENT OF FRANK E. BARNETT, CHAIRMAN OF THE BOARD OF DIRECTORS OF UNION PACIFIC RAILROAD COMPANY

Mr. Chairman and members of the committee, my name is Frank E. Barnett. I am Chairman of the Board of Directors and Chief Executive Officer of the Union Pacific Railroad Company with offices at 345 Park Avenue, New York City.

I am appearing here today on behalf of the railroad industry to urge upon this Committee the adoption of certain proposals which will permit our industry to generate sorely needed capital with which to underwrite the staggering plant and equipment modernization programs required of our industry. More specifically, I urge that this Committee enact Section 422 of H.R. 6860 which would add to the Internal Revenue Code new Section 190 providing for 5-year amortization of certain qualified railroad equipment; modify Section 424 of the Bill to allow a full investment tax credit based on the actual useful life of Section 190 property; amend existing Code Section 46 to increase the present limitation on investment credit with respect to Sections 184 and 190 property to 100 percent of tax; and amend Section 57 of the Code so as to eliminate as an item of tax preference the amortization of rolling stock allowed under Section 184.

My colleagues, Mr. Claytor and Mr. Fishwick, have adequately demonstrated the pressing problems faced by our industry and our overwhelming need for increased capital investment. I fully concur with their view of our problems and endorse their recommended solutions. This Committee is well aware of the deteriorating financial condition found in many sectors of our industry. To make any real progress in our common goal of rejuvenating our nation's railroads, we must utilize whatever means available to increase available cash to finance this undertaking. As to this fact there is total concurrence from, not only the Administration and the Congress, but our industry as well. The as yet unanswered question is—from what source, or sources, will these dollars come. I believe there is total agreement that, to the extent possible, the railroad industry itself should be looked to as the primary source of these funds. However, as we have pointed out to this Committee time and again, the railroad industry is dependent on internally generated cash flow to meet its capital requirements.

Thus, we heartily endorse and urge the immediate enactment of Section 422 of the Bill which opens up to us a new source of capital—an increase in after-tax dollars which will be generated by taxpaying roads from the 5-year amortization of specified equipment and road property. However, if this new source of capital is to be effectively utilized, as I'm sure the Congress intends, the limitation on its use as contained in H.R. 6860 should be eliminated.

In its present form, the Bill would permit, on an elective basis, rapid amortization of railroad equipment and road property which is most welcome to us. In addition, these items of property will qualify for the 10 percent investment tax credit provided for in the Tax Reduction Act of 1975. However, the Bill also restricts these intended benefits by limiting to two-thirds the amount of investment credit which would otherwise be available with respect to this property. Section 424(a)(2) of the Bill requires that the amount of investment credit with respect to Section 190 property is to be determined on the basis of the 5-year amortization period where there is a Section 190 election in effect. There is no such restriction in the Bill in its original form, and the reason for its inclusion now is unclear.

The allowance of five-year amortization for certain road property provided for in Section 190 is particularly timely in view of the national attention which has been given to poor track conditions plaguing certain members of our industry. These conditions, I might add, stem from involuntarily deferred maintenance programs which have been forced upon certain of our members by a lack of capital. Simply stated, our industry as a whole has not been able to generate enough cash to make these necessary expenditures. Year-end statistics for 1974 indicate that, as of that date, we were faced with some \$2.8 billion in accumulated deferred maintenance, as well as some \$4.2 billion of sorely-needed projected capital improvement programs.

In view of our industry's unquestioned need to immediately undertake these expenditures, it is totally inconsistent for the Congress to provide us with the means of generating needed cash by enacting Section 190, and then to nullify the impact of such legislation by restricting the amount of available investment tax credit in the same legislative proposal. The irony of this situation becomes more evident when one considers that it is being proposed at a time when active consideration is being given to various proposals that Federal government acquire and undertake the expense of rehabilitating our roadbeds and then lease them back to us. It appears to us to make much more economic sense to provide some assistance to our industry to do the job on its own. In our view, a full 10 percent investment credit on Section 190 property would generate additional funds in the case of profitable and marginal roads. Accordingly, I urge that Section 424(a) of the bill be amended to permit an investment tax credit based on the economic life of Section 190 property.

Turning to those members of our industry who are presently unable to take full advantage of the intended economic benefits of the investment credit with respect to Section 190 property, due to the restriction of available credit to 50 percent of tax, we strongly urge that this restriction be removed. In this regard I would call this Committee's attention to the fact that as of the end of 1974, the total unused investment credit carryovers for all Class 1 railroads approximated \$320 million. These carryovers were generated during the taxable years 1965-1974, and will not expire until 1981. Of the total \$320 million, \$214 million is applicable to 17 taxpaying railroads. While no meaningful statistic can be formulated, it is obvious that with the presently existing limitation on available credit, the intended maximum economic benefit to be conferred on those taxpaying roads by proposed Section 190 will obviously not be realized.

The Congress has clearly manifested its intent that the investment credit be utilized by our industry as a means of generating, to its fullest extent, sufficient capital to rectify the accumulated deferred maintenance program which now faces us, as well as to undertake long delayed capital improvements. Accordingly, this Committee should immediately remove the limitation of 50 percent of tax on available investment credit.

I might further add, that an increase of the limitation to 100 percent of tax for our industry will enable us to further the rolling stock acquisition program we so desperately need. The accumulated unused credit which now precludes some of our taxpaying members to fully participate in the increased economic benefits of the credit, as made applicable to Section 190 property, would also preclude such participation with respect to Section 184 rolling stock. I cannot stress so strongly to this Committee that the intent of the Congress to permit our industry, through the medium of the investment credit, to partially generate the necessary capital funds with which to modernize our plant and equipment, can be most expeditiously accomplished by increasing the limitation on the credit to 100 percent of tax.

In this regard, it should be noted that those of our members who are currently not taxpayers will also benefit from full utilization of such generated credit. As we have often noted before this Committee, ours is a unique industry. Through our traffic interchanges one additional unit of rolling stock travels over many lines in its journey from shipper to ultimate consumer and is used via the medium of the car-interchange rule. Each road thus benefits, either directly or indirectly, from additions to our national fleet.

In addition, these non-taxpaying members will succeed to the benefits to be derived from full utilization of the credit by way of reduced rentals under traditional investment credit leases.

It is important to recognize that a fully augmented fleet of rolling stock, which I might mention is our long sought after goal, is only one side of the coin vis-a-vis our non-taxpaying members. Car utilization which would be facilitated by acquisition of communication facilities, additional trackage and other qualifying property, is no less important than car acquisition. Improved utilization of the fleet obviously would redound to the benefit of all the members of our entire industry, and can be materially assisted by wiping out accrued deferred maintenance and undertaking immediately projected capital improvement programs.

With respect to the foregoing, we would point out that an increase in the available credit from 50 to 100 percent of tax in no way would benefit those of our members who are not suffering from the plague of unused credit carryovers. For example, Union Pacific would derive little or no benefit from this proposal since

we currently have no carryovers, and expect to fully utilize our credits in 1975. The sole purpose of our proposal is to insure that those of our taxpaying members are not precluded from full participation in the modernization programs which both the Administration and the Congress are endeavoring to encourage in our industry. Thus, it would only be the marginally profitable and marginally taxpaying roads which would derive the most benefit from an increase in the amount of credit available. These marginal roads should be the subject of special concern to Congress while they are still capable of resolving their own difficulties. In our view, this proposal represents a relatively inexpensive means of generating some of the needed cash flow to do the job.

Thus, we strongly urge this Committee to carefully consider adoption, with respect to the railroad industry, of a 100 percent of tax limitation upon use of otherwise available investment tax credit in lieu of the existing 50 percent limitation.

Finally, perhaps the most critical area to which I would like to address my testimony concerns the inclusion of Section 184 amortization as a tax preference item under Section 57. Under Section 184, an election can be made to amortize over a five-year period the cost of new railroad rolling stock. This provision was added by the Tax Reform Act of 1969 as a means of increasing sorely needed investment in such rolling stock, but its intended purpose was blunted by its inclusion as an item of tax preference. Furthermore, its purpose was totally frustrated when it was deleted as an item of qualified Section 38 property.

The amortization presently allowed under this Section 184 is totally illusory, since it cannot be used to the benefit of most taxpayers. It is more advantageous for the taxpayer to depreciate its Section 184 property over the ADR useful life of the property, and utilize the full investment tax credit, than to amortize the property over the five-year period, forfeit one-third of the available tax credit, and be subject to a 10 percent minimum tax.

Perhaps it would be clearer to use an example to illustrate this point. Let us assume a taxpaying railroad who can absorb additional tax credit, such as the Union Pacific, makes a one million dollar purchase of new rolling stock in one year. If H.R. 6360 were enacted in its present form, Union Pacific would have two methods of capital recovery available to it. If we should elect under Section 184 to amortize the cost over five years, we would be entitled, under Section 424 of the Bill to two-thirds of the 10 percent investment tax credit, and would be subject to the 10 percent minimum tax. The net cost to the railroad of the one million dollar purchase would thus be \$575,202, assuming a discount rate of 8 percent. However, if Union Pacific should choose to depreciate the property over its 11 year useful life, taking a full 10 percent tax credit, incurring no minimum tax liability under this method, the net cost to it of the same one million dollar purchase would be only \$547,127.

If the Section 184 amortization is eliminated as a tax preference item, the net cost utilizing the amortization election would be reduced to only \$548,526. While this is a significant difference, it is still in excess of the net cost where no such election is made.

The full benefit of the Section 184 election will be realized only where there is no minimum tax impact, and a full 10 percent investment credit is available. Under these circumstances, the net cost to Union Pacific of that same one million dollar purchase would be only \$517,063. Thus, if our proposals to allow the full investment tax credit and eliminate the Section 184 amortization as an item of tax preference are adopted, the million dollar acquisition would generate an additional \$29,464 of cash over what would otherwise be available under normal ADR depreciation and investment credit rules.

While the foregoing may appear relatively insignificant when stated in terms of an investment of one million dollars, it should be viewed in the perspective of the equipment purchases of my own railroad in a given year.

During 1974, Union Pacific expended \$146 million in the acquisition of qualifying Section 184 property, and has estimated 1975 acquisitions of both Section 184 and 190 property in the magnitude of \$175 million. An analysis of the foregoing example establishes that Union Pacific, if faced with a 5-year amortization provision, limited to a 6½ percent investment credit, all subject to minimum tax, would have no choice but to reject out-of-hand such alternative in favor of ADR depreciation and full investment credit. However, if the full credit were available under the amortization election, with no minimum tax, and if there were an increase of the investment tax credit limitation to 100 per-

cent of tax, as we propose, the existing ADR method would not be a viable alternative for Union Pacific. As compared to ADR depreciation and full investment credit, the differential in Union Pacific's case for 1974 acquisitions, would have been an ultimate cash flow increment of \$4,301,744. For 1975 acquisitions, an ultimate cash flow increment of \$5,156,200 can be foreseen. These are savings, I might add, which would be available to further augment our fleet and keep pace with the ever changing technology of our industry.

In conclusion, I would like to state for the record my earnest concern over the pressing financial problems faced by the railroad industry. In an industry such as ours, the problems of any one member can have a profound impact on all of us. Let me assure the Committee that I am convinced that the proposals we have made to you today, if enacted, will represent a realistic and feasible step towards enabling us to meet these problems at a minimum cost to the public sector of the economy.

On behalf of my colleagues, I would like to thank the members of this Committee for the courtesies extended to us today.

Senator NELSON. We will take the last witnesses. Senator Long had suggested recessing until 2 o'clock, but are the witnesses all here?

Mr. Mighdoll, National Association of Recycling Industries.

Come on up, gentlemen, and we will take your testimony now.

Gentlemen, the committee is very pleased to have you here today. If you would identify yourselves for the reporter, so that if you comment extemporaneously the reporter will have your comment correctly assigned in the record.

STATEMENT OF M. J. MIGHDOLL, EXECUTIVE VICE PRESIDENT, NATIONAL ASSOCIATION OF RECYCLING INDUSTRIES, ACCOMPANIED BY HARLAN CARROLL, VICE PRESIDENT, SOUTHWIRE CO.; JAMES HANEY, PUBLIC AFFAIRS DIRECTOR, BERGSTROM PAPER CO.; PAUL THANOS, VICE PRESIDENT, COMMERCIAL METALS CO.; THOMAS WALKER, VICE PRESIDENT, BROWNING-FERRIS INDUSTRIES; EDWARD L. MERRIGAN, WASHINGTON COUNSEL

Mr. MIGHDOLL. Thank you, Mr. Chairman. My name is M. J. Mighdoll. I am executive vice president of National Association of Recycling Industries. Our membership consists of over 700 firms, located throughout the United States, all of which are involved in recycling solid waste materials into new raw materials and products.

I have with me here today, Mr. Chairman, I am pleased to introduce them now, as you requested, some representatives of our industry from the various sectors that comprise the recycling industry.

Mr. Harlan Carroll is vice president of Southwire Co. of Carrollton, Ga. Mr. James Haney is public affairs director of Bergstrom Paper Co. in Neenah, Wis. Mr. Paul Thanos, on my left, is vice president of Commercial Metals Co. with headquarters in Dallas, Tex. Mr. Thomas Walker is vice president of Browning-Ferris Industries, located and headquartered in Houston, Tex. Mr. Edward L. Merrigan is our Washington counsel. And Mr. Harold Gershowitz is not with us, but he was with us earlier today. He is senior vice president of Waste Management in Chicago, Ill. I refer to some of his projects in our formal statement, Mr. Chairman.

Senator NELSON. Now, if you gentlemen can, if you would, your prepared statements will be printed in full in the text. And if you

could summarize the main points that you are concerned about, it would be helpful.

Mr. MIGHDOLL. I certainly will, Mr. Chairman. As a matter of fact, to assist in that regard, I have combined all of the various statements that the witnesses were going to submit today into one summary statement, which I will make. And they will be available for questions and answers, as you please, at the end.

As I pointed out, all of these gentlemen are in various phases of the recycling industry—the collection, recovery, processing, and the ultimate marketing of recyclable solid wastes.

Mr. Gershowitz's company, particularly, and Mr. Walker of Browning-Ferris are vitally involved right now in the recovery of recyclables involved in municipal waste programs, in such cities as New Orleans, Houston, Connecticut, Wisconsin, and other States and cities throughout the country.

This becomes vitally important as we speak today about the proposal we urge this committee to consider. We urge the Senate Finance Committee to reinstate with clarifying amendments the recycling tax incentive sections of H.R. 6860, which was very unwisely deleted, apparently as a result of misunderstanding and misinformation during debate on the House floor.

Senator NELSON. The House committee included the provision?

Mr. MIGHDOLL. That is correct, Mr. Chairman, the Ways and Means Committee did include it in 6860, but it was deleted on the floor.

Senator NELSON. By what kind of a vote?

Mr. MIGHDOLL. I believe it was 240-something to 170-odd, in that perimeter.

Senator NELSON. You are going to explain the provision?

Mr. MIGHDOLL. Yes, sir.

For the past several years, the Environmental Protection Agency, the President's Council on Environmental Quality, the President's Citizens Advisory Committee on Environmental Quality, the National Materials Policy Commission, the National Science Foundation, the National League of Cities, the U.S. Conference of Mayors, and the National Governors Conference, and many other organizations, have all repeatedly called on Congress to provide a reasonable recycling income tax incentive for manufacturers who use recyclable waste-paper, scrap metals or other recyclable materials in their manufacturing operations.

Now, there has been a long history, Mr. Chairman, of study on this by the Joint Economic Committee and by the House Ways and Means Committee. Hearings date back to 1970. There have been many bills introduced, and the basic purpose of all of these was to generally equalize the Federal tax treatment of these competing raw materials, and to create new markets for recyclables by affording manufacturers, married by the Federal tax structure to the constant depletion of scarce virgin resources, a valid attractive economic reason to switch to the use of plentiful recyclable commodities now being burned or buried as solid waste. All of these hearings simply reconfirmed that our Nation's low and declining recycling rates will never improve on a sustained basis until steps are taken by the Congress to equalize the

Federal income tax treatment of these competing virgin and recyclable materials.

It was the energy crisis that served to emphasize the urgent need for an immediate solution. Industry as a whole, including utilities, uses roughly 55 percent of our total energy supplies. The industrial manufacturing sector alone consumes 29 percent.

Several studies were made independently by the Atomic Energy Commission and the National Science Foundation at the Oak Ridge, Tenn. National Laboratory, by the Environmental Protection Agency, the Citizens Advisory Committee on Environmental Quality, the Ford Foundation, and a number of private industrial companies to determine what the energy savings are when manufacturers use recyclable metals and wastepaper rather than competing virgin ores and woodpulp in their operations.

Now, Mr. Chairman, we have attached a voluminous report with our statement—a series of reports, I should say—which vividly indicate the proven energy savings of recycling. I will just cite a few real quickly today, because there has been some doubt cast in the floor debate over on the House side as to the validity of energy savings through recyclables. There should be no doubt. These are confirmed, proven facts, not surmises. For instance, aluminum made from recycled scrap metal requires less than 5 percent of the energy expended to produce that metal from ore. Recycled wastepaper can be used in paper manufacturing in place of competing woodpulp, and the energy savings amount to 60 to 70 percent.

The Ford Foundation study, copy of which we have attached, demonstrated that if only the ferrous metals, aluminum and copper—just those three commodities—that were readily recyclable in 1975 from urban waste were actually recycled, and I quote, “the energy savings to be realized would be equal to the heat content of 3.22 billion gallons of gasoline.”

If we could simply double our current aluminum recycling rate from 1 million to 2 million tons a year, that alone would save over 49 billion kilowatt house of energy, or 29 million barrels of oil each year.

The doubling of our current recycling volume of wastepaper from 13 to 26 million tons a year—and I might add, that would be to a ratio or a rate that we had in World War II—would result in industrial energy savings of 55 billion kilowatt-hours of energy, or 32.5 million barrels of oil a year.

Each million tons of scrap iron that is not used as a raw material costs this Nation over 8 trillion Btu's of energy and over 1.5 million barrels of oil each year.

Armed with these facts, Chairman Ullman of the House Ways and Means Committee included a recycling tax incentive section in the bill that was drafted in the Ways and Means Committee. The provision was strongly supported and approved by the Ways and Means Committee and we now urge that it be favorably considered by this committee, Mr. Chairman.

The recycling proposal is not a hastily conceived idea, nor is it lacking in energy saving meaning, as I say some contended on the House floor quite fallaciously.

An effective recycling tax credit is urgently needed now, not alone to conserve the energy I have spoken about, but also to conserve our

Nation's dwindling supplies of virgin natural resources and to help prevent a series of materials crises that threaten to be even more serious than the energy crisis in the years ahead.

Again, Mr. Chairman, we have documented this in our formal statement. I just might point up a couple of findings by the Interior Department which now projects that by 1985 we will have to depend on foreign sources for more than 50 percent of our supplies of 9 out of 13 of the basic virgin industrial raw materials. And that by the year 2000, we will need 50 percent or more of our supplies of all 13 from imported sources.

All of this caused the National Commission on Materials Policy to advise the President and the Congress in its June 1973 final report—and I quote:

We recommend that the Federal Government give users, scrap consumers, of materials economic incentives in the form of tax credits for expanded use of recycled materials.

Further, Mr. Chairman, enactment of the recycling tax credit provision will reduce air and water pollution, as well as solid waste disposal costs and problems for cities and States throughout the Nation.

Again, our full statement details the specific findings of Government and private studies alike which prove beyond any doubt the significant waste management and environmental importance of expanding recycling. That is essentially why the National League of Cities, the U.S. Conference of Mayors and the National Governors Conference support the recycling tax credit proposal.

Enactment of the recycling tax incentive, which we suggest today, will not result in any large loss of annual revenues to the Treasury. Indeed, the revenue impact will be inconsequential compared to the \$1.5 billion in revenues lost each year because of the tax benefits afforded to competing virgin materials.

In its report on the recycling tax incentive provision, the Ways and Means Committee estimated that the total cost of the recycling tax credit for 1976 and the years immediately thereafter would be only \$30 million a year. The committee then estimated that by 1980, if our Nation's recycling rates are greatly stimulated, the total revenue loss to the Treasury would not exceed \$300 million per year. These revenue loss estimates, however, completely fail to take the following revenue gain offsets into account.

One, only manufacturers who use recyclables qualify for the credit. Thus, collectors, processors, and transporters of recyclables who benefit from increased recycling volume as a result will pay increased taxes at normal tax rates on their expanded earnings.

Second, most large manufacturers must switch from the use of depletable virgin raw materials to recyclables in order to qualify for the credit. To the extent that they previously enjoyed virgin tax benefits, the recycling tax credit will not result in any net revenue loss to the Treasury, as they transfer from virgin to recyclable material utilization.

It will result in solid waste savings and new dollar revenues to States and municipalities as well.

In the final analysis, therefore, if the recycling tax credit is properly administered, it should not represent a loss of revenue to the Treasury.

Mr. Chairman, the national problems demanding increased recycling are too urgent to await any lengthy congressional studies, if they occur, aimed at determining whether the depletion allowance and capital gains benefits for virgin commodities should or should not be reduced or repealed. The recycling tax incentive is needed now, as a part of a comprehensive energy and materials conservation plan.

Mr. Chairman, we have a proposal to submit to this committee with your permission. I would just like to close this very brief summary with a sure indication to you of the meaning of this to the cities and counties and States of this country.

Approximately 40 of our 50 States now have ongoing research recovery plans already approved by the State legislatures or in formulative legislation format. All of those programs, without exception, depend for their viability in the last analysis, on the ability of the State or municipality to recover resources from solid waste. All of those programs are designed to recover materials from waste to be sold in the marketplace. That is the financial foundation of all of those programs, and if there are no markets for the recovered materials, all of the programs are doomed to failure.

Right now, many of our member mills are closed. Many manufacturers that our members sell to have shut down. Many markets for recyclables that have been existent in the past are gone. So there is no opportunity for this vast flow projected from these State-city programs to be absorbed under present tax policies. We believe it is vitally necessary for a recycling tax incentive provision to be enacted by the Congress, and we think without that, all of these city and State programs are doomed to failure.

We believe, on the other hand, that if the recycling tax incentive is provided to the user, to the man who will buy this material and use it instead of virgin materials or in additional production he will produce in the years ahead, that then we have the goal, and we think it is a very real goal we can fulfill, of doubling the recycling rate in this country, thereby saving considerable energy and hopefully warding off what we see is a real materials crisis for the United States in not too many years ahead.

Thank you, Mr. Chairman.

Senator NELSON. What percentage of the paper is now recycled in this country?

Mr. MIGHDOLL. We are now in the 19- to 22-percent area of paper recycling. It has been downhill since the post-World War II days, when we hit a peak of 36 percent.

Senator NELSON. During the war?

Mr. MIGHDOLL. Right after the war. It was as high as the mid-1920's at the outset of the 1960's. And only in the last year has it, I think, in 1 year, when there was a demand for all kinds of raw materials in 1972 to 1973, would it cross over the 20-percent figure. It has been hovering regularly about 18 or 19 percent through the late 1960's and 1970's.

Senator NELSON. Do you have any figures on recycling of other non-ferrous metals?

Mr. MIGHDOLL. Yes. Aluminum, which is a very important commodity, particularly in municipal solid waste, has been recycled at approximately a 20-percent rate.

You see, sir, well over 90 percent of the raw material for aluminum, natural raw material, is imported. And this has become a serious problem, I believe, to the large producers who have shown a great interest—the major producers of aluminum, primary aluminum, have shown a great interest in expanding recycling, but it is the economics which preclude their doing so.

Senator NELSON. What kind of economic studies have you made to indicate that your tax credit proposal for recycling would in fact induce substantial expansion in the utilization of recycled materials?

Mr. MIGHDOLL. There have been a number of studies. One study was done by our association, which was commissioned by Battelle Memorial Institute for the EPA. That was a cornerstone study which showed this factor of the depletion allowance, the capital gains benefits for virgin materials being a major factor in the economic barriers to selling recycled materials. Since then, there have been a number.

The National Commission on Materials Policy addressed itself to the subject quite clearly. There have been studies also by the Mid-West Research Institute. The Joint Economic Committee itself initiated a study. There have been studies by the Citizens Environmental Quality Committee and several others that do not come to mind at the moment. The National Science Foundation.

Senator NELSON. Have any of your member corporations done their own study and reached a conclusion about what kind of expansion they would engage in if, in fact, this tax credit were enacted?

Mr. MIGHDOLL. Yes; there have been a number of companies in the paper manufacturing and—

Senator NELSON. It is one thing for an outsider to make a study, which may or may not be very good. It is another thing for a company which knows its own business to make a decision as to what they would do if they had a certain kind of a credit.

Mr. MIGHDOLL. I think Mr. Haney, of Bergstrom, is in an excellent position to respond to that particular question.

Mr. HANEY. Mr. Chairman, as you know, the Bergstrom Paper Co. has been recycling since 1904, so we are not new in this, but we have identified some 6,000 to 7,000 tons of wastepaper right in the immediate area that we simply do not have the ability to recycle yet, and there, frankly, is not much of an incentive to find the necessary technology to do it.

Senator NELSON. For certain types of paper?

Mr. HANEY. Right. If the inking process is a sophisticated one, we simply do not have the technology to proceed. That is just one example where we have found that present some incentive, we think we could come up with some improved methods so as to reclaim more of the solid waste.

Senator NELSON. But the question was, if, in fact, the investment tax credit-type proposal were adopted by the Congress, what would Bergstrom do? Would they expand the utilization of these or expand research or both, or what?

Mr. HANEY. Right now, Mr. Chairman, the impact on the recycling segment of the paper industry, the economic impact has been so severe that this incentive would be a factor in helping us to make a determination to open a mill in Ohio, which we have had to shut down completely. We have three paper machines totally shut down. I know

that, according to the American Paper Institute, some 18 recycled paperboard machines have been shut down throughout the Nation, so the availability of the credit would greatly stimulate recycling rates.

Senator NELSON. What is the reason, availability of the material, cost of the material, market, or what?

Mr. HANEY. It is a combination of these factors. We think that the tax treatment has something to do with it. Certainly, transportation rate policies have something to do with it. Certainly, procurement policies, which over the years have tended to discriminate against recycled products, have something to do with it.

Mr. MIGHDOLL. Mr. Chairman, it is interesting. You asked a question about the relative recycling rate of waste paper, and I replied it had gone from 36 percent down to 18-19 percent. It would be interesting to note what has happened over on the virgin industries side at the same time. We are being outpaced by the virgin mill operations at about a seven to one rate. The capital expenditures over on the virgin side are outpacing those on the recycling side at a ten to one rate, so it has been obvious from a number of studies that have been made by organizations and private companies alike, that the economics simply dictate to any logically minded board of directors to go the virgin material route. That is where the best return on investment is, and that has accounted for more severe pressure with each succeeding year on those recycled operations that continue in existence.

Most of the users of recycled materials, as Mr. Haney pointed out, in Bergstrom's case, have vast untapped capacities not being used. They are probably operating at 60 to 70 percent at best today, and the supplies are there. We have 35 million tons of waste paper in this country available for recycling. That has come out in a number of studies by Government and private organizations alike, available for recycling.

Senator NELSON. Where is it?

Mr. MIGHDOLL. It is now being buried. It is now being dumped. It is now being burned.

Senator NELSON. The question is, are you talking about a daily, monthly, weekly supply of that amount? What is the figure related to in a timespan?

Mr. MIGHDOLL. 35 million tons annually, which is now almost three times the amount being recycled, that could be recycled if there were a market incentive to pull it out.

Mr. MERRIGAN. Mr. Chairman, may I add one word about the economics. The tax rate paid by the virgin-oriented integrated paper companies is 30 percent, the capital gains tax rate. A Kidder-Peabody report, which was released just recently, shows that in the case of the virgin paper companies, the big ones, the Weyerhaeusers, the International Papers, the Georgia-Pacifics, 50 to 90 percent a year of their profits are taxed at the capital gains rate. Now, before a company—and these are the big users of the raw materials—before a company like that could conceivably switch to recycling where the tax rate is 48 percent for the corporation, they would almost certainly have to face stockholder suits if their boards of directors voted to invest \$100 million or \$90 million or \$80 million in a new mill, which is going to be taxed at the 48 percent rate on its profits, as opposed to the 30 percent rate on profit from virgin raw material. So the purpose of

the proposed Recycling Tax Credit is to bring those tax rates into line so that many companies like those just named switch to recyclable raw materials, in part at least, if they could only get out of the economic tax straitjacket they are in today.

Senator NELSON. Just one more question. Is the proposal that was made in the House side and is being made here, does it precisely equate the benefits that are accorded to virgin materials?

Mr. MERRIGAN. Senator, as was pointed out, there was a Joint Economics Committee hearing, there were some Ways and Means Committee hearings that went for 4 days last year. Of course, it is scientifically impossible to equate in every taxpayer's case exactly, but the tax rate structure for the virgin material, as I say on the paper side, is a 30 percent capital gains rate. If 50 percent, 60, 70 percent of the profits of these companies is taxed at the capital gains rate, and if the remainder of their profits are taxed at the normal rate, the 10 percent recycling credit will hit them just about even, as even as you can get scientifically.

For those who use virgin metals, under the tax code, they get the depletion allowance which is a deduction ranging between 15 and 22 percent, and, again, that equates out on a credit basis to about 9-10 percent. For some the depletion allowance equates to a credit as high as 11 percent, so, again, the credit, the 10 percent tax credit, would roughly equate the competing deduction. For those companies which will have to be looking to imports for more than 50 percent of their supplies of the virgin material by 1980-85, the tax credit should bring them over.

What is needed is to get us out of the economic straitjacket we are in in this country on raw materials so that recycling can play its role.

Senator NELSON. Senator Fannin.

Senator FANNIN. Thank you, Mr. Chairman. I am very pleased with your statement and I realize the tremendous need we have to carry forward on this program. I do not think you need to sell us on the need to do something about our depletable raw materials and natural resources, and I do not think that we classify paper exactly in that category because it is not in the same position of being a depletable resource. But, I am just wondering—if we give you these benefits, how will it affect you as far as competing with the foreign purchasers of our waste materials in this country?

Mr. MICHIGOLL. Yes, sir. The proposal we have a summary of here, which I would like to submit, Mr. Chairman, with your permission.

Senator NELSON. It will be received for the record.

[The material referred to follows:]

H.R. 6860—SUMMARY OF PROPOSED RECYCLING TAX CREDIT PROPOSAL¹

Sec. (a).—Contains recitation of Congressional Findings and Statement of Purpose which demonstrate importance of providing a Recycling Tax Credit now as part of a comprehensive energy and materials conservation program.

Sec. (b).—All of the basic tax provisions were drafted originally by the staff of the Joint Committee on Internal Revenue Taxation.

¹ Joint Committee On Internal Revenue Taxation Staff Version With Changes Proposed To Clarify Congressional Intent And Purpose And To Make It Clear That Credit Must Operate To The Maximum Extent Possible To Double Our Present National Recycling Rates.

(i) They extend the 10 percent Investment Tax Credit to manufacturers who use recyclable wastepaper, cans, metal scrap, glass and textiles in their manufacturing operations rather than competing virgin materials. The credit is computed on the price paid by the manufacturer to acquire the recyclable materials during the taxable year.

(ii) The 10 percent credit will generally equate the 15-22 percent depletion allowance deduction applicable to competing virgin metals; and the capital gains treatment of profits derived from the cutting of trees for paper manufacturing purposes.

Sec. (3).—This section attempts to alleviate inflationary pressures on raw material supplies by reducing the allowable amount of the Recycling Tax Credit in taxable years where prices exceed their 1971-1973 levels.

Sec. (d) (1).—Eligibility for the credit is *strictly limited* to manufacturers who use "*postconsumer solid waste materials*" (those which have been used by the ultimate consumer or during the course of any industrial process, and which have no significant value except as a waste material).

This section specifically makes "*in-plant*" or "*in-house*" industrial waste **INELIGIBLE** for the credit.

Sec. (d) (2).—*Further Limitations On Allowable Amount of Credit.*

(i) Manufacturers already engaged in recycling will be eligible for the credit in future taxable years *ONLY if they continue to utilize at least the same volume of recyclable materials as they did in 1975*. Then, the credit in each taxable year will be limited to *only 3.3 percent of the price paid for that 1975 volume*. The 10 percent credit will apply only to the price paid for tonnages in excess of the 1975 volume.

(ii) Manufacturers who start recycling in the future will be eligible for *only a 3.3 percent credit on their first year volume in that and subsequent years*—but in subsequent years, they will be eligible for the full 10 percent credit on the price paid for increased utilization over the first year's recycling level.

These provisions serve (1) to limit the overall revenue loss; (2) they *prevent "windfall gains" to the greatest extent possible on 1975 recycling volumes*; and (3) they simultaneously establish *competitive equality* between manufacturers already engaged in recycling and newcomers who are encouraged to switch to or start recycling by the Recycling Tax Credit.

It must also be understood that manufacturers presently engaged in recycling will henceforth compete with (a) virgin-oriented manufacturers who enjoy the virgin tax benefits on an unrestricted basis and (b) newcomers who switch to or start recycling for the first time and thus qualify for the Recycling Tax Credit. Clearly, therefore, the existing recyclers must have some economic (tax credit) protection on their 1975 volume of recycling in the future—especially since presently the industry is extremely depressed and numerous existing recycling plants are closed.

Sec. (e).—Contains clerical amendments to Internal Revenue Code.

Sec. (f).—Recycling Tax Credit will become effective in 1976 and will terminate simultaneously with any action Congress takes to repeal existing tax benefits which favor competing virgin natural resources.

Mr. MIGHDOLL. This would indicate that the credit would only go to the domestic manufacturing user of recyclable materials. Any materials that were exported would not get the credit.

Senator FANNIN. I understand. I do not know whether they are making a big campaign at this time, but I recall that the Japanese in their schools had big boxes available to collect waste paper. They had youngsters gathering up paper for them, and they had many programs. I do not think those are in progress now, but they were a few years ago. But, we still have the problem that much of our scrap has been leaving the country, so it has not been utilized to make up for the great shortage we have in our depletable resources, and I am just wondering—I understand this would not apply to anything that is shipped out of this country.

Mr. MIGHDOLL. That is correct, sir.

Senator FANNIN. But the reason it is being shipped out of this country, I guess, is they are paying more for it.

Mr. MIGHDOLL. Exactly, sir, and that is why this will have the effect, I think it will respond to those who come before the Congress and go before the Department of Commerce occasionally and ask for export controls. We believe this will respond in large measure to that problem of short supplies because what this will do, in effect, is to create an incentive to use the material in the United States, and, therefore, if one in the recycling industry had to export this material he would find himself at a price disadvantage.

As you pointed out so accurately, the reason materials are exported is simply the price from overseas markets is higher. On many commodities this would make a decided difference in the relative value of the material to a domestic manufacturer versus a potential exporter, and we think it will tend decidedly to keep more material in the United States.

Senator FANNIN. We realize in the manufacture of virgin materials, in the different products, greater amounts of energy are utilized. Also, I know the tremendous potential of generating electricity from many of the materials that are left over after you have been able to take out what you can utilize. I am wondering if you have coordinated efforts with any of the companies burning or otherwise using these materials to generate electricity or for generating heat that is utilized, such as St. Louis, Memphis, and places like that?

Mr. MIGHDOLL. Yes; I am going to ask Mr. Walker, of Browning-Ferris, to comment on that. He made a very important point, time did not permit my focusing on, and that is that after all the recyclables are removed and the energy savings we have demonstrated in our paper today are achieved, the residue that is left, as you point out, now becomes a new form for additional energy use, and Mr. Walker's company, Browning-Ferris Industries, is doing just that with it.

Mr. WALKER. Senator, I think that is a very good point, and at the present time in this country we are disposing of, after all of the current level of recycling has been completed, about 300 million tons of waste. The majority of that waste is being disposed of in sanitary land fills; that is, it is being buried in the ground and lost forever. If we were to establish effective resource recovery programs around the country in our major cities where we could grasp sufficient quantities of waste to run these kinds of facilities and the technology and all that is currently existing—there is no new technology that needs to be developed—we could recover on the order of 60 to 70 percent of that material in the form of energy. It could be burned to create low-temperature steam for use in industry, or it could be burned, mixed with coal in our power utilities up to probably a maximum of 20 percent, as is demonstrated in the St. Louis project, in order to create electricity. This is a very common technique in Europe. Along with that in this kind of a resource recovery facility, we could very simply extract additional ferrous metal, aluminum, glass, and other components, other than paper. Most of the paper would be burned when it reached that stage.

Senator FANNIN. And the recommendations you have incorporated into your statement here as far as the legislation is concerned would assist in that regard?

Mr. MIGHDOLL. Yes, sir.

Mr. WALKER. It would definitely assist in that regard. I think the biggest block to a significant movement around the country at the present time of resource recovery facilities is the lack of demand for material. That is not only in the ferrous metal and the nonferrous metal recovery, but, most importantly, the energy component which is the major reason for resource recovery when it gets finally into the hands of the solid waste companies, and if this legislation were passed and clearly would spell out in the legislation the consumption, the material converted from the solid waste to be consumed in the form of steam, we could recover a significant portion of these 300 million tons.

Solid waste has 40-percent Btu rating of high-sulfur coal, so there is very excellent recovery capability in pure energy that we are now burying in the ground and losing forever.

Senator FANNIN. Thank you gentlemen.

Senator NELSON. Senator Haskell.

Senator HASKELL. Thank you, Mr. Chairman. Gentlemen, maybe in your written paper there is information on how much. I am thinking now of recovering copper, recovering aluminum. How much is being thrown away and, if we enacted your suggested provision, how much less would be thrown away? Is that in your written statement?

Mr. MIGHDOLL. Yes, sir, I can quickly highlight it for you. As I indicated, take aluminum, we are now recycling slightly over 1 million tons a year. The several studies I referred to earlier indicate there is readily available another 1 million tons of aluminum. In fact, in copper, lead, and zinc, the study made by Batelle Memorial Institute, in each case shows just about a million tons, more or less, of each commodity available for further recycling.

Senator HASKELL. How much do you think would be recycled if we adopted your suggested provision?

Mr. MIGHDOLL. Senator, I would say we can briefly take them one at a time, but I would say on aluminum readily we could go from 1 million to 1½ million in a few years and hit the 2 million surely in a decade. We would double the aluminum recycling rate. The aluminum companies—

Senator HASKELL. Would this be generally true in other things, such as copper?

Mr. MIGHDOLL. In the copper industry, which has probably the best recycling rate of any commodity, we have been losing ground in spite of various market periods highly cyclical in the industry, of course. In spite of all of that, we have been losing ground. Our share of the market now is down to about 42 percent of the domestic market; 15 to 20 percent of copper is imported, but even so, a lot of lower grade copper values are being lost.

A lot of people assumed that copper—is at 50 or 60 cents a pound—that is enough of a market factor to return it and that is not the case. For every pound of copper that is 60 cents a pound, there is a lot that is valued at 2, 3, 5 cents a pound.

Senator HASKELL. What I really am trying to get at is do you think then the recovery factor would be substantially increased if we enacted this provision?

Mr. MIGHDOLL. Yes, sir. Taking everything together and putting it in one pot, we are accounting now for a little over 25 percent of the raw

material furnished in the United States. We do not think it is beyond any achievable goal of doubling that in the next decade. Certainly, if we in aluminum and paper and lead and zinc and copper and those commodities, not to mention some that I have glossed over, because they are at abominably low recycling rates—plastics, glass, textiles—if you add all those together, sir, I think it is a very achievable goal that we could double the recycling rate.

Senator HASKELL. Thank you. Just one more question. When I first heard your provision, I assumed that you would be getting a competitive advantage. We have been giving you a competitive advantage over your competitors who derive the product from natural resources, but I gather from Mr. Merrigan's answer to Senator Nelson, that we would be more or less equalizing.

Mr. MIGHDOLL. Sir, we would be less than equalizing, and I would like to make one point, and I appreciate your asking the question, because one of the comments made on the House floor, which was totally inaccurate, alluded to the fact that the recycling industry, that the users of recycling materials would be "rewarded for what they are already doing." Now, that is not the case; in fact, that is what we meant in our statement by saying some clarification should be made in the proposal. We have made those, sir. What we would like to propose is that the House version be changed, the Ways and Means Committee version, I should say, be changed so that 10-percent purchase credit, the bulk of the credit, go for that recycling which is incremental to the present level.

Senator HASKELL. My question was different. My question was, would you be equalizing yourselves with your competitors in the natural resource field, or would you be getting an advantage over them?

Mr. MIGHDOLL. We would be generally equalized, sir, generally equalized.

Senator HASKELL. Thank you, that is what I understood Mr. Merrigan to say. Thank you very much. Thank you, Mr. Chairman.

Senator NELSON. Well, the argument, why reward somebody for something they are already doing, of course, that argument applied to the depletion allowances for all of the virgin timbers or ores or oils at the time it was being proposed. And the depletion allowance on these materials was passed anyway. I would raise a question about your suggestion that it be incremental. If by that, do you mean that some company that is already in the business of utilizing paper, which is an objective that is in the interest of the country, that they not be given a tax investment credit on the amount that they are now recycling, but only on the amount over and above what they are currently doing?

Mr. MIGHDOLL. Yes, sir, we suggest a reduced amount for the level. We suggest sort of a base year be established for both those now in the business and those who hopefully in the future will come into the recycling business, and that that current level of recycling be given approximately one-third of the tax credit, and then the full tax credit be given for the amount of recycling done in addition to that base level.

Senator NELSON. I think it is something to look at. I would have some serious reservations about the equity question there. So you have someone in business who became established and is recycling the product.

Now the tax benefits passed, and the business across the street says, well, that is good, we will go into it, so then suddenly you have got a brandnew operator in the field getting 10-percent tax credit on all of his recyclable material, and his competitor producing exactly the same product across the street is getting a lower benefit.

Mr. MIGHDOLL. Exactly, sir.

Senator NELSON. And, I would think that would be quite inequitable.

Mr. MERRIGAN. Senator, may I just say one word about that?

Senator NELSON. Yes.

Mr. MERRIGAN. You know often when you get into these areas you try to correct one thing that people criticize and you open a new problem. As originally proposed by Mr. Ullman in the House and as originally approved last year by the Ways and Means Committee in the Tax Reform Act of 1974, the credit would have gone to everybody. In other words equally, it would have been. At that time it was the investment credit of 7 percent, 10 percent today. We thought originally it should go to everybody, but then you are criticized that that increases the revenue loss and in order to get this program moving—because it has to move today; it cannot wait 10 years to move; it cannot wait until you study the depletion allowance versus this, or the capital gains treatment—we tried to come up with what would at least open the door and let us get started. So, limit what the people are doing today, the base period to, say, a third, 3 percent, 3.3 percent, and then, if a new man comes into the field, his first year, 3.3 percent, and then, everything over that would qualify for the full 10 percent credit—the aim is to double the rate so that everything over that gets a 10-percent rate.

Frankly, if you want to do this (double recycling rates) in half the time, everybody should get the entire credit, but you just try. You know when you lose something like we lost on the floor, very unfairly, you try to rectify that by saying, all right, we will limit the revenue loss as much as possible and still do the job even if it takes longer.

Senator NELSON. Thank you very much, gentlemen. I am very pleased to have you here, particularly James Haney. I used to play basketball and football 40 years ago against his father and was regularly defeated. Thank you very much.

Mr. MIGHDOLL. Thank you, sir.

[The prepared statements of Messrs. Mighdoll and Gershowitz follow:]

STATEMENT OF NATIONAL ASSOCIATION OF RECYCLING INDUSTRIES, INC.

SUMMARY OF PRINCIPAL POINTS INCLUDED IN STATEMENT

1. The nation's solid waste management and recycling industries urge the Senate Finance Committee to reinstate, with clarifying amendments and necessary changes, the Recycling Tax Incentive section of H.R. 6860 which was very unwisely deleted, apparently as a result of misunderstanding and misinformation, during debate on the House floor.

2. For the past several years, the Environmental Protection Agency, the President's Council on Environmental Quality, the President's Citizens' Advisory Committee on Environmental Quality, the National Materials Policy Commission, the National Science Foundation, the National League of Cities, the U.S. Conference of Mayors and the National Governors' Conference have all repeatedly called on Congress to provide a reasonable Recycling Tax Incentive for manufacturers who use recyclable wastepaper, scrap metals or other recyclable materials in their manufacturing operations in place of competing virgin materials that historically have been favored by federal income tax benefits such as depletion allowance on

minerals and forests and the capital gains treatment of business profits derived from the cutting of trees.

3. The Recycling Tax Credit reported by the Ways and Means Committee in H.R. 6860 was the carefully-considered result of lengthy hearings conducted by both the Joint Economic Committee and Ways and Means. The basic purpose, of course, is simply to equalize the federal tax treatment of competing virgin and recyclable raw materials (metals, paper, glass etc.)—and thereby give manufacturers, married by the existing federal tax structure to the constant depletion of scarce virgin resources, a valid economic reason to switch to plentiful recyclable commodities now being burned or buried, at great expense to cities and states in all parts of the United States.

4. The Energy Crisis finally underscored the need for immediate enactment of a Recycling Tax Credit. Manufacturers use 29 percent of the energy supplies of the United States. Studies made by the Atomic Energy Commission, EPA, the Ford Foundation and others prove—

(i) In *aluminum manufacturing*, more than 95 percent of the energy can be saved by the use of recyclable aluminum rather than virgin ore

(ii) In *paper manufacturing*, 60 percent to 70 percent of the energy can be saved by the use of recyclable wastepaper rather than virgin pulp

(iii) In *steel or copper manufacturing*, 55 percent of the energy can be saved by using recyclable scrap rather than virgin ore.

Vast quantities of energy are thus saved today by recycling manufacturers, but national recycling rates have steadily declined and are at very low levels. The Recycling Tax Credit can serve to double existing recycling rates, and thus conserve energy equal to tens of millions of barrels of oil each year.

5. The Recycling Credit is urgently needed now, not only to conserve energy, but also to conserve our nation's dwindling supplies of virgin natural resources, and to help prevent a series of materials crises that threaten to be even more serious than the energy crisis in the years immediately ahead.

6. Enactment of the Recycling Tax Credit will reduce air and water pollution, as well as solid waste disposal costs and problems for cities and states throughout the nation.

7. Enactment of the Recycling Tax Credit will not result in any large loss of annual revenues to the Treasury. Indeed, the revenue impact will be relatively inconsequential compared to the \$1.5 billion in revenues lost each year because of tax benefits afforded to competing virgin materials.

8. The national problems demanding increased recycling are too urgent to await lengthy Congressional studies, not yet in progress, aimed at determining whether the depletion allowance and capital gains benefits for virgin commodities should be reduced or repealed. The Recycling Tax Incentive is needed now, as part of a comprehensive energy and materials conservation program.

STATEMENT

Mr. Chairman, my name is M. J. Mighdoll, Executive Vice President of the National Association of Recycling Industries, Inc. (NARI). NARI's offices are located at 330 Madison Avenue, New York City, and its membership consists of more than 700 firms located throughout the United States, all of which share one common economic purpose—the recycling of solid waste materials into new raw materials and products.

In line with the Committee's request that witnesses who have a common position or who share the same general interest should consolidate their testimony and designate a single spokesman to present their viewpoint orally to the Committee, I appear today with the following additional witnesses, all of whom will be available to answer any questions the Committee might care to ask when I complete this preliminary statement:

Mr. Harlan L. Carroll, Vice President, Southwire Company, Inc., Carrollton, Ga.

Mr. James Haney, Public Affairs Director, Bergstrom Paper Company, Neenah, Wis.

Mr. Harold Gershowitz, Senior Vice President, Waste Management, Inc., Chicago, Ill.

Mr. Paul Thanos, Vice President, Commercial Metals Co., Dallas, Tex.

Mr. Thomas C. Walker, Vice President, Browning-Ferris Industries, Inc., Houston, Tex.

Mr. Edward L. Merrigan, NARI's Counsel, Smathers, Merrigan and Herlong, Washington, D.C.

Mr. Carroll's company, Southwire, has extensive experience in the utilization of recycled copper and aluminum in manufacturing operations.

Mr. Haney's company, Bergstrom Paper, is a pioneer in the use of recyclable wastepaper as a raw material for the manufacture of a long list of new paper products.

Mr. Thanos' company, Commercial Metals, collects and processes recyclable scrap metals of all types, and it has long experience in all segments of the metals recycling industry.

Mr. Gershowitz's company, Waste Management, and Mr. Walker's company, Browning-Ferris Industries, are both engaged in municipal and local solid waste management and disposal activities throughout the United States and in the recovery of recyclable resources and energy from solid waste materials which historically have had to be burned or buried at great public expense.

Waste Management, for example, is presently working with the City of New Orleans to construct and operate an important new solid waste disposal facility which will recover recyclable resources from the City's garbage and produce steam for the operation of generators with the residue.

Browning-Ferris has extensive solid waste collection and disposal operations in 38 of the 50 states, and like Waste Management, it is working closely with cities such as Kansas City and Houston to develop and operate solid waste disposal facilities, the ultimate purpose of which will be to recover important recyclable resources and energy from vast volumes of solid waste which heretofore were simply burned or buried at substantial cost and loss to the local government agencies involved.

The Nation's Solid Waste Management and Recycling Industries Urge the Senate Finance Committee to Reinstate, with Clarifying Amendments, the recycling Tax Incentive Section of H.R. 6860 which Was Very Unwisely Deleted, Apparently as a Result of Misunderstanding and Misinformation, During Debate on the House Floor

The purpose of our appearance today is to urge the Senate Finance Committee to reinstate, with amendments that will clarify the true nature and intent of the proposal, the Recycling Tax Incentive section of Title IV of H.R. 6860 which was very unwisely deleted from the bill during the closing stages of confusing debate on the House floor.

For the past several years, the Environmental Protection Agency, the President's Council on Environmental Quality, the President's Citizens' Advisory Committee on Environmental Quality, the National Materials Policy Commission, the National Science Foundation, the National League of Cities, the U.S. Conference of Mayors, and the National Governors' Conference have all repeatedly called on Congress to provide a reasonable Recycling Income Tax Incentive for manufacturers who use recyclable wastepaper, scrap metals or other recyclable materials in their manufacturing operations in place of competing virgin materials that historically have been favored by federal income tax benefits such as the depletion allowance on minerals and forests and the capital gains treatment of business profits derived from the cutting of trees.

In response to these pleas, extensive hearings were held before the Fiscal Policy Subcommittee of the Joint Economic Committee in 1970 regarding the "Economics of Recycling," after which the Chairman and several other members of the Committee introduced bills which proposed the enactment of a Recycling Income Tax Deduction for manufacturers who use recyclable raw materials in their industrial operations. The proposed deduction was roughly equivalent to the existing income tax benefits already enjoyed by manufacturers who use competing virgin materials. The basic purpose, of course, was to equalize the federal tax treatment of these competing raw materials, and to create new markets for recyclables by affording manufacturers, married by the federal tax structure to the constant depletion of scarce virgin resources, a valid attractive economic reason to switch to the use of plentiful recyclable commodities now being burned or buried as solid waste, at great expense to cities and states throughout the nation.

In 1974, additional hearings were held by the House Ways and Means Committee with reference to the federal tax problems which have been impeding the effective recycling of solid waste materials. Those hearings, of course, simply

reconfirmed that our nation's pitifully low, declining recycling rates will never improve on a sustained basis until steps are taken by the Congress to equalize the federal income tax treatment of competing virgin and recyclable materials.

The Energy Crisis Finally Underscored the Need for Immediate Enactment of a Recycling Tax Incentive

The energy crisis served to emphasize the urgent need for an immediate solution. Industry as a whole, including utilities, uses roughly 55 percent of our total energy supplies each year.¹ Industrial manufacturing operations alone consume 29 percent of our total annual energy supplies, domestic and imported—that is, more energy by far than that consumed in 1972 by all of the households and commercial establishments throughout the United States (20 percent), and more than all the energy used each year to run all of our privately-owned automobiles and all of the trucks, trains and buses engaged in our national transportation network (25 percent).²

Because of the tremendous amount of energy consumed each year by industrial manufacturing operations, several studies were made independently by the Atomic Energy Commission and the National Science Foundation at the Oak Ridge, Tennessee National Laboratory,³ by the Environmental Protection Agency,⁴ by the Citizens' Advisory Committee on Environmental Quality,⁵ by the Ford Foundation,⁶ and by private industry,⁷ to determine what energy savings result when manufacturers use recyclable metals and wastepaper rather than competing virgin ores and woodpulp in their manufacturing operations.

The results were uniformly astounding! The AEC-National Science Foundation Report, which was typical of the others, concluded (*Exhibit A* hereto):

"Recycle of aluminum from scrap metal requires less than 5 percent of the energy expended to produce metal from presently used ores. Iron recycle in the form of scrap steel requires only approximately 45 percent of the energy expended to produce steel from presently used iron ores. Recycle of copper and titanium from scrap requires 11 and 30 percent respectively of the energy required to process metals from their virgin ores. As the grades of aluminum, copper and titanium ores continue to decrease, or as an alternative, less desirable ores are utilized, the energy savings inherent in the use of recycled metals will continue to increase."

In its report, based on studies made by the Midwest Research Institute, the Environmental Protection Agency established that, *when recycled wastepaper is used in paper manufacturing in place of competing virgin woodpulp, the energy savings amount to 60 to 70 percent* (See *Exhibit B*).

Finally, in the report prepared for the Ford Foundation (*Exhibit D*), it was demonstrated that *if only the ferrous metals, aluminum and copper readily recyclable in 1975 from urban garbage alone were actually recycled,*⁸ "the energy savings to be realized would be equal to the heat content of 3.22 billion gallons of gasoline."

As these authoritative studies became available, one after the other, it became absolutely clear and certain that vast amounts of industrial energy, now needlessly wasted, can be conserved by merely increasing our extremely depressed national recycling levels. Here are some actual examples of how increased recycling will result in tremendous energy conservation:

Aluminum.—Approximately 3 percent of the energy is required to make a ton of aluminum from recycled metal cans or scrap than from mined ore. Put another way, the delivery of a ton of aluminum from natural resources requires over 30 times the energy output needed to deliver the same ton from recycled materials.

¹ See *Final Report, National Commission on Materials Policy, June 1973*, pg. 2-10; Source, Bureau of Mines, U.S. Department of the Interior, 1973.

² Same as Footnote 1 *supra*.

³ See *Exhibit A*, the AEC-National Science Foundation Report entitled, "Energy Expenditures Associated with The Production And Recycle Of Metals."

⁴ See *Exhibit B*, excerpts from EPA's 1973 Report To Congress On Resource Recovery.

⁵ See *Exhibit C*, "Energy in Solid Waste," (1975). (Clerk's Note: This exhibit to be found in committee files.)

⁶ See *Exhibit D*, the Ford Foundation's "Energy Conservation Papers." (Clerk's Note: This exhibit to be found in committee files.)

⁷ See *Exhibit E*, "Recycling Can Cut Energy Demand Dramatically," prepared by the Aluminum Corporation of America Research Department. (Clerk's Note: This exhibit to be found in committee files.)

⁸ 6.9 million tons of iron and steel scrap, 400 thousand tons of aluminum and 100,000 tons of copper.

Currently, a little more than 1,000,000 tons of aluminum are recycled. This already represents tremendous energy savings to the nation—but what is more important is the fact that well over 2,000,000 tons of aluminum are *not* recycled. Today, recycled aluminum represents less than 30 percent of our domestic use of this metal. *Therefore, by simply doubling our current aluminum recycling rate—from 1,000,000 to 2,000,000 tons a year—would save 49.38 billion KWH of energy or 29.1 million barrels of oil annually.*

Paper.—60 percent to 70 percent of the energy required to make new paper products is saved by using recyclable wastepaper rather than virgin woodpulp.

Currently, only about 13,000,000 tons out of an annual paper production of over 60,000,000 tons are recycled. But, 35,000,000 tons of *additional* wastepaper are recoverable for raw material use. *The doubling of our current recycling volume—from 13,000,000 tons to 26,000,000 tons a year (a rate close to our World War II paper recycling level)—would result in industrial energy savings of 55 billion KWH of energy or 32.5 million barrels of oil a year.*

Further, since paper comprises almost half of the nation's collected solid waste, *it represents another important energy source AFTER recyclable materials have been extracted for new raw material uses.* EPA states that about 80 percent of this non-recyclable residue is combustible and can be recovered in the form of energy.

Steel.—It takes 2 to 3 times the energy to manufacture steel from virgin iron ore rather than steel scrap. *Thus, every time a ton of steel is produced with virgin ore, rather than recycled scrap, the nation needlessly loses 8.8 million BTU's of energy.*

Yet each year, only about one-third of the recyclable steel available for recycling in the United States is recovered and reused. *Each million tons of scrap that is lost as a raw material costs this nation over 8 trillion BTU's of energy and over 1.5 million barrels of oil.*

In sum and substance, therefore, based on the AEO, EPA and Ford Foundation studies mentioned above, *these are the national energy savings realized for each ton of recycled material used instead of a competing virgin resource:*

Commodity	Kilowatt-hour savings for each ton of recycled material used	Barrels of oil saved for each ton of recycled material used
Aluminum.....	49,379	29.1
Copper.....	11,805	7.0
Iron.....	2,604	1.5
Magnesium.....	88,946	52.2
Paper.....	4,210	2.5
Titanium.....	73,699	43.3

Armed with these facts, Chairman Ullman of the House Ways and Means Committee included a Recycling Tax Incentive section, drafted by the staff of the Joint Committee on Internal Revenue Taxation, in the "energy package" he introduced in the House last Spring. After careful consideration, the provision was strongly supported and approved by the Ways and Means Committee as part of H.R. 6860, the Energy Tax legislation now before this Committee for action.

Essentially, the Recycling Tax Incentive section reported by the Committee extended the 10 percent investment tax credit, with certain limitations, to manufacturers who purchase recyclable metals, wastepaper, glass or textiles for use in their manufacturing operations—the credit to be computed on the cost of the recyclable materials purchased each taxable year.

An Effective Recycling Tax Credit is Urgently Needed Now, Not Only To Conserve Energy, But Also To Conserve our Nation's Dwindling Supplies of Virgin Natural Resources, and To Help Prevent a Series of Materials Crises That Threaten To Be Even More Serious Than the Energy Crisis in the Years Ahead

Today, the United States already depends on foreign imports for 100 percent or close to 100 percent, of many of its vital virgin mineral requirements. In 1978, the National Commission on Materials Policy reported that we currently import all, or more than 75 percent, of our supplies of aluminum, tin, nickel, platinum, chromium, cobalt, mica, manganese, certain forms of titanium and asbestos (Exhibit F).

In addition, we presently import more than 50 percent of our annual supplies of zinc, mercury and gold (*Exhibit F*).

More alarming, however, is the fact that the Interior Department now projects that by 1985—just 10 years from now—we will also depend on foreign imports for more than 50 percent of our supplies of iron ore, lead and tungsten—bringing the United States to a dangerous point of dependency on foreign sources for more than 50 percent of our supplies of 9 of the 13 basic virgin industrial raw materials.

Interior goes on to warn that, unless drastic remedial actions are taken without delay, by the year 2000, the United States will have to depend on foreign countries for more than 50 percent of its needs of *all* 13 basic virgin industrial raw materials.

If these projections for 1985 and the year 2000 prove to be correct, the Interior Department concludes further that these vastly increased imports of virgin materials will have a devastating impact on our country's Balance of Trade and Balance of Payments, which are already in a *deficit* position in *minerals*. In 1972, our Balance of Trade *deficit* in mineral trading, for example, was only \$6 billion at a time when our annual total imports of minerals and mineral-base materials were only \$14 billion. By the year 2000, however, based on present trends, Interior estimates that our annual mineral requirements will exceed our annual virgin domestic supplies by about \$100 billion (in 1971 dollars)—and that approximately one-half of this annual deficit will be for minerals other than oil and gas (*Exhibit G*).

These extremely dark projections caused Secretary of the Interior Morton to complain in 1974 that "A Minerals Crisis Would Be Worse Than The Energy Crisis" (*Exhibit H*). He stated:

"I just think as a matter of safety and economic security it would behoove us to make sure that we are not overly reliant on foreign sources of essential mineral ores and minerals. If we ever get at their mercy. . . . You know, there's a lot of anti-American sentiment around, and even some of the friendliest countries change under pressure. I'd hate to see us get ourselves over the barrel and have to go around the world begging with our hat in our hand for some of these essential materials. This isn't a crisis situation, but we could get into a crisis situation if we don't do anything."

Secretary Morton concluded as follows:

"That's why I feel we've got to make some decisions on where we're going. We've got to start assessing what's really going to waste in this country through the failure to recycle, especially in junk automobiles and all the rest of it. Maybe it's going to cost more, but at the same time maybe that's a good investment to make."

Faced with the same urgent situation, the National Commission on Materials Policy advised the President and the Congress in its June, 1973 Final Report:

"We consider that resource recovery deserves to rank among the highest national priorities. We urge the Congress and the Executive Branch to establish recycling as an explicit national goal. . . .

"We conclude that increased recycling would result if primary and second materials were on an equal footing in the market place. All national resources should receive equal treatment. . . .

"We recommend that the Federal Government give users (scrap consumers) of materials economic incentives in the form of tax credits for expanded use of recycled materials."

Enactment of the Recycling Tax Credit Provision Will Reduce Air and Water Pollution, as Well as Solid Waste Disposal Costs and Problems for Cities and States Throughout the Nation

The National League of Cities, the U.S. Conference of Mayors and the National Governors' Conference support the Recycling Tax Credit proposal because it will also serve—

- (i) to reduce air and water pollution throughout the nation, and
- (ii) to reduce solid waste disposal costs and problems for cities and states in all parts of the country.

In its Second Report to Congress On Resource Recovery, the Environmental Protection Agency advised:

"Utilization of recycled material rather than virgin material generally results in reduced levels of atmospheric emissions, reduced effluent discharges to natural waters, and reduced generation of industrial and mining wastes."

More specifically, EPA reported to Congress that the utilization of recyclable materials in manufacturing operations rather than competing virgin counterparts, results in (*Exhibit B*)—

- 60-88 percent less air pollution;
- 44-76 percent less water pollution;
- 105-165 percent less post-consumer wastes generated; and
- 40-61 percent less industrial water utilization.

Moreover, by operating to increase our national recycling rates the Recycling Tax Credit provision will also reduce the volumes of solid waste which today are necessarily burned or buried by cities and states throughout the nation, at costs ranging from \$6-\$12 a ton.

In a recent Joint Report under the heading "Cities And The Nation's Disposal Crises," the League of Cities and Conference of Mayors stated:

"The disposal of wastes and the conservation of resources are two of the greatest problems to be understood and solved by this nation in the latter third of the century. With almost half of our cities running out of current disposal capacity in from one to five years, America's urban areas face an immediate disposal crisis.

"Cities in our survey, when asked what they would most like to see embodied in new Federal solid waste legislation, listed the enhancement of recycling and resources recovery as their number one preference.

"The National League of Cities and United States Conference of Mayors thus specifically recommends the following. . . . :

"Resource recovery will neither impact on nor improve local solid waste management until it becomes profitable economically. The overriding consideration in this recommendation is the need for federal action on policies or practices which discourage and impede the handling of solid waste or the processing, marketing, and reuse of recycled materials. The policies include depletion allowances and tax credits for virgin materials.

"The federal government should either reduce the negative impact of these policies . . . or it should establish . . . tax credit to encourage the recovery and full use of resources."

Enactment of the Recycling Tax Incentive Provision Will Not Result in any Large Loss of Annual Revenues to the Treasury. Indeed, the Revenue Impact Will Be Inconsequential Compared to the \$1.5 Billion in Revenue Lost Each Year Because of the Tax Benefits Afforded to Competing Virgin Materials

In its report on the Recycling Tax Incentive provision, the Ways and Means Committee estimated that the total cost of the Recycling Tax Credit for 1976 and the years immediately thereafter would be only \$30 million a year.

The Committee then estimated that, by 1980, if our nation's recycling rates are greatly stimulated, the total revenue loss to the Treasury would not exceed \$300 million per year.

These revenue loss estimates, however, completely fail to take the following "revenue gain" offsets into account:

1. Only manufacturers who use recyclables qualify for the credit. Thus, collectors, processors and transporters of recyclables who benefit from increased recycling volume, will pay increased taxes, at normal tax rates, on their expanded earnings.

2. Most manufacturers must switch from the use of depletable virgin raw materials to recyclables in order to qualify for the credit. To the extent they previously enjoyed "virgin tax benefits," the Recycling Tax Credit will not result in any net revenue loss to the Treasury, as they transfer from virgin to recyclable utilization.

3. The National League of Cities, U.S. Conference of Mayors and National Governors' Conference vigorously support the Recycling Tax Credit because it will result in Solid Waste Disposal savings of \$6-\$12 a ton on all recycled materials which no longer have to be burned or buried. These are "revenue savings" which must be taken into account in this era of "revenue sharing."

In the final analysis, therefore, if the Recycling Tax Credit is properly administered by the Federal Government it should ultimately result in a gain, not a loss of revenues to the Treasury.

But even assuming for the sake of argument that ultimately the Recycling Tax Credit might result in a \$300 million per year revenue loss, that figure is certainly relatively inconsequential when compared to the \$1.5 billion in revenues the Treasury loses each year in existing tax benefits afforded to competing virgin materials.

Indeed, in a recent Report to the Congress entitled "Using Solid Waste To Conserve Resources And To Create Energy" (February, 1975), the Comptroller General of the United States, relying on statistics supplied by EPA and the Treasury Department estimated that actually—

"the virgin material production sector enjoyed a significant benefit of over \$2 billion in 1970 as a result of these tax provisions."

We submit further, of course, that a revenue loss of this relatively limited magnitude is a fair price to pay when the promised *quid pro quo* consists of:

- (i) extremely significant industrial energy savings,
- (ii) vitally important conservation of scarce natural resources and
- (iii) substantial reduction of solid waste disposal costs for cities and states throughout the nation.

The National Problems Demanding Increased Recycling Are Too Urgent To Await Lengthy Congressional Studies, Not Yet in Progress, Aimed at Determining Whether the Depletion Allowance and Capital Gains Benefits for Virgin Commodities Should Be Reduced or Repealed. The Recycling Tax Incentive Is Needed Now, as Part of a Comprehensive Energy and Materials Conservation Program

The facts discussed above make it clear, we believe, that the numerous serious problems confronting our nation, which can be alleviated by increased recycling, simply cannot be forgotten or postponed until Congress decides, at some future unspecified time, whether the depletion allowance and capital gains tax benefits for virgin commodities should be reduced or repealed.

The Recycling Tax Incentive is needed now, as part of a comprehensive energy and materials conservation program, and every week that passes without its enactment means further unnecessary, irretrievable losses of large amounts of precious energy and virgin resources, while we continue to shoulder growing solid waste disposal costs and burdens.

Moreover, it is by no means clear that Congress will indeed ultimately decide that either the depletion allowance on minerals or the capital gains treatment of tree profits should be repealed. Just this week, Secretary Simon appeared before this Committee and criticized the recent repeal of the depletion allowance on oil on the ground that the repeal has had a significant adverse effect on exploration. Certainly, a similar position will be taken with reference to other minerals if an effort is made to extend the repeal to the complete virgin metals spectrum.

Similarly, there is no pending definitive proposal, either in the House or the Senate, to repeal or reduce the capital gains benefit on profits derived from the cutting of trees. Recently, Kidder, Peabody and Co. reported that as much as 70 to 90 percent of the *total net income* of some of the larger, integrated forest products and paper companies is taxed at the low 30 percent capital gains tax rate. It is thus doubtful that Congress will soon remove such essential tax benefits for so many large companies during a period of combined recession and inflation—because, of course, such removal would seemingly immediately result in spiraling price increases for consumers throughout the country.

Finally, of course, it is clear that recyclable commodities cannot *completely* replace competing virgin commodities in manufacturing operations in the foreseeable future. In June, 1973, the National Commission on Materials Policy reported that our total national consumption of major raw materials was roughly 191,000,000 tons (paper, iron and steel, aluminum, copper, lead, zinc, glass, textiles and rubber)—and that recyclable raw materials accounted for only 25 percent, or approximately 48,000,000 tons of that total consumption.

We in the recycling industry believe that enactment of the Recycling Tax Credit provisions will contribute substantially to doubling our national recycling rates by the early 1980's—and thus, that our total utilization of recyclable commodities will grow to roughly 100,000,000 tons a year by that time. That increase, of course, will serve to reduce the present drain on dwindling virgin resources by approximately 50,000,000 tons a year—a tremendous accomplishment after so many years of total economic frustration aimed at almost prohibiting successful recycling.

Patently however, the United States will still have to depend on virgin resources for the balance of approximately 50 percent or more of its major materials requirements, and in order to have a dependable supply, it might not be feasible to eliminate overnight all of the tax benefits now supporting the virgin producers.

For all of these reasons, therefore, we urge the Senate Finance Committee to act now to reinstate the Recycling Tax Credit provisions of H.R. 6860, with

clarifying corrective amendments, and not to postpone the national day of reckoning in this critical area until some other totally unspecified day in the future.

CONCLUSION

In conclusion, therefore, the national recycling industry represented by NARI urges the Senate Finance Committee to include an effective Recycling Tax Credit provision in any comprehensive energy legislation it reports at the end of these hearings. That provision should make it clear on its face that its sole purpose is to seek at least the doubling of our current depressed recycling rates and volume and to reap in the process vast energy savings and crucially important conservation of natural resources in the years ahead.

We thank the Committee for the opportunity afforded for this testimony and we stand ready to assist in furnishing any further information the Committee may require.

ENERGY EXPENDITURES ASSOCIATED WITH THE PRODUCTION AND RECYCLE OF METALS

(By J. C. Bravard, H. B. Flora, II, and Charles Portal)

PREFACE

The work reported in this document was proposed by H. E. Goeller and W. Fulkerson in the spring of 1971 to the Practice School of Chemical Engineering of the Massachusetts Institute of Technology located at ORNL. The problem was assigned to J. C. Bravard and Charles Portal who collected and assimilated the appropriate data and issued the initial report (ORNL-MIT-132) under the supervision of J. T. Day and P. H. Wadia, directors of the Practice School. H. E. Goeller and W. Fulkerson also acted as consultants. Hollis B. Flora, II, a Presidential Intern with the ORNL-NSF Environmental Program has revised some of the information in the original report, corrected certain calculations and added new information and data. Some of the additions include processes considered in the steelmaking cycle, the energy expenditure associated with the production of steel from pig iron and steel scrap and the energy expenditure for the recycle of aluminum, and iron in the form of steel. One of the authors, Hollis B. Flora, II, would like to express his appreciation to Oak Ridge National Laboratory and the National Science Foundation for a Presidential Internship appointment which allowed the completion of the work reported here.

1. SUMMARY

The ORNL Environmental Program is involved in the assessment of resource management alternatives. One aspect involves the evaluation of the total energy expenditures in the production and recycle of important structural metals. In this study the energy requirements associated with the production of magnesium, aluminum, iron, copper, and titanium from their virgin ores as a function of ore grade were estimated. Energy requirements for the recovery of by-products and the recycle of all these metals were also studied.

Table 1 summarizes the results in terms of equivalent coal energy requirements (kwh/ton of metal) for the production and recycle of the metals. Energy requirements for Mg production will stay essentially constant in the future (~91,000 kwh/ton) because of its infinite resource in seawater. Use of low-grade bauxite ores (~30 percent Al_2O_3) in the future will not increase energy requirements by more than 16% for Al production (from 51,380 to 59,615 kwh/ton). However, use of high aluminum clays and anorthosite will result in 28-40 percent higher energy expenditures. Although the high grade hematite ores for the production of pig iron are almost completely exhausted, the present use of vast U.S. reserves of magnetic taconites increases the energy requirements only 9 percent (~4270 to 4656 kwh/ton). If some of the other ores like laterites and specular hematites are employed, energy consumption in their processing can increase to as much as 6268 kwh/ton. For copper production the quality of the mined ore is rapidly falling (from 4 percent to less than 1 percent), and use of low-grade ores will involve significantly higher mining and milling energies and may increase total energy expenditures by 83% (from 13,530 for a 1.0 percent Cu ore to 24,760 kwh/ton for

a 0.3 percent Cu ore). Since high-grade rutile (TiO_2) ores for titanium production are scarce, use of other minerals containing ilmenite (FeTiO_3) will increase energy expenditures by 20 percent. Ultimate use of the high titanium bearing soils can result in a 63 percent rise in the energy requirement over that for rutile.

Recycle of Mg would require less than 2 percent (1395 kwh/ton of Mg) of the energy expended in the production of magnesium from seawater. Recycle of Al from scrap metal requires less than 5 percent (1300-2000 kwh/ton of Al) of the energy expended to produce the metal from presently used ores. About 70-80 percent of the aluminum produced is potentially recyclable. Iron (Fe) recycle in the form of steel scrap requires ~25 percent (1666 kwh/ton of raw steel) of the energy expended to produce raw steel from presently used iron ores. Energy requirements for the recycle of copper and titanium are 1555 and 39,000 kwh/ton of metal, respectively. Potentially, 75% of the copper produced is recyclable; however titanium recycle potential is minimal since 90 percent of its present usage is dissipative.

ABSTRACT

Since the presently used higher grade ores for a number of important metals are being depleted and future production may become more energy intensive, the equivalent coal energy requirements associated with the production of magnesium, aluminum, iron, copper, and titanium metals for varying grades of ore deposits have been evaluated. Future energy requirements for magnesium and iron production will remain essentially constant at 91,000 kwh/ and 4658 kwh/ton, respectively. Use of poorer grade bauxite ores will not significantly change the energy requirements for aluminum (~55,000 kwh/ton); however, eventual use of clays and anorthosite will increase the consumption of energy by 28 and 40 percent respectively. The energy requirements for copper and titanium are 13,530 and 126,100 kwh/ton, respectively. Since both copper and titanium have limited resources, energy expenditures will increase considerably as poorer grade ores must be used.

Recycling magnesium would require less than 2 percent of the energy expended in the production of magnesium from seawater. Recycle of aluminum from scrap metal requires less than 5 percent of the energy expended to produce the metal from presently used ores. Iron recycle in the form of scrap steel requires approximately 45 percent of the energy expended to produce finished steel from presently used iron ores. Recycle of copper and titanium from scrap requires 11 and 30 percent respectively, of that energy required to process these metals from their virgin ores. As the grades of aluminum, copper, and titanium ores continue to decrease, or as an alternative, less desirable ores are utilized, the energy savings inherent in the use of recycled metals will continue to increase. Sulfuric acid, gold, silver, selenium, and tellurium are the principal by-products from copper ores, while zirconium and pig iron can be recovered from titanium deposits. The energy requirements associated with the recovery of these by-products have also been evaluated.

TABLE 1.—SUMMARY OF THE ENERGY REQUIREMENTS FOR THE PRODUCTION AND RECYCLE OF METALS

Metal and present source	Equivalent coal energy in kwh/ton of metal	Future sources	Reprocessing
Magnesium: Sea water.....	90,821 [103,739].....		1,395 [1,875].
Aluminum:			
50 percent bauxite.....	51,379 [63,892].....	30 percent bauxite, 59,615 [72,844]; clay, 65,972 [78,188]; anorthosite 72,356 [86,327].	Al scrap 1,300-2,000.
Iron:			
High grade hematite.....	4,270 [4,289].....	Specular hematite 5,135 [5,190]	Iron and steel scrap 1,240 [1,666].
Magnetic taconite.....	4,656 [4,727].....	Nonmagnetic taconites 5,273 [5,381]; iron laterites 6,268 [6,327].	
Copper: 1 percent sulfide ore.	13,532 [15,193].....	0.3 percent sulfide ore 24,759 [29,766].	98 percent Cu scrap 635 [853]; impure Cu scrap 1,555 [1,727].
Titanium:			
High grade rutile ore....	126,115 [154,779]....	High alumina clays 156,400 [194,722].	
Ilmenite rocks.....	149,440 [186,090]....	High Ti soils 206,075 [261,347]..	Ti scrap, 39,000 [52,416].
Ilmenite beach sands.....	153,055 [190,948]....		
Ferruginous rocks.....	152,813 [190,622]....		

Note: Numbers in parentheses represent an electrical generation and transmission efficiency of 40 percent; numbers in brackets represent an efficiency of 29.8 percent.

EXHIBIT B

ENVIRONMENTAL IMPACT COMPARISON FOR 1,000 TONS OF LOW-GRADE PAPER

Environmental effect	Unbleached kraft pulp (virgin)	Repulped waste paper (100 percent)	Change from increased recycling (percent) ¹
Virgin materials use (oven dry fiber) (tons).....	1,000	0	-100
Process water used (gallons).....	24,000,000	10,000,000	-61
Energy consumption (Btu's).....	17,000×10 ⁶	5,000×10 ⁶	-70
Air pollutants effluents (transportation, manufacturing, and harvesting) ² (tons).....	42	11	-73
Waterborne wastes discharged, BOD ³ (tons).....	15	9	-44
Waterborne wastes discharged, suspended solids ⁴ (tons).....	8	6	-25
Process solid wastes generated (tons).....	68	42	-39
Net postconsumer wastes generated (tons).....	850	4250	-129

¹ Negative numbers represent a decrease in that category, or a positive change from increased recycling.

² Based primarily on surveys conducted in 1968-70.

³ This assumes a 15 percent loss of fiber in the papermaking and converting operations.

⁴ This assumes that 1,100 tons of waste paper would be needed to produce 1,000 tons of pulp. Therefore 850-1,100 = -250 represents the net reduction of postconsumer waste.

Source: Midwest Research Institute. Economic studies in support of policy formation on resource recovery. Unpublished data, 1972.

ENVIRONMENTAL IMPACTS RESULTING FROM THE MANUFACTURE OF 1,000 TONS OF BLEACHED VIRGIN KRAFT PULP AND EQUIVALENT MANUFACTURED FROM DEINKED AND BLEACHED WASTEPAPER

Environmental effect	Virgin fiber pulp	Deinked pulp	Increased recycling change (percent) ¹
Virgin materials use (oven dry fiber) (tons).....	1,100	0	-100
Process water used (gallons).....	47,000×10 ⁶	40,000×10 ⁶	-15
Energy consumption (Btu's).....	23,000×10 ⁶	9,000×10 ⁶	-60
Air pollutants (transportation, manufacturing, and harvesting) ² (tons).....	49	20	-60
Waterborne wastes discharged, BOD ³ (tons).....	23	20	-13
Waterborne wastes discharged, suspended solids (tons).....	24	77	+222
Process solid wastes (tons).....	122	224	+100
Net postconsumer waste disposal (tons).....	850	4550	-165

¹ Negative number represents a decrease in that category resulting from recycling.

² Based on surveys conducted in 1968-70.

³ This assumes a 15 percent loss of fiber in paperworking and converting operations.

⁴ This assumes that 1,400 tons of waste paper is needed to produce 1,000 tons of pulp. Therefore, 850-1,400 = -550 represents the net reduction in post consumer solid waste.

Source: Midwest Research Institute. Economic studies in support of policy formation on resource recovery. unpublished data, 1972.

ENVIRONMENTAL IMPACT COMPARISON FOR 1,000 TONS OF STEEL PRODUCT

Environmental effect	Virgin materials use	100 percent waste use	Change from increased recycling (percent) ¹
Virgin materials use (tons).....	2,278	250	-90
Water use (gallons).....	16,600,000	9,900,000	-40
Energy consumption (Btu's).....	23,347×10 ⁶	6,089×10 ⁶	-74
Air pollution effluents (tons).....	121.0	17.0	-86
Water pollution (tons).....	67.5	16.5	-76
Consumer wastes generated (tons).....	697.0	-60.0	-105
Mining wastes (tons).....	2,828.0	63.0	-97

¹ Negative numbers represent a decrease in that category resulting from recycling.

Source: Midwest Research Institute. Economic studies in support of policy formation on resource recovery. Unpublished data, 1972.

TESTIMONY OF HAROLD GERSHOWITZ, SENIOR VICE PRESIDENT, WASTE
MANAGEMENT, INC.

I have come here this morning for the sole purpose of addressing the importance of a recycling Tax Credit Provision for the Energy Conservation and Conservation Act currently before you. Perhaps, it would be more accurate to say that I am here to discuss the lack of such a provision, for while the House Ways and Means Committee, after exhaustive study, saw fit to include such a provision in its version of this important legislation, the Recycling Tax Credit provision was not a part of the final measure passed by the House of Representatives,

We consider the deletion of this provision to have been most unfortunate. We have, today, the technology to allow us to recover substantial value from the waste stream. We also have, within the private sector, the corporate commitments to accomplish that objective. What we do *not* have, however, is the ability for secondary materials to equitably compete with primary materials which are bought, sold and transported in the marketplace under an umbrella of very significant public subsidy.

It would be totally reasonable to expect parity with respect to public policy between secondary materials and virgin materials, inasmuch as one of our national objectives appears to be recovery of secondary resources and the conservation of primary resources. However, the recycling tax credit which we are asking for is really far short of parity.

This committee must accept the fact that the current disparity between secondary and primary materials with respect to public policy, is not only incompatible with the often touted objective of greater resource recovery, it is in diametric opposition to such a policy. If the Congress cannot see fit to support the relatively modest measure to stimulate greater recycling which would result from a Recycling Tax Credit then further rhetoric espousing the virtues of resource recovery should really cease because we are far beyond the stage where rhetoric is going to produce any greater recycling or recovery of our resources. The Country has gone as far as it can go with rhetoric. What the Country needs now is action.

My company has maintained a substantial commitment to resource recovery. We are currently designing, and will build and operate the nation's first waste gasification facility which will convert municipal solid waste into pipeline quality natural gas. This facility is being pursued under a contract from the Federal Energy Research and Development Administration. It took two years of research and development for our company to be able to be fully responsive to this opportunity.

We currently have under construction in New Orleans, Louisiana, a project with which I know the Chairman of this committee is quite familiar. We are building the nation's first full-scale materials recovery center, which we call Recovery I, from which we will extract various metals, glass and certain fibrous materials from the waste stream. Frankly, there is tremendous entrepreneurial risk and speculation with respect to this project. We are proceeding because various industries, acting through the National Center for Resource Recovery, are—for demonstration purposes—willing to provide, for a limited time, markets for the materials we will recover from this facility. Many have serious doubts regarding the viability of these markets after the various industries supporting the project are no longer contractually committed to maintain markets for our materials.

Traditionally, it was always felt that fibrous materials were the most saleable fraction of the waste stream but as those of us in this business now know only too well, secondary fiber has been all but unmarketable during the past 18 months.

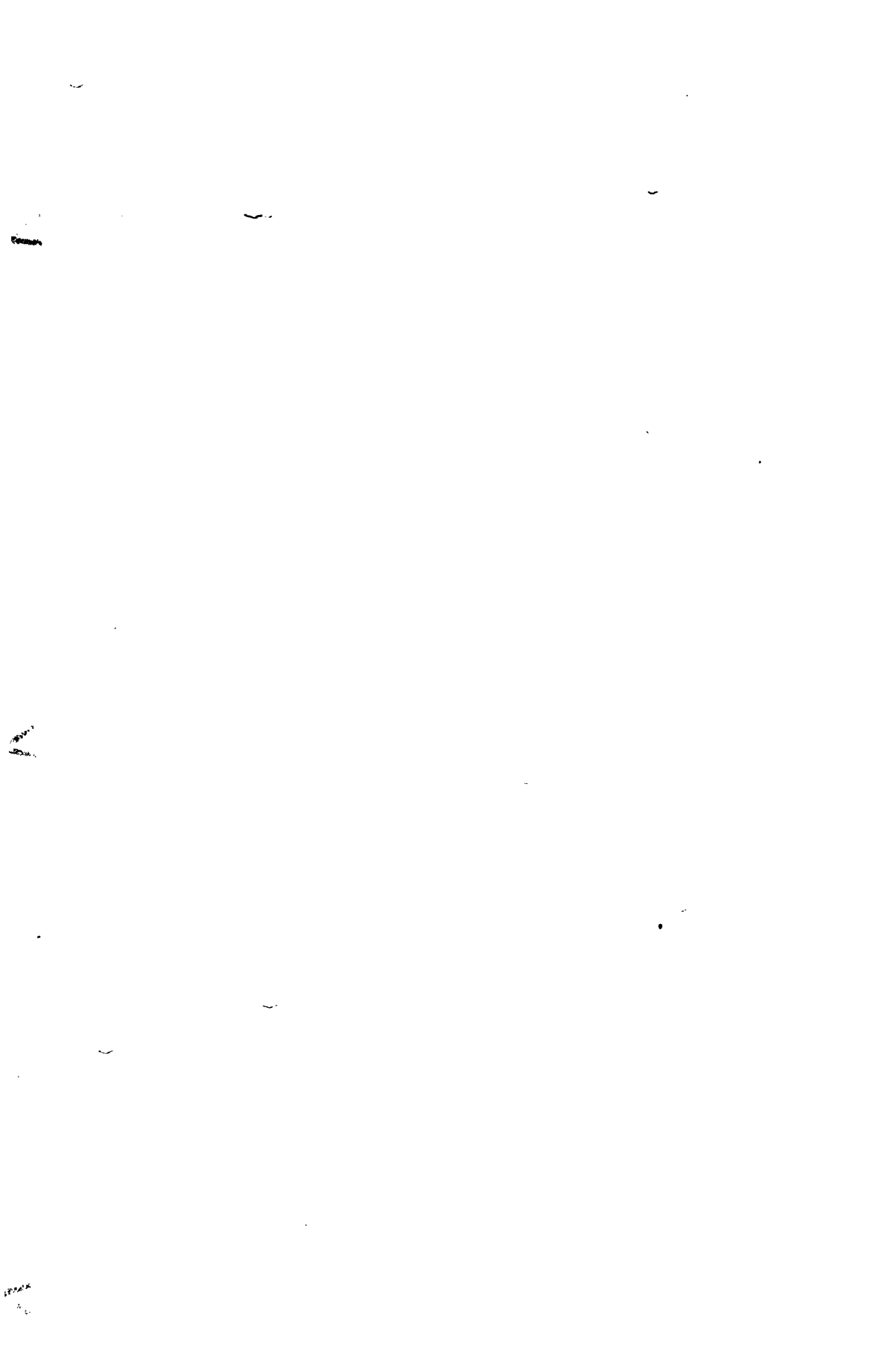
Projects such as our New Orleans Recovery I Facility could be constructed in many places throughout the United States but the ultimate success of Recovery I in New Orleans, as well as those projects that will or could follow the New Orleans experiment will depend almost exclusively on the long-term viability of the markets for the materials to be recovered. Such markets do not now exist on a sustaining basis.

As long as the government is willing to pay to stimulate greater utilization of virgin materials, while refusing to provide some compensating inducement for purchasing secondary materials, no one in Government should be critical of the fact that greater recovery of secondary materials is seriously lagging in this Country. Progress in this area is going to require a firm signal from Government that it is the policy of our Country to stimulate greater utilization of secondary materials. The Recycling Tax Credit Provision which we have been discussing is a modest but nonetheless significant step in that direction. Such a provision would provide an inducement (which is today generally lacking) for the industrial purchases of materials to purchase greater quantities of secondary materials.

Everyone has always been so willing to talk about resource recovery. We have before us an opportunity to do something about resource recovery. Considering all the artificial inducements to encourage the consumption of virgin materials, surely this committee can take a single step toward encouraging greater consumption of secondary materials.

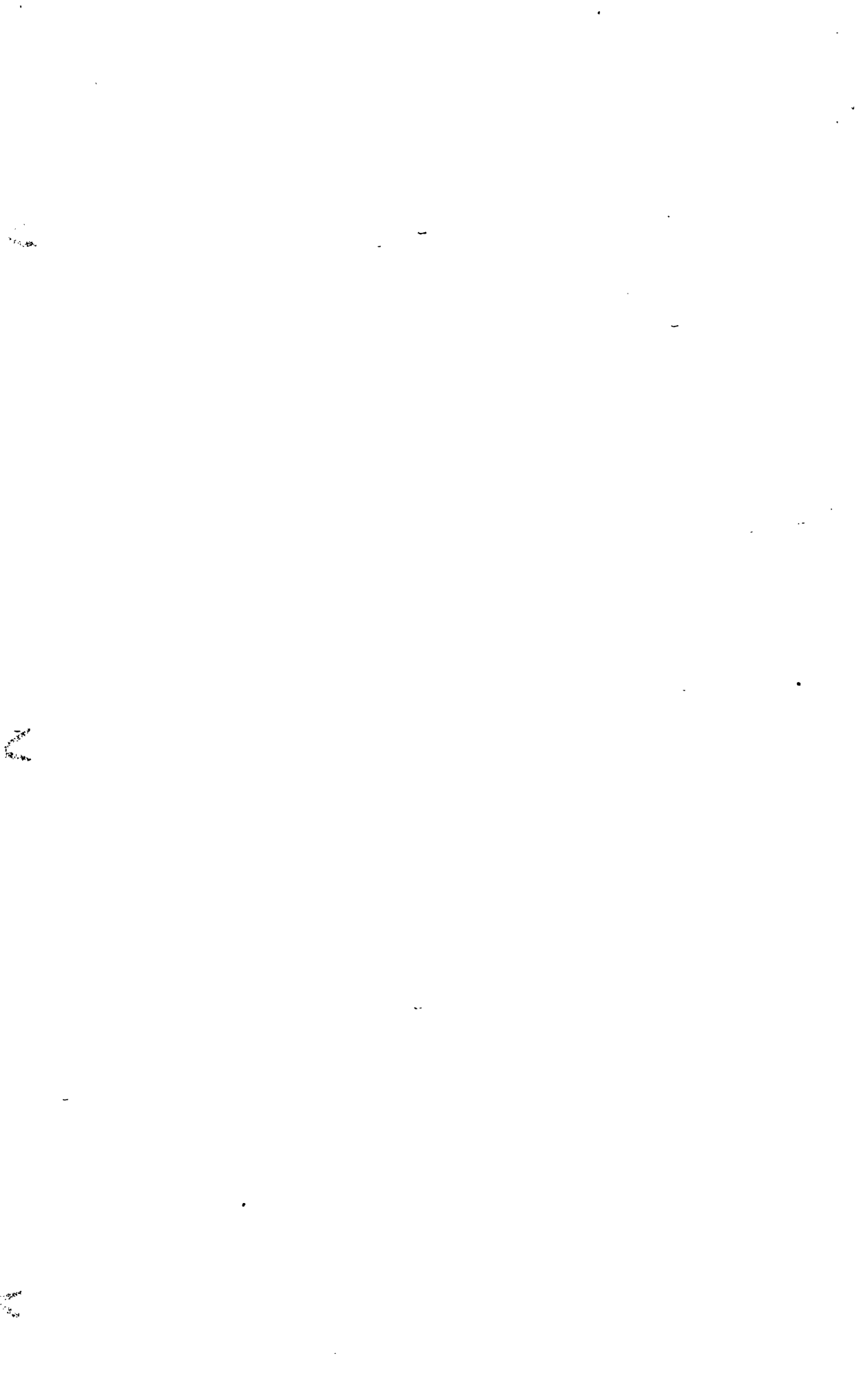
The time to act is now. The opportunity is at hand. The issue is clear. This committee can take a significant step toward the creation of greater equality between secondary and primary materials in this country.

[Whereupon, at 1:17 p.m., the committee recessed, subject to the call of the Chair.]



Appendix A

**Communications Received by the Committee Expressing an Interest
in These Hearings**



STATE OF MAINE, DEPARTMENT OF MARINE RESOURCES,
STATE HOUSE,
Augusta, July 18, 1975.

Senator WILLIAM D. HATHAWAY,
Old Senate Office Building,
Washington, D.C.

DEAR SENATOR HATHAWAY: Please be advised that the Maine Department of Marine Resources would like to lend its support to clarification of H.R. 6860—The Energy Conservation and Conversion Act of 1975—to ensure that fishermen are included in the exempted or excepted uses which would not be subject to the tax.

Maine has over 10,000 licensed fishermen who would be adversely affected by the Act, unless it is clearly specified that they would be eligible for the exemption. All members of the state's commercial fisheries are already hard pressed as a result of increased operating costs and relatively low prices for the products which are produced. Any increase in taxes on such basic and vital commodities as gasoline and diesel fuel would, therefore, create a severe hardship.

In addition, we believe it is equally important that the Act be clarified to include those engaged in aquaculture operations in the exempted or excepted uses which would not be subject to the tax. While aquaculture development in Maine is still in its early stages, we believe that without such an exemption the growth of this potentially important segment of the fisheries would be significantly handicapped.

Your assistance in this matter will be greatly appreciated.

Sincerely,

SPENCER APOLLONIO,
Commissioner.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., July 10, 1975.

HON RUSSELL B. LONG,
Chairman, Senate Committee on Finance, Dirksen Senate Office Building
Washington, D.C.

DEAR MR. CHAIRMAN: I appreciate the opportunity to present my views concerning the "Energy Conservation and Conversion Act" (H.R. 6860).

When this legislation was considered in the House of Representatives, I offered an amendment to then Section 322, Repeal of Excise Tax on Radial Tires.

My amendment provided for a phase-out of the excise tax on radial tires over a five-year period. My reason for introducing this amendment was to protect the "small" manufacturing companies, most of whom are just now entering radial tire production. This conversion requires considerable lead time and huge financial commitments.

Although my amendment was defeated, it did receive the support of my colleague, The Honorable Herman T. Schneebell, who made the following statement:

"Mr. Chairman, I support the amendment of the gentleman in the well. Here is an industry that is being dominated by four or five companies. I think this is one way we can aid the seven small companies which still remain. It is a very reasonable request. We will be eliminating the radial tire tax over a five-year phase-out. I support the amendment."

Just before going to the Floor, I learned that a three-year phase-out would be satisfactory to the leadership of both parties on the Ways and Means Committee. Unfortunately, a change could not be made in my amendment due to the rule governing the consideration of floor amendments. I respectfully request your committee, sir, to amend Section 222, Repeal of Excise Tax on Radial Tires, so as to provide a three-year phase-out instead of the original five-year phase-out.

This change would be a tremendous help to these small manufacturing companies in giving them valuable time to make adjustment to the loss of the tax and to more favorably contend with other companies who are also in radial tire production. I have been given assurance by Chairman Al Ullman and ranking minority member Herman Schneebell of the House Ways and Means Committee

that the three-year phase-out amendment is satisfactory to them and that they will support it in conference. I thought you also would like knowing that Congressman John Seiberling, who represents the very heart of the rubber industry at Akron, Ohio, has also given me his support of the three-year phase-out.

While I will not be appearing before your committee to testify, I would be enormously grateful if my letter would be given favorable consideration and entered into the record of your committee proceedings.

Sincerely,

TENNYSON GUYER.

STATEMENT OF WAYNE B. BREWER, CHAIRMAN OF THE BOARD, PRESIDENT AND CHIEF EXECUTIVE OFFICER OF COOPER TIRE & RUBBER COMPANY, FINDLAY, OHIO, ON BEHALF OF SMALL DOMESTIC MANUFACTURERS OF TIRES

This statement is made on behalf of the following tire companies:

Armstrong Rubber Company
Cooper Tire & Rubber Company
Denman Rubber Manufacturing Company
Mansfield Tire & Rubber Company
McCreary Tire & Rubber Company

These companies are representative of the smaller tire manufacturers of the United States, and as such they have a common position and general interest in the Energy Conservation and Conversion Act (H.R. 6860), particularly Title II, Part II, Section 222 thereof—Repeal of Excise Tax on Radial Tires.

This statement is presented under the following headings:

- I. Tire Excise Taxes (Background).
- II. Radial Tires (Background).
- III. The Tire Industry (Background).
- IV. Implications of H.R. 6860, Title II, Part II, Sec. 222 Repeal of Excise Tax on Radial Tires.
- V. Conclusion and Recommendation.

I. TIRE EXCISE TAXES

Federal Excise Taxes have been applied to automobile, truck and bus tires in varying amounts since 1932. (Section 602 of the Revenue Act of 1932.) 47 Stat. 169 (1932).

The current excise tax on all tires amounts to \$.10 per pound. For a typical passenger tire weighing about 30 lbs., the excise tax amounts to about \$3.00 per tire. For a typical large truck tire in 10.00-20 size weighing 100 lbs., the excise tax amounts to \$10.00 per tire.

The manufacturer's "cost of sales" for tires typically runs \$.50 to \$.70 per pound exclusive of this excise tax and exclusive of selling, shipping and general administrative expenses. Therefore the excise tax typically amounts to 15% to 20% of a manufacturer's cost of sales.

The tax is a manufacturer's tax. It is imposed upon the number of pounds produced and sold. Normally these taxes are paid by the manufacturer long before the manufacturer collects for the sale of the merchandise. Normally, for any current month, about one-third of excise taxes due for shipments during the month is paid by the 24th day of the current month. The remaining two-thirds is paid by the ninth day of the following month. By contrast, trade receivables normally run about 80 days from shipment to payment. Typically, then the manufacturer pays the tax about 2½ months before the customer pays for the merchandise. If the customer fails to pay his account, the manufacturer's loss is complete—including the excise tax.

Therefore, even though the amount of excise tax is stated separately (and in exactly the same amount) each time the tire is sold (manufacturer-to-wholesaler, wholesaler-to-retailer, retailer-to-consumer) the extra expenses associated with this tax, such as financing, credit losses, mark-up for distribution, etc. are not reflected as part of the excise tax at consumer level. It is therefore logical, in comparing cost impact, to reflect excise taxes as a percentage of *manufacturer's*

cost, rather than as a percentage of consumer buying price—because the cost effect of excise taxes is not limited to the amount of money received by the U.S. government.

At \$.10 per pound, excise taxes for bias tires are an enormous consideration—amounting to as much as all the factory labor expense in producing the tire.

By law, tire excise taxes are scheduled to drop from \$.10 per pound to \$.05 per pound on October 1, 1977.

II. RADIAL TIRES

Radial tires made their debut in Europe about 27 years ago (in 1948). In Europe the popularity of the radial tire gradually increased until, by the late 1960's, radials were the predominant type. In France, radials accounted for over 90% of all tires produced by the late 1960's.

During this same period the U.S. demand for radial tires was very limited, and as late as 1970 radial tires represented only 3% of the total tire market. By 1972 the radial penetration had grown to 8%, still a very small portion of the total market. Until this time there was little if any impetus from Detroit as nearly all new cars were equipped with bias and bias/belted tires.

The energy advantage of the radial tire is that the tire itself offers less rolling resistance than a bias-ply tire. At sustained highway speeds the fuel saving is probably 3% to 5%. However, for city driving the fuel saving is probably closer to 1%. During acceleration and deceleration the fuel saving is probably very low, and, of course, while an automobile is idling at a traffic light the fuel saving due to radial tires is zero. However, even at 1% to 2% reduction, the goal of realizing these savings is worthwhile.

An additional advantage of radial tires is the potential for longer life because of the reduced rate of tread wear. This statement is a generality inasmuch as there is strong evidence that the better bias belted tires will wear better than the poorer radial tires. (Remember also that "rate of tread wear" is not necessarily indicative of "total tire service life" because tires can and do fail for many reasons other than "worn out".) However, on averages, radial tires should provide longer life.

III. THE TIRE INDUSTRY

At the close of World War II there were 21 companies in the U.S. manufacturing tires for passenger cars and trucks. Today there remain 12, plus Michelin (of France) which commenced production in South Carolina within recent weeks. The nine companies exiting tire manufacture since WWII are Inland, Pharis, Norwalk, Dayton, Seiberling, Lee, Corduroy, Schenut and Gates. Some of these have since been taken over by larger rubber companies who operate them as divisions or wholly-owned subsidiaries.

The 12 domestic tire companies are generally classified as the 5 "majors" (whose annual sales range from about \$1.5 billion—the smallest major—to over \$5 billion) and the 7 "minor" or "small" tire companies, the largest of which has annual sales of about \$260 million.

The majors account for 100% of the tires for new cars and about 80% of the tires for the replacement market. The small tire companies account for about 20% of the replacement tire market.

The replacement tire market is more than twice as large as the market for tires for new cars.

The small tire companies are primarily dependent upon the tire replacement market. The major tire producers are diversified multi-product (chemicals, plastics, fabrics, steel products, aerospace, etc.) multi-national companies.

IV. IMPLICATIONS OF H.R. 6860

Within the past 24 months, Detroit has decided to adopt the radial tire. With Detroit's decision to switch to radials, the five major tire manufacturers were required to switch large portions of their productive capacity to radial tires in order to meet the demand. About 50% of the 1974 model-year cars (produced in late '73-early '74) were equipped with radials and the proportion jumped to more than two-thirds for the 1975 model year. The total passenger tire market (new cars plus replacement) showed the effects of this emphasis by Detroit, as exhibited in the following chart from National Petroleum News of June 1975:

U.S. TIRE SALES¹—BY TYPES

Passenger car tires	Total units (million)	Share of market (percent)		
		Bias	Belted bias	Radial
Total:				
1972.....	199.7	43.0	49.0	8.0
1973.....	205.6	40.3	44.4	15.3
1974.....	175.1	35.7	33.8	30.5
1975 ²	169.0	31.1	30.2	38.6
Replacement market:				
1972.....	147.6	53.0	38.0	9.0
1973.....	148.5	48.3	37.9	13.8
1974.....	131.0	41.0	35.0	24.0
1975 ²	133.0	37.0	33.0	30.0

¹ Including imports.

² 1975, estimated.

Source: Goodyear.

Providing for the manufacture of radial tires is very costly and time-consuming in several ways. The equipment is quite expensive, research and testing is arduous and costly and training is arduous and costly. As market leaders, the major tire companies have committed vast sums of money to the manufacture of radial tires—and the demands of Detroit have been no small factor. As the market for new cars dropped during the current recession, the major companies apparently experienced an imbalance of radial production facilities and excessive radial tire inventories. Here is what the current (June 1975) issue of National Petroleum News has to say about the subject:

"But weak auto sales were definitely affecting the tire market, particularly the radial market. What tire makers couldn't sell to car manufacturers, they were expected to try to move in the replacement market.

"Consider the dimension of the problem. If auto makers sell 3-million cars less this year than they sold last, as some say, they will buy 15-million fewer original-equipment tires. That's a sizable 9% of all passenger tires sold in 1974.

"The effect is greater on radials, which stand to lose sales of 13-million, amounting to about 25% of all radials sold last year.

"Many U.S. tire manufacturers have made heavy commitments to radial production, and industry specialists say there is more overcapacity in that kind of tire than in any other. Some major tire plants have been dedicated entirely to radials."

Immediate removal of all excise taxes on radial tires would provide a 15% to 20% government subsidy—an *enormous* subsidy—to the manufacture of radial tires and over night the market *for radials* would soar. This would prove to be of immediate benefit to European and Japanese tire importers and to the "major" U.S. tire manufacturers. But this would be at the expense of bias-tire sales which are currently the bread-and-butter of the smaller tire producers, most of whom are just entering the radial market and some of whom (McCreary, for example) make no radials for sale at present. For these companies the result of an immediate radial subsidy would be disastrous.

During the first quarter of this year, radial tire production capacity for the domestic tire manufacturers amounted to the following percentages of total production for each classification (Source: RMA):

Total domestic manufacturers

Percent radial to total production by type:

Passenger tires.....	37.2
Small truck tires.....	4.4
Large truck tires.....	5.5

Most of this production of radial tires was concentrated with the "major" tire companies. Some of the small tire companies are not yet prepared to produce as high a percentage of radial tires. At Cooper Tire & Rubber Company, for example, our position during this same period was as follows:

Cooper Tire & Rubber Co.

Percent radial to total production by type:	
Passenger tires.....	14.7
Small truck tires.....	0
Large truck tires.....	0

And at McCreary Tire & Rubber Company the situation is:

McCreary Tire & Rubber Co.

Percent radial to total production by type:	
Passenger tires.....	0
Small truck tires.....	0
Large truck tires.....	0

Armstrong Rubber Company reports the following:

Armstrong Rubber Co.

Percent radial to total production by type:	
Passenger tires.....	16.3
Small truck tires.....	0
Large truck tires.....	0.27

Because of their size, some of the smaller tire companies have elected to make no radial tires up to the present time based upon their evaluation of market trends, investment required, and the fact that not all companies can afford the complexities associated with making all possible types of tires. If the market were to change suddenly by an immediate (or retroactive) government "subsidy" of radial tires in the amount proposed, all companies would be immediately forced to supply radial tires in substantial quantities.

Another consideration is in the area of large truck tires. Radial tires now account for approximately 8% of the U.S. truck tire market, a substantial portion of which is supplied by tires imported in to the U.S. Domestic manufacturers (majors as well as minors) would be extremely hard pressed to meet the surge in demand for radial truck tires which would follow excise tax removal. However, foreign tire producers would receive a windfall demand. Because of recession-reduced demand in their home markets, they should be able immediately to exploit this increased demand by accelerating their exports to the U.S. Truck tire imports would surge with an immediate removal of this tax, further aggravating lay-offs currently existing at some domestic tire factories.

Another consideration is the effect upon tax revenues of the U.S. Government. A "best estimate" approach for the first full calendar year (1976), if excise taxes on radial tires were to be removed in 1975, shows the following:

	Units	Tax	Revenue loss
Radial passenger tires.....	80,935,000	\$3.00	\$242,805,000
Radial truck tires.....	3,487,000	10.00	34,870,000
Total revenue loss.....			277,675,000

This is based upon the estimate that 43% of passenger tire sales would be radial tires and 10.7% of truck tire sales would be radial. Even *without* the added stimulus of the excise tax removal, these sales ratios may well be attained. With the added stimulus provided by the tax removal, radial tire sales (and the revenue loss) could, of course, be even greater.

V. CONCLUSION AND RECOMMENDATION

Therefore, the small tire companies need a phase-out period for excise taxes on radial tires to avoid the disaster of an immediate withdrawal. A three-year phase-out may suffice, if observed according to the following schedule:

[In cents per pound]

	Excise tax on bias tires	Excise tax on radial tires	Difference
Currently.....	10	10.0	0
Effective Aug. 1, 1975.....	10	9.0	1.0
Effective Oct. 1, 1976.....	10	7.5	2.5
Effective Oct. 1, 1977.....	5	2.5	2.5
Effective Aug. 1, 1978.....	5	0	5.0

This would afford the small tire companies added time to adapt to the new rules. This same concept is contained in another section of H.R. 6860, namely *Title II, Part I, Sec. 212. Average fuel economy standards applicable to each manufacturer*. In this section, the application of this standard is spread over nine years in order to provide sufficient time for domestic manufacturers to increase fuel efficiency of their automobiles. (Note that there is a two-year grace period during which no standard applies, followed by a seven-year phase-in of the standards.) It would seem consistent for Congress to provide the same consideration to tire companies (by phasing-out excise taxes on radial tires) as provided automobile companies by phasing-in the fuel economy standards on new cars.

Since many *imported* automobiles can currently meet the "fuel economy standards" referred to in Sec. 212, it is apparent that Congress has seen fit to protect the jobs of U.S. Auto Workers by phasing-in this standard. It would seem consistent to show equal concern for the jobs of U.S. Rubber Workers by phasing-out the tax on radial tires.

Of course, we continue to strongly support the removal of the burdensome excise tax on *all* tires. Nothing in this statement should be construed as contrary to that intent.

AMERICAN MARITIME ASSOCIATION,
Washington, D.C., July 18, 1975.

The Hon. RUSSELL B. LONG,
Chairman of the Committee on Finance,
U.S. Senate, Washington, D.C.

MY DEAR MR. CHAIRMAN: In behalf of the American Maritime Association, which consists of 40 companies operating 128 American-flag dry cargo merchant vessels and tankers in the foreign and domestic commerce of the United States, I submit the following comments on H.R. 6860, the Energy Conservation and Conversion Act of 1975. I request that this statement may be incorporated in the Committee's record.

The American Maritime Association asks that the Committee incorporate in the bill a provision directing that a specified minimum percentage of petroleum imports into this country shall be carried on American-flag vessels. We consider that such a requirement is of overriding importance for national security in the current state of world affairs.

The dominating issues are whether the United States requires a flag tanker fleet and, if so, what is the most efficacious method of procuring one promptly.

The answer to the first question turns on the status of our energy resources, and explicitly, to what extent and for how long we shall be dependent on foreign sources of petroleum.

The answer to the second question represents essentially a choice between existing patterns of subsidy and cargo preference.

1. Hopes for establishing early independence from imports of petroleum must evidently be discounted. The ERDA report submitted to the President and Congress on June 28 makes quite clear that such independence is hardly likely to be achieved before the year 2000, assuming full concentration on all technologies for the production of energy, including enhanced recovery techniques for indigenous oil and gas, rationalization of end uses, coal and shale synthetics, intensive electrification, and development of nuclear and solar sources. All illusions are dissipated concerning the status in the near term of the last two

sources, themselves theoretically inexhaustible. Moreover, all these paths must be pursued simultaneously, since any one path taken exclusively will only increase imports. "That is, only the successful development and implementation of a large number of technologies in a combination of approaches can make importing fuel a matter of choice. Curtailment of any major existing option (such as nuclear power) places heavy demand on all the remaining options and precludes an acceptable solution (low level of imports or no imports)." According to the report, about all that can be done during the near term, defined as the period of 1985, is to maintain the existing equilibrium by preserving and expanding existing energy systems and by increasing efficiency of use. Indeed, no major solutions is anticipated in the mid term 1985-2000. Not until the year 2000 is it foreseen that it will even be possible to elect among the technologies "which will permit the use of essentially inexhaustible resources". At present, none of these technologies, including nuclear breeders, fusion and solar electric energy, is thought to have a smooth road to accomplishment, or even to be assured of application on a large scale.

In short, it will require maximum efforts to procure a substantial diminution to maintain the imports at nothing higher than their present level of 6-7 million barrels a day.

2. Continuing dependence on foreign sources to this magnitude raises major political issues.

In the first place, a major shift in the ownership of oil resources has occurred in the Arab countries, and is being paralleled in the other OPEC countries. The international oil companies are everywhere being displaced, and this includes the dominant American companies.

Secondly, the economics of production and sale has been politicalized. Not merely has pricing policy been converted to monopolistic patterns, entailing a huge shift of capital, but the supply of oil to importing nations has become subject to frank political aims. The United States has already experienced the consequences of this process.

Wrapped up in these developments is a major shift of shipping resources in the same direction. The producers are extending their reach to the distribution of their oil, in order to control both the price of shipping and the political compliance of importers. The principle was stated explicitly by the Secretary General of OPEC at a meeting on December 14, 1974 of the Arab Maritime Petroleum Transport Company (AMPTC), who is quoted by the Middle East Economic Survey as having said that OPEC achievements in winning control over production and the pricing of crude oil could not be sustained and developed without similar achievements in the transport and marketing fields: "There are groups among consumers and middlemen which by operating against us could undermine our decisions relating to production. The new challenge is to attain control over transport and marketing operations. The ownership of tanker fleets without crews and management is not sufficient; for he who manages a project is in fact the real owner. Thus, we aim to build tanker fleets that do not compete with one another and subsequently to coordinate matters regarding technical cadres."

At the end of 1974 the Arab countries had in operation a miscellaneous fleet of tankers amounting to about 1.7 million dwt, of which only three were VLCCs, owned by Kuwait. On that same date, however, they already had under construction in shipyards of the world more than 7.4 million tons; the new construction, more than four times greater than the then existing fleet, consists practically exclusively of large and very large carriers, ranging as high as 400,000 tons. Their fleets in being and under construction together already exceed the total existing American fleet. In addition, 5 LNGs and 3 LPGs are under construction in France for Algeria and Kuwait respectively.

The depression in shipping is facilitating this process, since it is possible to buy shipyard contracts and relatively new vessels at a quarter to a half of current construction cost. This is an extraordinary advantage to the Arab nations, whose swollen cash accounts might otherwise have been expected to drive prices up steeply.

Moreover, their acquisition of tonnage is by no means limited to new construction. Joint shipping arrangements are springing up in every direction between groups of Arab states and European and Japanese oil companies and shipping agencies; similar arrangements are being made with Iran, which is apparently also forming joint shipping plans separately with India and Pakistan. There are

varying reports within the last month about the size and scope of these arrangements, which seem to be in any case on an enormous scale. British Petroleum Company and the National Iranian Oil Company are reported to have established a joint tanker fleet, which will involve in the first instance a transfer of no less than 2 million dwt from BP, an amount equal to a quarter of the present American fleet. The serious difficulty in which the Norwegian fleet finds itself, with about 30% idle, underlies a move to sell major constituents "to foreign interests", which can scarcely be other than OPEC.

What is significant in this accelerating transfer of world tanker resources to the OPEC nations is the power which will repose in them to determine rates and routings on political considerations rather than economic. Ordinarily, flag ownership would not be expected to affect shipping economics. But that will not be the case with OPEC. Hand-in-hand with the growth of their fleets marches flag preference both by individual country and by regional groupings. The AMPTC comprises Abu Dhabi, Algeria, Bahrain, Iran, Kuwait, Libya, Qatar and Saudi Arabia. Saudi Arabia has already announced a 100% preference for its vessels, apparently to be shared with the other members of AMPTC. The attachments show other major developments in this direction, even in the western hemisphere and Indonesia.

3. The general context of world affairs, in which persist interests of the United States potentially at variance with those of the states of the Near and Middle East, makes it necessary to contemplate the renewal of the oil boycott, reinforced now by Arab control of the transportation mechanism. Facing squarely the dependence on imports of oil during the next quarter century, the country must evidently acquire the shipping with which to maintain access to whatever sources of supply may remain open in such circumstances, presumptively the western hemisphere, Iran and Indonesia. This acquisition should be as prompt as possible in the national interest.

4. A year ago every responsible authority was forecasting as inevitable by 1980 imports in the range of 12 million b/d. Accepting the ERDA objective of limiting imports at approximately their current level for the remainder of the century, this figure may be restated at approximately 6 million b/d.

Imports on the scale of 6 million b/d, distributed in accordance with present patterns of supply, require shipping in the order of 28 million dwt, plus an additional 8.5 million dwt for the movement of crude from the Persian Gulf to the Caribbean to be refined for ultimate delivery here. We have in addition normal domestic requirements existing and anticipated (including Alaska) of roughly 10 million dwt.

It is reasonable to suppose that all tonnage built here without construction subsidy is essentially designed for domestic trade; it could not normally compete with foreign carriers at full American construction and operating cost.

Thus the core of our foreign-trade fleet consists at present exclusively of vessels constructed or under contract with construction subsidy. This means that for the estimated foreign-trade requirements of between 28 and 37 million dwt we shall have available on completion of the present program something in the order of 5 million dwt.

The question is how to fill up the gap.

5. The existing statutory mechanisms for assisting construction are respectively construction subsidy and cargo preference.

The subsidy system fluctuates directly with world market conditions. Its fundamental object is to create competitive equality with foreign vessels but without primary regard for profitability. In establishing parity of costs, it consciously leaves the operator to find his own profit. S. Rep. 1721, 74 Cong. 2d Sess. p. 7.

But construction programs depend on profits and the expectation of profits. Construction cycles therefore tend to follow the business cycle, with a marked downward trend following close upon the downturn in business conditions. Whenever the world market falls persistently and sharply, not only do foreign owners cease to build, but American owners as well, because equality of costs cannot stimulate construction in conditions that discourage even foreign owners.

The depression in the world tanker market during the last two years amply demonstrates these principles. At the end of May 1975 a total of 35 million tons of tankers under contract had been cancelled or was in negotiation for cancellation, 140 vessels in all; the annual rate of scrapping was 6 million tons, three times the traditional average; and 275 vessels were in lay-up, with an additional 135 otherwise inactive for periods exceeding two months, or nearly 30 million

tons. It is generally expected that the projected world tanker fleet actually in existence or under contract for construction will decline by upwards of 100 million tons through cancellations, conversions to other types, and scrappings before a new equilibrium is reached.

These tendencies have been paralleled in the American subsidy program. Practically all current construction in American yards is of bulk carriers, the liner fleet having completed its cycle of replacements some years ago. Of 48 subsidized vessels on order in American shipyards all but nine will have been delivered by the end of 1977, and of those nine, five are Great Lakes ore carriers; two tankers and one LNG are scheduled for delivery in 1978, and one tanker in 1979. The cyclical nature of these contracts is verified by a comparison with the dates of award: 19 tankers and LNGs were contracted in 1972, 13 in 1973, and only 3 in 1974.

By contrast, of 47 unsubsidized vessels currently under contract, 25 will be delivered in the period 1978-1980, including 10 tankers, 7 LNG and 8 ore carriers. The tankers undoubtedly are intended for domestic operation chiefly, with some overlap into protected foreign operation. Cargo preference sets apart a protected area that is not immune from the downswing in the business cycle but is measurably cushioned and is differently phased. Thus, a new opportunity in Alaska has influenced American tanker construction unaffected by the diminution of world demand for tonnage.

6. This distinction between subsidy and cargo preference as mechanisms for sustained fleet construction just now has critical importance.

The primary interest in an American fleet derives from the considerations of national security outlined above. The figures cited show that the subsidy program has for the time being come to a halt, with no important deliveries scheduled after 1977, and at a level representing about 13%, when complete, of the stringently limited imports of 6 million b/d, which themselves represent, as stated, only half the amount that was being projected as inevitable a year ago.

It is hard to see how the minimum goal can in current conditions be met without instituting cargo preference for American vessels. This is the only countercyclical force that could in any case have filled the gap until world conditions improve. It is almost certainly the only force that can balance all the new distributions of economic power in petroleum transportation.

Yours truly,

ALFRED MASLIN, *Executive Director.*

ASHLAND OIL, INC.,
Washington, D.C., July 18, 1975.

Hon. RUSSELL LONG,
*Chairman, Committee on Finance,
Russell Senate Office Building, Washington, D.C.*

DEAR MR. CHAIRMAN: We are transmitting herewith five copies of a statement by Robert E. Yancey, President of Ashland Oil, Inc., urging deletion from H.R. 6860 now before your committee of those provisions as set forth in Section 112 for distribution of licenses to import petroleum and petroleum products on the basis of public auctions. In support of this position Mr. Yancey advances the following considerations:

(1) The auction scheme open to bidding by foreign governments and alien agents provides opportunities for such foreign entities to advance their own interests at the expense of the national security and foreign policy concerns of the U.S. OPEC countries might well preempt the import market to the prejudice of both the United States and such allies as Canada and Mexico.

(2) Auction schemes are gravely defective on their inherent tendency to provide for import duties, not at levels established by competent government authority under clear Congressional guidelines, but as determined by the uncertainties of the marketplace, particularly where crude-rich foreign governments, brokers and speculators may participate. The inflationary potential of such a scheme is in direct conflict with national policy.

(3) Auctions by their short-term nature and the unpredictability of success in bidding would inevitably disrupt and inhibit orderly long-term transportation and supply arrangements.

(4) Independent refiners and marketers would suffer a severe competitive deterioration under a license auction system because:

(a) Due to the competitive bidding, higher crude costs would result. These higher costs would fall disproportionately on the independents because they, in general, purchase a larger share of their requirements from abroad. Also, their laid down costs are substantially higher than those of the majors; and

(b) Only the majors have the full financial power to be reasonably sure of successful bidding. This would disrupt orderly supply arrangements and prevent long-range planning for the independents due to the associated uncertainties.

Accordingly, we have urged that the auction scheme be rejected and imports of the vital commodity distributed in accordance with the sound and equitable provisions of the EPAA.

Cordially yours,

WILLIAM J. HULL.

Enclosures.

STATEMENT BY ROBERT E. YANCEY, PRESIDENT OF ASHLAND OIL, INC.

Mr. Chairman and members of the Committee, my name is Robert E. Yancey, President of Ashland Oil, Inc., a Kentucky Corporation with its corporate headquarters in Ashland, Kentucky.

Ashland is an independent refiner as that term is commonly understood in the oil industry and as defined in the Emergency Petroleum Allocation Act of 1973, as amended, since Ashland's domestic production is less than 7% of the crude oil it refines and it sells the bulk of its refinery gasoline output to independent distributors. My statement today is presented from the perspective of an independent refiner. It sets forth the reasons for our opposition to the provisions of H.R. 6860 for distribution of licenses for importation of petroleum and petroleum products on the basis of public auctions, such licenses to be freely marketable (Section 112, H.R. 6860).

The license auction provision raises, in our judgment, grave issues involving the national security, the foreign policy of the United States, the public interest in adequate and orderly supplies of petroleum products at reasonable prices and the competitive viability of the petroleum industry. We respectfully submit that the House of Representatives has failed to give adequate consideration to these issues and we urge this Committee to reexamine the matter in depth. We are hopeful that such reexamination will persuade the Committee to recommend deletion of the license auction provisions and to substitute therefor, a provision prescribing distribution of import licenses on the basis of such allocation program as the President shall determine to be consistent with the provisions of the Emergency Petroleum Allocation Act of 1973 as amended, without any fee or charge for any such import license.

1. NATIONAL SECURITY AND FOREIGN POLICY IMPLICATIONS

The import license auctions provided for in Section 112 of H.R. 6860 are open to all. No attempt is made to prescribe qualification of bidders. Aliens, foreign governments and their agencies, brokers, speculators—all and sundry may bid, as well as American refiners and marketers with a legitimate business purpose. We ask that the Committee consider carefully the implications of such an arrangement for the national security and foreign policy interests of the United States.

The members of the Organization of Petroleum Exporting Countries (OPEC), for example, might well choose to bid for import licenses, in order to move greater quantities of their own production into the U.S. market. To accomplish this purpose their prices for crude oil or products need not be competitive. It would be necessary only for them to use their mammoth cash resources to purchase large quantities of auction tickets. U.S. refiners and marketers would then have no choice but to run their crude oil or buy their products, if domestic supplies were inadequate. Having established a short-term monopoly position such a crude-rich foreign government could demand extortionate prices on sales of its crude oil or products. It is also within the realm of realistic possibilities that a foreign power would bid in order to withhold large quantities of crude from the U.S. market, thus wreaking havoc upon the U.S. economy. The mere auction of an import license does not guarantee that it will be used. With ample cash to withhold supplies, the large exporting countries might indeed choose to apply this leverage to demand special concessions from our government to their political or military advantage.

Foreign powers could also greatly alter the composition of U.S. crude imports, and their geographical distribution. Would it not be possible that crude from friendly countries, such as Canada and Mexico, could be frozen out by oil rich nations? The risks inherent to import license auctions, opening this sensitive area of our economy to manipulation by foreign powers, far outweigh any advantages of such a system in terms of added revenues to the United States government or simplicity of administration.

Successful bids by foreign brokers offer a lesser risk to national security, but still present a serious threat to our balance of payments. Such brokers would presumably gamble upon reselling their quota won at auction at much higher prices, once a developing shortage has increased product prices measurably. Such resale would result in additional costs to the nation, and export of capital. The higher revenues would accrue to a foreign company—perhaps one completely unrelated to energy production—instead of to our national treasury.

2. INFLATIONARY IMPACT

Any import license auction system is inherently a means of permitting private industry or other bidders to establish the level of import duties or tariffs. Congress has repeatedly recognized the grave inflationary consequences of imposition of import duties in a period when there are inadequate domestic alternatives to high-cost foreign supplies. The auction system would necessarily result in import fees exceeding those already established by Presidential action and without any specific limits, leaving this crucial matter to the uncertainties of the market for licenses. This deficiency would be exacerbated by the inclusion of foreign governments serving their political interests, as well as brokers and other speculators among those eligible to bid. In net effect sums of enormous magnitude could be extracted from the domestic petroleum industry, depriving the industry of funds urgently needed for investment in crude oil exploration and development and related refining and transportation facilities as well as for research and development of alternative energy resources and thus compounding inflationary pressures.

3. DISRUPTION OF ORDERLY SUPPLIES AND TRANSPORTATION

The petroleum import transportation system, whether by water or over land, requires long-range planning. An import auction, by its short-term nature, would disrupt long-range transportation planning thereby substantially increasing transportation costs. A laid-up VLCC (supertanker) can cost \$4-\$5 million per month. Caribbean facilities with deep water are utilized for transshipping purposes. Such facilities are normally contracted for a number of years on a take-or-pay basis. The draft bill requires "frequent auctions during each calendar quarter . . . for small units" (see P. 11). These additional costs resulting from import auctions would be reflected in higher product prices to the consumer.

Ocean transportation costs vary among companies. Most of the majors control tankers on a long-term and thus low-cost basis. Therefore, the majors would be able to bid artificially high for import allocations because their overall laid-in cost basis would be lower than other companies.

It will be evident also that the concept of a license auction inherently conflicts with orderly planning of supplies. Only the very largest of the oil companies could enjoy even a modicum of assurance of bidding successfully for licenses adequate to cover their needs. Economical refinery and terminal operation as well as ocean and pipeline transportation depend upon a continuous flow of crude oil and products. An auction system would necessarily disrupt established flow patterns and inhibit long-range planning. Spot crude oil sales and spot tanker charters are generally made at much higher costs than are long-term arrangements. All these facts argue decidedly against auctions, which by their very nature are short-term arrangements.

4. INJURY TO INDEPENDENTS

The auction system would gravely prejudice independent refiners in contravention of the policy of Congress established in the Emergency Petroleum Allocation Act (EPAA) to preserve the competitive viability of such refiners. By common

industry understanding, recognized in the definition of independent refiners in the EPAA, such refiners are those in excess of 70% crude deficiency based on refining capacity. "Independent refiners," which provide the only effective competitive thrust in the oil industry, are defined in terms of deficiency in crude oil production, not size. This legislation would place independent refiners, unless their capacity was 50,000 b/d or less, into a bidding contest against the integrated major oil companies for import licenses. Owing to their lack of domestic crude oil production and the disinclination of major companies to sell domestic oil to them, the independents must rely disproportionately on imports for their crude oil supplies. Those refineries in the Upper Mid-West dependent on Canadian imports have no alternative sources. Integrated major companies control the bulk of domestic production, and are therefore less dependent on imports. The majors also enjoy relatively favorable terms of purchase of foreign supplies and still own enormous volumes of foreign production and reserves. They own or control the bulk of the world tanker fleet. Independent refiners cannot, therefore, compete effectively against the majors endowed with these special advantages in bidding for imports. Thus, the independents could be excluded from feasible access to foreign oil by preemptive bidding by the majors, endangering the economic viability of independent refiners.

5. OPINION OF COUNCIL

We attach an opinion of counsel for the use of the Committee in the hope that it will illuminate the issues of legislative and constitutional policy at stake in the auction scheme. Counsel are of the opinion that Section 112 of H.R. 6800 is inconsistent with existing law as established by the EPAA of 1973. On this issue they conclude that:

"In view of the strong federal policies underlying the Allocation Act, the detailed and all-encompassing program of allocation currently administered by FEA, the repeated refusals by Congress to accept plans of 'de-control', and the continuing competitive pressures on independent companies, it would be difficult for a court to conclude that Congress intended by Section 112 either to repeal the Allocation Act *sub silentio*, or amend it by implication. Enough has been said, however, to demonstrate that this question should be squarely met and resolved by the Congress rather than left to subsequent litigation in the courts."

Moreover, counsel are of the opinion that the auction scheme is subject to the constitutional doctrine that Congress may not delegate its legislative powers. They call attention to a Supreme Court decision striking down provisions analogous to Section 112 which were construed as legislative delegations to private persons. Counsel conclude that:

"From what has been said, however, there plainly are substantial reasons to believe that Section 112 may not pass constitutional muster. The Congress should closely review and consider this question. All would be the losers if the operation of urgently needed energy legislation were enjoined by a judicial ruling that Section 112 constitutes an unlawful delegation of Congressional power."

We respectfully urge that import license auction proposals be subjected to the most careful scrutiny as to their possible ramifications. We are confident that once their implications are fully exposed, Congress will reject such schemes as a means for allocating commodities as vital to the national security and welfare as petroleum and petroleum products.

As a substitute for any such auction scheme, we invite the Committee's favorable consideration to a substitute for Section 112 as follows:

"Before December 31, 1975, the President shall establish an import licensing system for petroleum and petroleum products. Import licenses under this section shall determine to be consistent with the provisions of the Emergency Petroleum Allocation Act of 1973, as amended. In no event, however, shall any fee or charge be made, whether established by bidding at public auctions or otherwise, for any such import license."

Respectfully submitted,

ROBERT E. YANCEY,
President,
Ashland Oil, Inc.

GINSBURG, FELDMAN AND BRESS,
Washington, D.C., July 7, 1975.

ARLOE W. MAYNE, Esq.,
Administrative Vice President and General Counsel,
Ashland Oil, Inc., Ashland, Ky.

DEAR MR. MAYNE: At your request, we have reviewed Title I, Sections 111 and 112 of H.R. 6860, as passed by the House of Representatives on June 19, 1975. These provisions would establish quantitative restrictions on the importation of crude oil and petroleum products and establish an import licensing system for petroleum importers. Under the licensing system, licenses for the importation of petroleum would be distributed through public auctions in which importers would participate by means of sealed bids.

Based upon our analysis of these provisions, we conclude that Section 112 is inconsistent with existing law as set forth in Section 4(a) of the Emergency Petroleum Allocation Act of 1973 ("Allocation Act"), Pub. L. No. 93-159, as amended, and presents a substantial question as to whether the section constitutes an impermissible delegation of legislative power.

I. THE PROPOSED AUCTION SYSTEM

As reported by the Ways and Means Committee,¹ H.R. 6860 proposed a three-tiered approach to reducing the quantity of petroleum imported into the United States. First, section 111 provided for a "quota" system quantitatively limiting the volume of imports to be permitted. Second, sections 151 and 152 authorized the President to establish "a common purchasing agent system" under which the United States Government would purchase all imported petroleum for resale to U.S. refiners and marketers. Third, section 112 provided for an "auction" system pursuant to which importers would compete for the reduced volume of foreign petroleum admitted into the United States under either the "quota" system or the common purchasing agent system.

During floor debate, the House struck from H.R. 6860 the proposed purchasing agent system.² As passed by the House on June 19, 1975, however, H.R. 6860 retains both the quota system and the import licensing system. Section 111 provides, in part, as follows:

PART I—QUOTAS

Sec. 111. Imposition of Quantitative Restrictions.

(a) *Quantitative Restrictions.* Except as otherwise provided in this section, the maximum average daily quantity of petroleum and petroleum products which may be imported into the United States shall be determined in accordance with the following table:

Maximum average daily number of barrels

Calendar year:	(in millions)
1975 -----	6.0
1976 -----	6.0
1977 -----	6.5
1978 -----	6.0
1979 -----	6.0
1980 and thereafter -----	6.5

Section 111 also authorizes the President to vary the above schedule upon a finding that it is in the "national interest" to do so; excludes from the quota limitations petroleum used as petrochemical feedstocks; directs the President to administer the quota system so as to avoid geographical or regional dislocations; and makes provisions for additional imports of distillate and residual fuel oil.

Section 112(a) provides that:

Sec. 112. Establishment of Import Licensing System.

(a) *In General.* Before December 31, 1975, the President shall establish an import licensing system for petroleum and petroleum products which are im-

¹ The committee bill is printed at *Cong. Rec.*, H. 5212, June 10, 1975.

² *Ibid.*, H. 5229, June 10, 1975.

ported into the United States. Import licenses issued under this subsection shall be distributed on the basis of public auctions in which bidding is by sealed bids, and such licenses shall be fully marketable.

Section 112(b) provides for "a separate licensing system" for small refiners and independent marketers.³ Under this system, eligible refiners and marketers would compete for licenses on the basis of sealed bids. The licenses purchased at these auctions, in contrast to the auction provided in section 112(a), would not be marketable.

Section 112(c) directs FEA to administer the licensing systems and to issue regulations which will enable FEA:

"(a) to schedule frequent auctions during each calendar quarter; (b) to require that the bidding be for small units, but to permit persons to bid for a number of units; (c) to establish a maximum limit on the number of units which may be acquired by related persons during any period; (d) to establish a time limit on the period during which the rights under any import license may be exercised; (e) to reject bids (i) where there is evidence of collusion as to the bidding or as to failure to bid, or (ii) where such bids are substantially below the market price which exists for the resale of import licenses; (f) to deal with identical high bids for any unit by rejecting all bids, by awarding the unit to the high bidder who has acquired fewer units during a specified period than any other high bidder, or otherwise; and (g) to bar from acquiring or using import licenses issued pursuant to subsection (a) or (b) persons convicted or committing any felony or misdemeanor under the laws of the United States governing oil imports, oil allocations, or price controls on oil, and to provide procedures for removing such bar in appropriate cases."

II. SECTION 112 IS INCONSISTENT WITH EXISTING LAW UNDER THE EMERGENCY PETROLEUM ALLOCATION ACT OF 1973

The Report accompanying H.R. 6860 states that the ". . . use of the auction system is the bridge which connects the quota system to a free market system."⁴ This statement candidly reveals that the purpose of H.R. 6860 is effectively to "de-control" imported petroleum, and "exempt" it from the allocation regulations currently administered by the FEA under its mandatory allocation program. In so doing, H.R. 6860 conflicts with the Allocation Act without purporting to amend that statute.

Section 4(a) of the Allocation Act imposes a mandatory duty upon the President to allocate ". . . all crude oil, residual fuel oil, and refined petroleum products produced in or imported into the United States." (emphasis supplied)⁵ The President may not legally withdraw crude oil or products from allocation without submitting a plan to the Congress under Section 4(g)(2) of the Allocation Act, based upon a finding that the designated form of petroleum no longer is in short supply. Either the House or Senate may reject the plan by a majority vote.

Pursuant to Section 4(a), FEA has implemented an elaborate system of allocation controls pursuant to regulations published at 10 C.F.R., Part 211, Section 211 *et seq.* These include the refiner "buy/sell" program under section 211.65; the "December 1 rule" as to existing supply contracts under section 211.63; and the old oil allocation program under section 211.67. Currently, these programs, and others, comprise the mandatory allocation program which controls the allocation of petroleum imported into the United States.

H.R. 6860 does not purport to amend the Allocation Act in any way. Nevertheless, the operation of section 112 would impose upon the President an inconsistent, mandatory obligation to de-allocate imported oil, and permit it to be distributed by means of the "free market." Section 112 would thus substitute market power for the "equitable allocation" of short supplies required by the Allocation Act.⁶

Section 112 is also inconsistent with the federal policy established in the Allocation Act to preserve competition in the oil industry and protect the com-

³ Section 112(b)(2)(A) defines a "small refiner" to mean a refiner whose daily refining capacity does not exceed 50,000 barrels per day; Section 112(b)(2)(B) defines an "independent marketer" as a person engaged in the marketing or distribution of refined products but who is not a refiner, or controlled by or affiliated with a refiner.

⁴ Report No. 94-221, 94th Cong., 1st Sess., May 15, 1975, p.

⁵ That Congress intended to impose a mandatory obligation upon the President to allocate domestic and foreign petroleum fully is set forth in the Conference Report accompanying the Allocation Act (Report No. 93-628, p. 18).

⁶ Conf. Rept. No. 93-628, 11/10/73, p. 14.

petitive viability of small and independent refiners.¹ While section 112 calls for a market mechanism, Congress in passage of the Allocation Act expressly found that the "free market" did not operate effectively because of the economic power of the major companies and their control of scarce supplies.² Congress determined that it is essential to protect small and independent refiners³ by assuring them access to supplies which they neither own nor control.

The Allocation Act establishes as a priority goal the maintenance of a strong independent sector. Under the Act, Congress mandated creation of a federal program that would both protect independent refiners and foster their growth. It believed that the independents performed an essential role in the preservation of competition in the market place. Absent such policy, the market power of major integrated companies would increase. Nonetheless, Section 112, if enacted, would establish a second federal policy wholly at odds with that set forth in the Allocation Act, for rather than fostering competition by preservation of independent refiners, it would place substantial additional power in the hands of major integrated companies.

The courts have frequently been required to decide issues arising from inconsistent statutory provisions. In an early case, *Hudson Motor Car Co. v. Hertz*, 121 F.2d 326 (4th Cir. 1941), the Court noted the general rule that ". . . repeals [or prior enactments] by implication are not favored in the law . . ." and quoted with approval from *Western Assurance Co. v. Stone*, 145 Va. 776, 134 S.E. 710, 713 as follows:

"Whether or not a later act shall be construed to repeal an earlier one on the same subject is a question of legislative intent to be gathered from a comparison of the two acts, the language used in the later act and the facts and circumstances surrounding its enactment. General rules of interpretation are helpful, but no hard and fast rule can be laid down on the subject."

Beyond these generalities, the rule is established that general provisions of a subsequent statute will not be permitted to prevail over specific terms in a prior enactment, *Ginsberg & Sons. v. Popkin*, 285 U.S. 204, 208; *Maitico v. United States*, 302 F.2d 880 (CA DC, 1962), and that courts will look for construction which would permit both statutory provisions to stand whenever possible. *F.P.C. v. Panhandle Eastern Pipe Line Co.*, 337 U.S. 498.

In view of the strong federal policies underlying the Allocation Act, the detailed and all-encompassing program of allocation currently administered by FEA, the repeated refusals by Congress to accept plans of "de-control," and the continuing competitive pressures on independent companies, it would be difficult for a court to conclude that Congress intended by section 112 either to repeal the Allocation Act *sub silentio*, or amend it by implication. Enough has been said, however, to demonstrate that this question should be squarely met and resolved by the Congress rather than left to subsequent litigation in the courts.

III. SECTION 112 OF H.R. 6860 AS AN IMPERMISSIBLE DELEGATION OF LEGISLATIVE POWER

Under the import licensing system proposed in section 112, the Government would "auction" licenses to import petroleum to the highest bidders. It is important to note that the successful bidders would purchase only bare "licenses" issued by the Government; the petroleum itself would be purchased by the bidders directly from the foreign owners. These facts serve to identify the licenses exclusively as a form of "tax" or "tariff," and distinguish the auctions

¹ Section 4(b) (D) of the Allocation Act declares as fundamental to federal energy policy the ". . . preservation of an economically sound and competitive petroleum industry; including the priority needs to restore and foster competition in the producing, refining, distribution, marketing, and petrochemical sectors of such industry, and to preserve the competitive viability of independent refiners, small refiners, nonbranded independent marketers, and branded independent marketers."

² Conf. Rept., p. 11.

³ The term "small refiner" means a refiner whose total refinery capacity (including the refinery capacity of any person who controls, is controlled by, or is under common control with such refiner) does not exceed 175,000 barrels per day. [Section 3(4).]

The term "independent refiner" means a refiner who (A) obtained, directly or indirectly, in the calendar quarter which ended immediately prior to the date of enactment of this Act, more than 70 per centum of his refinery input of domestic crude oil (or 70 per centum of his refinery input of domestic and imported crude oil) from producers who do not control, are not controlled by, and are not under common control with, such refiner, and (B) marketed or distributed in such quarter and continues to market or distribute a substantial volume of gasoline refined by him through branded independent marketers or nonbranded independent marketers. [Section 3(3).]

contemplated under section 112 from other forms of auctions in which the Government sells its own property.¹⁰

The plenary power of Congress to impose taxes arises under Article I, Section 8, Clause 1 of the Constitution. Import duties or fees constitute a form of taxation. *Welton v. Missouri*, 91 U.S. 275, 278 (1876); *Brown v. Maryland*, 12 Wheat. 425, 444 (1827). As such, legislation imposing fees on the importation of products is subject to the constitutional doctrine that Congress may not delegate its legislative powers.¹¹

Section 112(a) provides, in essence, that bidders for federal licenses to import oil shall determine for themselves (by the amount of their bids) the extent of the fee that will be imposed upon them. Section 112 is totally devoid of standards or criteria for determining the price of the license; the only price mechanism provided is sealed bids.¹²

In closely analogous cases, the Supreme Court has struck down statutes purporting to permit a regulated class to determine the extent of their own regulation. In the early 1930's under the National Industrial Recovery Act ("NRA"), Congress sought to ameliorate the economic dislocations resulting from a severe depression. It authorized the President to approve codes of fair competition for different industries and regions, to be drafted and submitted by industry and trade associations. In *A.L.A. Schechter Poultry Corporation v. United States*, 295 U.S. 495 (1935) the Court determined the NRA to be an unconstitutional delegation of legislative power. Its essential vice, the Court held, was that neither Congress nor an agency of Congress retained the power to determine the extent or character of the regulation.

In *Carter v. Carter Coal Co.*, 298 U.S. 238 (1936), the Court rejected another attempt by Congress to establish a flexible scheme of regulation to facilitate an economic recovery. The Bituminous Coal Conservation Act of 1935 authorized the establishment of certain codes as industry standards. One of the terms included in each code was a minimum wage, which was set at a wage established in collective bargaining engaged in by producers of two-thirds of the tonnage produced in that district. In declaring the statute invalid, the Court held that "the power conferred upon the majority is, in effect, the power to regulate the affairs of an unwilling minority. This is legislative delegation in its most obnoxious form; for it is not even delegation to an official or an official body, presumptively disinterested, but to private persons whose interests may be and often are adverse to the interests of others in the same business." *Id.* at 311, 373.

Section 112 of H.R. 6860 would similarly permit the major, integrated oil companies to define the economies of the oil industry—to the prejudice of an unwilling and unprotected "minority." With their vast resources and international operation, major companies could manipulate the proposed auctions for their own benefit. Not only could they "shape" the industry through selective bids for import licenses, but their power to choose the timing and price of licenses would prevent other oil companies from obtaining assured sources of

¹⁰ The United States, for example, through the Department of Interior, "auctions" oil and gas leases to operate off-shore fields under the Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1331, 1337. The power to engage in such auctions as these derives from the Government's inherent power to sell or dispose of its own property. *Ashwander v. TVA*, 297 U.S. 288 (1936).

The architects of H.R. 6860 very likely intended the "common purchasing agent" provisions in sections 151 and 152 to make the import licensing system analogous to auctions of off-shore leases; with the Government purchasing imported oil in the first instance, subsequent auctions of that oil would indeed have been of Government property. When the House struck out the purchasing agent provision, however, it exposed the licensing system to be no more than a tariff on imports.

¹¹ A full discussion of the doctrine of "nondelegability" is beyond the scope of this paper. For present purposes, it is sufficient to note that while Congress has broad power to legislate the "outlines" of a program, leaving the "details" to be filled in by administrative agencies, (*Wayman v. Southard*, 10 Wheat. 1, 42 (1825)), Congress may not delegate to an agency the power to determine federal policy (*Sunshine Coal Co. v. Adkins*, 310 U.S. 381 (1940)) or delegate to individuals the power to determine the extent of their own regulation (*Carter v. Carter Coal Co.*, 298 U.S. 238 (1936)).

¹² As set forth at page 3 above, section 112(c) does propose to include some semblance of due process in the manner in which the auctions are to be conducted. FEA is directed to conduct "frequent" auctions, and adopt rules against "collusive bidding," etc. Nevertheless, "... procedural safeguards cannot validate an unconstitutional delegation." *United States v. Rock Royal Co-op.*, 307 U.S. 533, 576 (1939). The basic defect in section 112 stems not merely from a lack of procedural "fairness" in the auction, but from the delegation to private individuals of the power to determine whether the license fee shall be \$.01 or \$1.00. Given the present form of auction proposed in section 112, there is no way that administrative rules adopted in the implementation of section 112 could rectify the improper delegation.

supply." This form of control of an entire industry by "private persons whose interests . . . are adverse to the interests of others . . ." would be strikingly similar to the delegation of authority the Court rejected in the *Schechter* case.

Additional analysis would be needed before a firm conclusion could be drawn as to the likely result of a court test involving section 112. From what has been said, however, there plainly are substantial reasons to believe that section 112 may not pass constitutional muster. The Congress should closely review and consider this question. All would be the losers if the operation of urgently needed energy legislation were enjoined by a judicial ruling that section 112 constitutes an unlawful delegation of Congressional power.

Sincerely,

GINSBURG, FELDMAN & BRESS.

STATEMENT OF CLARK OIL & REFINING CORP., SUBMITTED BY JEFFREY A. FRITZLEN,
WASHINGTON COUNSEL

Re Section 112 of H.R. 6860.

Clark Oil & Refining Corporation is opposed to an import license auction system as contained in H.R. 6860. Clark agrees that an import quota, as opposed to fees or tariffs, is the proper approach to limit American dependence on foreign sources and to conserve domestic sources of energy. It is Clark's position that there are alternatives available to Congress and to the Administration which have a minimal impact on inflation and on the ability of the independent refiner to compete in the energy market.

Clark Oil is an independent refiner and marketer with retail outlets in thirteen midwestern states. Clark owns and operates two refineries in Illinois with a present capacity of 108,000 barrels per day. In 1972 Clark undertook an expansion program at the Wood River refinery which when completed will result in capacity of approximately 154,000 barrels per day. Although the company in recent years has been expanding activity in the exploration and producing areas, the company is dependent upon purchasing approximately 98% of its crude oil requirements. Since 1970 this has resulted in Clark importing a major portion of the crude oil run in its refineries. Therefore, Clark is dependent on purchasing crude from exporting countries at a price that enables it to pass through transportation and refining costs and still sell at competitive prices.

Clark does not believe that the proposed auction system lends itself to the continued economic viability of the independent sector for the following reasons.

1. An independent refiner is commonly understood to be one which obtains more than 70% of its crude oil from non-company controlled sources. In recent years with declining domestic production the independent has had to import a proportionately greater percentage of its noncontrolled crude in order to maintain refinery runs at a level which would supply its customer's product needs. Major integrated companies with a larger domestic production base will be less reliant on foreign sources and will have less than the national average of refinery input made up of higher priced foreign crude. An auction program would, therefore, fall disproportionately on the independent sector with the auction price resulting in higher average crude costs for the independent and higher product costs to his customers.

2. A corollary to the first argument is that an auction program does not take into account any competitive or geographic equities and would allow a few companies with a diverse financial base to control the auction price. It is evident that if a company is less dependent on imported oil it can bid up the price of an auction ticket without substantially increasing its total average crude cost. An independent will most probably have to meet or outbid that company to insure adequate crude to operate its refineries and will, therefore, incur higher average crude costs which will affect its ability to compete in the market. If the independent declines to bid, or is unsuccessful, it will have to curtail or shutdown refinery capacity which will result in eventual financial disaster for the refiner and the removal of a competitive entity in the industry.

3. Each refiner must make long range contracts insofar as crude oil is concerned since each refinery has a different operating tolerance for heavy metals, sulfur, and gravity specifications of crude oil. Arrangements must be made

¹³ A detailed statement of the adverse impact of "free market" bidding for import licenses upon independent oil companies is contained in the written statement of Ashland Oil Inc., to which this paper is appended.

months in advance to insure that each refinery has the proper blend of crude to operate efficiently. For that reason many independents, including Clark, have entered into long term contracts with off-shore sources to insure an adequate supply of prime crude. Most of these contracts contain performance bonds which would be forfeited if a company failed to bid successfully in any auction period.

4. An auction system does nothing to decrease domestic reliance on foreign crude. In fact, the auction system could induce OPEC countries to further raise the price of their oil because the auction value of an import license would indicate the amount that U.S. companies are willing to pay to import OPEC oil over and above the then current price.

5. An auction system will result in the auction price being added to crude costs in order to determine a product selling cost. The only effect then is inflationary, in effect, upon the consumer and will result in a further diversion of capital from domestic exploration and production. As stated earlier increased costs to the independent refiner and marketer may result in noncompetitive prices and may result in his removal as a competitive factor in the marketplace.

6. An auction system will disrupt the transportation system since most tanker and transshipping terminal contracts are long-term and the auction system will be on a short-term periodic basis. If a refiner enters into a long term contract and fails to successfully bid, the financial burden of carrying these contracts will be disastrous. If a refiner does not negotiate a contract prior to a successful bid, it is probable that he will not be able to bring that oil ashore during the current auction period. Again, transportation problems of this type fall disproportionately upon the independent sector since the majors own or control the bulk of the world's tanker fleet.

7. Foreign sources will be reluctant to contract with American companies when they realize that a company, especially an independent, must successfully bid at auction before it will be able to take that country's oil. It would appear that only the companies with foreign oil equity or favorable purchase terms could afford the uncertainties of an auction process. Those companies are almost exclusively major integrated companies who will be able to offload and refine foreign crude at foreign facilities.

The operational disadvantages and the inflationary costs of an auction system are not necessary. Alternatives exist which will result in reduced or controlled consumption and will reduce this country's reliance on foreign sources of energy. The first step, as provided in the bill, is to schedule an imported oil quantitative restriction schedule. That constraint plus domestic crude oil production can be a basis for a national refinery runs to capacity ratio. The ratio would provide a basis for each company's import allowance after contracts for domestic production are executed and certified to the Federal Energy Administration. All refiners, including "small independent refiners" would be subject to the same ratios. The advantages are controlled consumption, maintenance of competition in the refining industry, and lower prices within a recovering economy. We are attaching a potential amendment for your consideration.

CLARK OIL & REFINING CORP.

GEORGE W. JANDACEK, *President.*

by JEFFREY A. FRITZLEN, *Washington Counsel.*

1. Strike section 112 in its entirety.
2. Substitute therefore:

Sec. 112. Establishment of import licensing system

(a) *In general.*—Before December 31, 1975, the President shall establish an import licensing system for petroleum and petroleum products which are imported into the United States. Import licenses issued under this subsection shall be distributed on the basis of such allocation program as the President shall determine to be consistent with the provisions of the Emergency Petroleum Allocation Act of 1973, as amended, and with the provisions of this section. In no event shall any fee or charge be made, whether established by bidding at public auctions or otherwise, for any such import license. Any such licenses issued shall be fully marketable.

(b) *Procedures for licensing system.*—

(1) *In general.*—The Administration of the Federal Energy Administration shall establish procedures for the administration of this section through the promulgation of regulations. The Administrator is specifically directed to peri-

odically develop regulations providing for the establishment of a consumption schedule which recognizes the total availability of petroleum and petroleum products, domestic refining capacity, conservation measures, and the import quantitative restrictions contained in Section 111.

(2) *Regulations for subsection (a).*—The regulations promulgated under this section with respect to subsection (a) shall include provisions authorizing the Deputy Administrator for Petroleum Import Licensing and Purchasing—

(A) To establish periodic refinery runs to capacity ratios necessary to meet the consumption schedule established under this subsection;

(B) To establish allowable import quotas of petroleum and petroleum products which when added to domestic production equal the amount of capacity in barrels represented by the refinery runs to capacity ratio;

(C) To issue licenses to applicants based on an applicant's historical dependence on imported petroleum and on its available domestic supplies;

(D) To issue licenses to each applicant to equalize as much as possible the percentage of operable capacity utilized in each refiner's facilities;

(3) *Refinery runs to capacity ratio defined.*—For purposes of this section "refinery runs to capacity ratio" means the fractional percentage represented by dividing the amount of domestic refining capacity required to supply the consumption schedule as established by the Administrator by a number representing the total certified operating capacity of domestic refineries.

(C) *President may require user of import licenses to report country of origin.*—If the President finds such action to be necessary or appropriate to the States under an import license issued pursuant to this section importing petroleum or a petroleum product into the United States under an entitlement issued pursuant to this section to report to the Deputy Administrator for Petroleum Import Licensing the foreign country of which such petroleum or petroleum product is a product.

SUBMISSION OF HERSCHEL CUTLER, EXECUTIVE DIRECTOR, INSTITUTE OF SCRAP IRON AND STEEL, INC.

This statement is submitted on behalf of the Institute of Scrap Iron and Steel, Inc. (ISIS), a national trade association representing more than 1,380 processors, brokers and dealers in the metallic scrap processing industry, and industry suppliers. Institute members process, ship or otherwise handle approximately 90% to 95% of the iron and steel scrap purchased in the United States and handle equally impressive percentages of the many other metallic solid wastes which are recycled in our economy.

The use of recyclable materials, among other contributions, conserves scarce national resources, including energy; reduces unsightly concentrations of solid waste; and decreases the dependence of the United States on foreign resources.

In fact, the use of scrap iron and steel instead of virgin iron ore in the steel-making process results in very significant energy conservation and environmental protection. For example, the manufacture of 1,000 tons of steel from scrap iron rather than iron ore achieves a 74% savings in energy (per 1,000 tons of steel, the saving is equal to 50,000 gallons of gasoline), an 86% reduction in air pollution effluents and a 76% decline in water pollution.

At present, however, the tax laws of the United States encourage the use of virgin ore in the manufacture of iron and steel and consequently discourage conservation of energy and protection of the environment which follow naturally from the use of recyclable scrap iron and steel.

The inequitable tax treatment of purchasers of scrap iron and steel arises from the fact that the use of virgin materials carries with it the benefit of a percentage depletion allowance, while the purchase of scrap does not. A purchaser of virgin material is entitled to either a cost or a percentage depletion deduction, whichever is greater. To the extent that the cost of virgin material is reduced by the excess of percentage depletion over cost depletion, a tax advantage accrues to the purchaser of virgin material. Consequently, all things being equal, the purchase of virgin material which benefits from percentage depletion is more attractive than the purchase of recyclable material which, in essence, carries only cost depletion. Thus, the preferential tax treatment afforded purchasers of virgin materials encourages the consumption of energy.

I. PROPOSED AMENDMENT OF H.R. 6860

ISIS understands that Senator Gravel will introduce an amendment to H.R. 6860 which will provide for a tax credit for the purchase of recyclables, the major one of which is scrap iron and steel. ISIS understands the tax credit will be computed as follows:

1. For consumers of recyclables, a tax credit of ten percent of one third of base period purchases¹ of recyclables will be allowed. The base period is defined, for consumers of recyclables now in existence, as 1975; for consumers not now in existence, as the year in which their consumption of recyclables begins.

2. The tax credit would continue from 1975 to 1984, but would be changed at a prior date if the depletion allowance on the competitive virgin material is changed.

ISIS understands that the tax credit may be taken even if no investment is made in recycling facilities. The version of H.R. 6860 reported by the House Ways and Means Committee required such an investment as a condition of taking the tax credit. ISIS believes that an explicit reinvestment requirement is preferable. However, it is apparent that in order for the taxpayer to gain the full benefit of the proposed tax credit, further investment in scrap based facilities should be forthcoming. Moreover, the simplicity of the proposed method of calculating the tax credit will ease the administrative burden of monitoring the use of the credit which would be necessary were the Ways and Means version of the credit to be adopted.

The proposal is designed (a) to stimulate increased consumption of recyclable materials and (b) to insure that, in addition to the energy savings achieved by equalizing the tax treatment of virgin and recyclable materials, any such tax benefit should be channelled into increased recyclable commodity use. The reinvestment premise will assist some of the nation's basic industries to acquire the enormous amounts of capital needed to modernize and expand productive capacity. The limitations contained in the proposal are designed to reduce the revenue impact of this proposal to acceptable levels.

Furthermore, it should be recalled that the depletion deduction, which was designed to encourage exploration for and development of raw materials, led to the present intensive dependence upon virgin materials in the affected basic industries. The proposed tax credit for expanded consumption of recyclables is designed to create a similar incentive for the intensive use of recyclables by those same basic industries.

II. RAPID WRITE-OFF PROVISION

Sec. 421 of H.R. 6860 provides for a rapid write-off, over a period of sixty months, of "qualified waste equipment", which includes equipment "used to sort and prepare solid waste for recycling or used for recycling solid waste."

ISIS does not believe that incentives are necessary to promote the acquisition of recycling equipment, since such existing equipment is now grossly underutilized. Rather, ISIS believes that the object of incentives included in tax legislation designed to conserve energy and other limited resources should be to promote increased demand for recyclable materials—to expand consumption of recyclables which is limited rather than the purchase of more processing equipment which is, at present, seriously underutilized.

ISIS believes that the energy tax legislation before the Committee should be drafted to promote the consumption of recyclable materials by providing for tax neutrality in the treatment of virgin and recyclable materials. To that end, ISIS believes, the purchaser—rather than the seller—of recyclable materials should receive the benefit of any tax incentive provided. Yet the provision in H.R. 6860 which would allow a rapid write-off for the purchase of new equipment used to sort and prepare solid waste benefits the seller of recyclable materials rather than the purchaser. This emphasis of H.R. 6860 is, therefore, ISIS believes, misplaced, since it does not promote consumption of recyclables, but merely increases the production potential.

¹ ISIS understands that the amendment would not permit a tax credit for home scrap, a by-product occurring in the manufacturing (e.g., steelmaking) process, which will be reused generally in preference to other recyclable materials since recycling would not be increased by such use of home scrap.

III. CONCLUSION

Although ISIS believes that an offsetting deduction (equal to the specific difference between percentage and cost depletion on each virgin material) would be the preferred method of persuading consumers to buy recyclable rather than virgin materials, ISIS nevertheless acknowledges that a recycling tax credit would be an acceptable, though less exact, method of expanding the use of recyclable materials by changing the tax impacts on virgin materials and recyclables. ISIS also wishes to point out again that it is *not* the scrap processor who will receive the benefit of either of these incentives, but the purchaser of recyclable materials—that is, with regard to recyclable scrap iron and steel, the nation's steel and foundry industries. The benefit which will flow to the economy is the long run expansion of the market for the additional metallic scrap collected and recycled which will promote energy conservation and many other environmental benefits and provide a positive assist to the iron and steel industry which is reported to require, before 1983, between \$48 and \$50 billion of capital investment (without consideration of the needs of the foundries), of which as much as 25% or more is needed for pollution control facilities and 30% or more for plant expansion. Since it is the steel and foundry industries which would see the benefit of the credit granted for the purchase of recyclable iron and steel scrap, a segment of this large capital requirement would be met by the introduction of such a credit. ISIS therefore urges the Committee to fashion the legislation before it to include an appropriate incentive for the purchase of recyclable material.

SYNOPSIS OF AN EQUITABLE SYSTEM OF FEDERAL/STATE TAXATION

BY C. P. BURMAN

In the cacophony which surrounds our tax muddle, here is yet one more attempt to bring order out of chaos. The Special Interests and the Vested Interests, be they Republicans or Democrats, Capital or Labor, Conservatives or Liberals, Rich or Poor, all have a stake in a fair system of taxation.

The system proposed here has something for everyone; not because this is an attempt to please everyone, but rather because this system does not provide largess for one sector of society at the expense of another. It has been said that the power to tax is the power to destroy. We are seeing already the destruction of our economy largely because of a hodgepodge—patch quilt system of taxation. What's wrong with it? Plenty! Here are six basic faults: 1) The high cost of administering tax laws. 2) The high cost of determining tax compliance. 3) The taxing away of previously gotten personal and real property of people who have no income. 4) Discouragement of industrious and productive people. 5) Complex tax systems such as ours provide loopholes which create unequal tax treatment. 6) Discouragement of thrift, self reliance and self respect.

Here are six objectives of this tax system: 1) Reduction of the cost of administering and complying with tax laws. 2) Release of tax assessors and collectors et al to the private sector of the economy for productive effort. 3) Preserve the acquired wealth of persons without income so that they do not become tax burdens as a result of unjust taxes. 4) Give incentive to constructive people to reap the rewards of their efforts because they improve the well being of our society. 5) Provide a deflationary force to counter inflation. 6) Minimize tax loopholes to make taxes fair for all.

To accomplish these objectives, this tax system, 1) Establishes a flat rate income tax on all personal income except corporate dividends, insurance proceeds and tax free bonds. This tax rate is not to exceed 20%. 2) Establishes a flat rate income tax on corporation profits not to exceed 50%. 3) Eliminates all general sales taxes and all property taxes including inventory and estate taxes. Excise taxes are to be eliminated except those applying to liquor, tobacco, narcotic medicine and certain sports and entertainment which attract the underworld. 4) Gasoline "taxes" etc. are not taxes, but rather service charges which should remain the same. Business licenses, educational tuition should not change much. 5) Depletion allowances and capital gains treatment are a tacit admission of the confiscatory nature of the sliding scale income tax. These would not be necessary with a flat rate income tax. 6) No new spending programs are to be enacted if they require revenues in excess of those obtained by the 20% and 50% tax limit. War and natural catastrophe excepted. 7) State income tax departments

are to collect all income taxes with 50% given to the Federal Government and 50% retained by the state to be distributed in proportion to the tax yield.

This tax system is deflationary for four reasons: 1) It eliminates all sales and most excise taxes. 2) It eliminates all property taxes. 3) It limits government spending to 20% and 50% of income as explained earlier. 4) It provides incentive to manufacture more goods thus balancing supply and demand. With the elimination of property and sales taxes, the prices of goods and services would drop. This in turn would increase the number of buyers which in turn would increase employment which in turn would reduce welfare which would decrease taxes which would increase thrift, investment, purchasing power . . . etc.

Our present tax system penalizes the little guy. FORTUNE Magazine for December 1972 featured an article by Richard Armstrong which shows that the man with an income less than \$2,000 pays nearly 50% in total taxes. This is due largely to sales taxes and property taxes. A man has to be in the \$50,000 income bracket before he again pays that high a tax rate. Obviously then, the elimination of sales and property taxes to be replaced by a flat rate income tax of 20% for everyone would be a good beginning to eliminate this kind of inequity.

AN EQUITABLE SYSTEM OF FEDERAL/STATE TAXATION

(By C. P. Burman)

[Revised September 1973]

The six basic faults with our present tax system are these:

1. The high cost of administering tax laws. This results from duplication of effort by taxing bodies. Federal and state (and sometimes city) income tax agents are duplicating each other's efforts. Sales tax and property tax personnel while not directly duplicating, are collecting taxes which could be gotten from an equitable income tax.

2. The high cost of determining tax compliance. This is the result of tax complexity. The rapid growth of tax return preparing agencies and consultants proves this.

3. The taxing away of previously gotten personal and real property of people who have no income. This tends to, and in some cases puts them on welfare thus increasing the tax burden.

4. Discouragement of industrious and productive people. This is the result of sliding scale income tax and an increase in real property tax of those who improve their property.

5. Discouragement of thrift, self reliance and self respect. Our country did not become great by socialist philosophy but rather by personal accomplishment.

6. Complex tax systems such as ours inadvertently provide loopholes which create unequal tax treatment.

The six objectives of this proposal for a just and equitable tax structure are:

1. Reduction of the cost of administering and complying with tax laws.

2. Release of tax assessors and collectors et al to the private sector of the economy for productive effort. Government tax personnel do not create wealth. They can only give what they have taken from someone else.

3. Preserve the acquired wealth of persons without income so that they do not become tax burdens (welfare recipients) as a result of unjust taxes.

4. Give incentive to constructive people to reap the rewards of their efforts because they improve the well being of our society.

5. Provide a deflationary force to counter inflation.

6. Minimize tax loopholes to further make taxes fair for everyone.

To accomplish these objectives, the basic tax proposal is:

1. Establish a flat rate income tax on all personal income except corporate dividends, insurance proceeds and tax free bonds (latter to be phased out). This tax rate is not to exceed 20% after federal and state tax laws have become uniform.

2. Establish a flat rate income tax on corporation profits not to exceed 50%, but modify tax computation by such factors as cash flow, book value, funded debt and number of stockholders. Dividends to stockholders are not to be taxed. Again, the 50% tax figure could not be attained until state and federal tax laws had become uniform. Note: General partnerships should have a tax rate of 20%+.5% increase for every partner and limited partnerships 20%+1% increase for every partner up to a max of 50% for each.

3. Out-of-state corporations, partnerships and proprietorships having in-state plants whose products are sold out of state are to be taxed on a proportional basis of profit produced as a result of processing in in-state plants.

4. Elimination of general sales tax and *all* property taxes including inventory and estate taxes. Luxury taxes and excise taxes are to be eliminated unless they come under item 6 which follows.

5. Gasoline taxes etc. are not taxes but rather service charges to defray the cost of conveniences not easily handled by private effort and which are used by only a sector of society. These are to remain about the same.

6. Tobacco, liquor, narcotic medicine and certain sports and entertainment which attract the underworld are to be taxed to the extent of defraying the costs of their surveillance, supervision and damage which they do to our society. The tax is to be collected at the point of sale.

7. Service charges for higher education, business licenses etc. are to continue without much change.

8. Depletion allowances, gift and inheritance taxes, farm subsidies and the welfare octopus need much study to bring them in line with the philosophy of this proposal. Depletion allowances are a tacit admission of our present unjust tax structure.

9. To eliminate duplicate taxing bodies as they presently exist, the state should pre-empt most of the taxing functions with distribution of funds to cities and counties based on an equitable formula written into *law* with control of funds by local governing bodies. Ultimately, each state is to be the collector of all taxes with the following distribution:

50% for the federal government

50% for state government

The state portion distributed as follows:

50% for state activities

50% for counties and cities

(These could be flexible depending on individual state and community needs.)

This would also curtail the concentration of power in the federal government, and make it more sensitive to the needs and wishes of the states. The power to tax is the power to destroy.

10. Bartering as a tax dodge would diminish when taxes are fair. The cumbersome of bartering is only profitable when taxes are exorbitant or a special situation exists. Bartering could be taxed on the basis of a change in net worth not accounted for by direct sales of goods or services, private or corporate. This, however, would be an invasion of privacy if a net worth statement were required on an income tax return of an individual. This must be avoided.

11. The capital gains and losses concept is to be reduced or eliminated to make it consistent with the spirit of this proposal. Much of its present appeal is due to the confiscatory nature of present sliding scale income tax rates.

12. Nonprofit corporations and especially the "foundations" are another evidence of unjust tax structures. Under this proposed tax system these "gimmicks" would gradually disappear from the scene. Wealthy philanthropists could do some honest soul searching on the effectiveness and motives of their giving if they were not simply setting up a tax dodge or maneuvering for indirect control of their profits. This is not to impugn the motives of the majority of these foundations, however the abuses which are surfacing in some of these foundations would diminish under a fair tax system.

13. The subject of personal deductions in computing the tax must be carefully studied. Because of sales and property taxes, lowest income groups are carrying more than their share of the tax burden, but when these taxes are eliminated then some types of personal deductions should be eliminated so that everyone pays their fair share of income tax.

14. No new spending programs are to be enacted if they require revenues in excess of that obtained by the 20% and 50% tax rate on individuals and corporations respectively. War and natural catastrophe excepted.

Comments

Corporate taxes should be higher for three reasons:

1. The corporation exists by the grace of government and therefore requires government supervision.

2. The corporation has limited liability and cannot be sued for more than its net assets.

3. The corporation has financial power in the market not generally available to the individual.

However, the distributed profits of corporations paid to owners should not be taxed again. Holding companies, subsidiaries and wholly owned corporations would require special ruling to prevent tax dodges and inequities.

If it is true that there should be no taxation without representation, then it is also true that there should be no representation without taxation. "Whoever pays the piper calls the tune". These statements can give a self serving politician cold chills if he is depending on his constituency returning him to office on the basis of the largess he votes for. When the payment of income tax is a voting eligibility requirement, the quality of public office holders and their performance will improve. Welfare recipients are to be automatically ineligible to vote.

Addenda

1. Comments received indicate a concern about corporate tax structure. Apparently some ill-advised persons have suggested tax on gross income of corporations. That is not the intent of this tax plan. Rather, income tax would be 50% of net profit. That is, all legitimate costs of doing business: material, labor, sales, accounting, advertising, bond interest, depreciation, etc. would be similar to existing deductions in order to arrive at net profit. In reconciling depletion allowances and depreciation, much more study will be required to arrive at an equitable solution.

2. In addition to the advantages already stated, there are three interdependent advantages resulting from this tax system; namely, deflationary resistance to inflation, full employment and the preservation of the value of accumulated wealth. They are best discussed in relation to the effects of present taxes on the cost of doing business. Property taxes are costs that increase the prices of goods and services. The same is true of sales taxes. These taxes then, raising the prices of goods and services consequently reduce the size of their markets. Fewer people buy the products and services and thus reduce the number of people employed to supply the demand.

3. At this point a word must be said about the Value Added Tax (VAT) which is being discussed. It has the same effect as property and sales taxes except that it is even worse. In addition to being a larger market depressant, it also has the effect of a sliding scale income tax in reverse: that is, the higher the personal income, the lower the percentage of tax paid because the percentage of the cost of necessities and moderate comforts of life are reduced as income increases. Hence the rich would not be paying their fair share of the tax burden. It is true that their tax dollar would be more than the tax dollar of moderate and low income groups, however, their effective tax rate would not keep pace with their income and this would be just as unfair as "soak the rich" philosophy. Hopefully VAT will never be adopted although there are some aspects of it that are already in effect.

4. This Tax Proposal is deflationary for four reasons.

1. It eliminates most sales and excise taxes.
2. It eliminates *all* property taxes.
3. It limits government spending to revenues obtainable by a flat rate income tax of 20% and 50% on individuals and corporations respectively.
4. It provides incentives to manufacture more goods thus balancing supply and demand.

With the elimination of property and sales taxes, the prices of goods and services would drop. This in turn would increase the number of buyers which in turn would increase employment, which would in turn reduce welfare which would decrease taxes. All these factors would compound themselves to eliminate the unemployment problems. The only people out of work would be those who did not want to work.

5. It is obvious that this tax plan will reduce the number of tax assessors, tax collectors and tax accountants. That is one of the purposes of this plan: reduce the cost of government and reduce the cost of doing business. What then, will become of the people "put out of work" as a result of these economies. No doubt the hue and cry of vested interests will be long and loud. Our country has just seen the result of aerospace workers, especially engineers and scientists, displaced by a reduction in aerospace development. Probably the accountants will not be as docile as the engineers and scientists. This problem will be largely solved by stimulus to business as a result of compounding benefits explained

in paragraph 4 above. For those having problems adjusting to new areas of endeavor, the Federal programs for alleviating aerospace unemployment certainly point the way for minimizing the problems of transition to new jobs. As one Senator has said, "this must never happen again" in referring to unemployment caused by large changes in government spending.

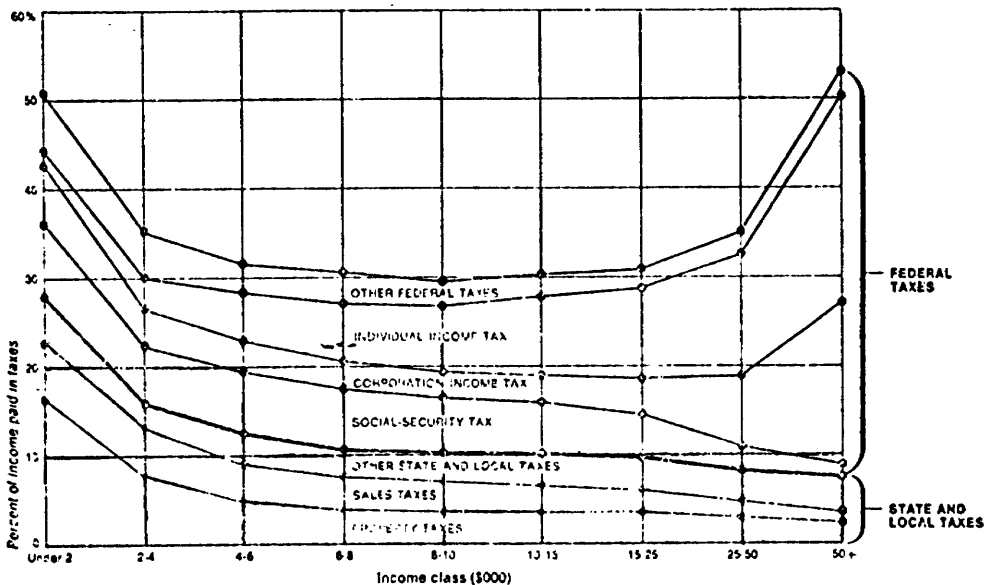
6. Since the Tenth Amendment to the Constitution implies the right of States to tax property, careful coordination between the States and Federal Government must be had in order to minimize and hopefully eliminate lawsuits which would impede enactment of this tax system. The main thrust to minimizing this problem would be to add an amendment to the Constitution containing the features suggested in paragraph 9 on page 2 which places responsibility for all tax collection and distribution in the hands of each State.

7. Another advantage accrues from this Tax Proposal because of its simplicity which minimizes tax loopholes. Just as some taxpayers pay too much tax because of tax complexity, others pay too little because conflicting or ambiguous requirements which may give some taxpayers alternative tax computation that can go undetected or be too costly to prosecute in terms of revenue recovered. Hence the relative simplicity of this Tax Proposal will significantly promote equal tax treatment. Tax simplification will also reduce frustration in tax compliance and encourage others to file tax returns. This last statement is made in recognition of a brewing tax revolt which was reported in U.S. News & World Report for Sept. 17, 1973.

8. The continuing controversy between various methods of implementing public policy probably will never cease, however this Tax Proposal when enacted will simplify the decision making processes in determining whether it is better to provide Federal funding or to give preferential tax treatment, or better still to do neither.

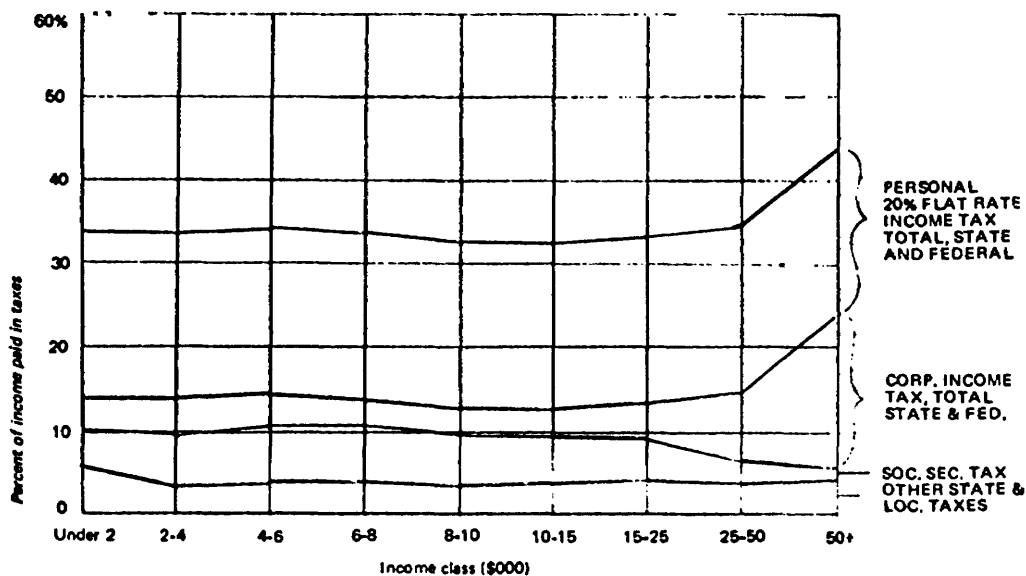
9. The elimination of personal income tax on corporate dividends will reduce the use of the "Runaway-Plant" gimmick of multinational corporations. It will also reduce or eliminate deferral time of their profits earned abroad. These factors will in turn reduce the "balance-of-payments" problem.

10. The 20% income tax rate limit on individual income will no doubt cause many closely held or family corporations to "decorporate." It will also reduce the trend toward incorporation by individuals who use incorporation as a gimmick to reduce income tax rates to 23% or 48% as applicable. It will also reduce the flight of domestic capital to foreign countries which aggravates the "balance-of-payments" problem.



From: THE RIGHT KIND OF TAX REFORM by Richard Armstrong in FORTUNE Magazine, December 1972 and Tom Cardamone Associates for FORTUNE Magazine

The Chart below shows the effect of removing Sales Tax, Property Tax, Other Federal Taxes and present Sliding Scale Personal Income Tax and replacing them with a Flat Rate Personal Income Tax of 20%. Note: Not all of the "Other Federal Taxes" would be removed, but then some of the "Other State and Local Taxes" would be removed thus leaving the Total Tax approximately as shown. Also, some of the Local, State and Federal Taxes included in these Charts are not really taxes, but are service charges to defray the cost of Government services not properly borne by every taxpayer.



COMPARISON FOR 1969

Tax revenues projected by C. P. Burman's tax proposal compared with actual revenues from applicable Federal, State, and local taxes

Burman's tax proposal:

Adjusted gross personal income (Fed) ¹ -----	\$603, 500, 000, 000
Less dividend income-----	15, 739, 608, 000
Net -----	587, 760, 392, 000
Add 50 percent of nontaxable income ² -----	7, 663, 288, 000
Total taxable income-----	595, 423, 680, 000
Tax from personal income (tax rate 20 percent)-----	119, 084, 736, 000
Inheritance and gifts—not taxed.	
Tax on corporate income—see next page for computation ³ -----	41, 014, 714, 000
Subtotal -----	160, 099, 450, 000
Total, surcharge 18 percent (1.18×total) ⁴ -----	⁵ 188, 917, 351, 000

Footnotes at end of table.

Actual tax revenues:

Federal personal income tax.....	\$86,600,000,000
Corporate income tax.....	39,374,125,000
Estate and gift taxes.....	3,393,338,000
Communications excise tax, estimate ⁶	1,500,000,000

Subtotal ----- 130,867,463,000

State and local taxes collected by 50 States to be replaced by Burman's tax proposal.

Personal income tax, State and local.....	8,908,000,000
Corporate income tax, State.....	3,180,000,000
Inheritance and gift taxes, State.....	996,000,000

Subtotal ----- 13,084,000,000

Property taxes, State and local.....	30,673,000,000
General sales taxes.....	12,443,000,000
Insurance taxes.....	1,024,000,000
Public utility taxes.....	763,000,000

Subtotal ----- 44,903,000,000

~~Total, actual tax revenues.....~~ ⁶ 188,854,463,000

¹ Adjusted gross income can continue without much change. The reason for not showing standard deductions or interest, contributions, and tax deduction, etc., is that they only complicate a tax return. Since property taxes and sales taxes have been removed, much of the need for this type of deduction has been eliminated. It may be necessary, however, to provide for deductions for charitable contributions and catastrophic losses. Remaining sales and excise taxes should not be deductible.

² This is an estimate of nontaxable income which would become subject to income tax.

Taxable corporate income.....	\$93,432,590,000
Tax rate (× 0.48).....	*44,847,643,000
Less.....	* 5,473,518,000
Net tax.....	*39,374,125,000
Proposed corporate rate equals .50 over present corporate rate	
.48 equals.....	×1.0417
Corporate income tax this proposal.....	41,014,714,000

⁴ Since basic maximum tax rates for individuals and corporations are 20 percent and 50 percent respectively, these would not have yielded enough revenue to cover Government expenditures, hence a surcharge of 18 percent would have been necessary. This surcharge computes to actual tax rates of 23.6 percent and 50 percent respectively. Included in the tax law should be a prohibition against any new spending programs as long as a surcharge existed: war and natural catastrophe excepted.

⁵ Compare proposal and revenues.

⁶ Excise taxes are a form of sales tax and would be subject to change as indicated in the proposal. As an example, liquor and tobacco taxes would be increased to compensate for the cost of surveillance and their damage to society. Excise tax on communications revenue is a tax on the world's finest communications system which serves the public well and, therefore, should not be taxed.

⁷ Accounted for by tax credits and corporations in the 23 percent tax bracket.

Information sources: I.R.S. statistics of income for 1960 individual income and corporate income; U.S. Bureau of Census, State Government Finances, 1970 Serial GF70 No. 3; Statistical Abstract of the U.S. 1972.

COMPARISON FOR 1972 (1975 ADDITION TO 1973 REVENUE)

*Tax revenues projected by O. P. Burman's tax proposal compared with actual revenues from applicable Federal, State, and local taxes***Burman's tax proposal:**

Adjusted gross personal income (Federal) ¹ -----	\$746,611,000,000
Less divided income-----	16,702,000,000
Net -----	729,909,000,000
Add 50 percent of nontaxable income ² -----	8,000,000,000
Total taxable income-----	737,909,000,000
Tax from personal income (Tax rate 20%)-----	147,581,800,000
Inheritance and gifts not taxed.	
Corporate income taxable-----	98,000,000,000
Tax from corporate income (Tax rate, 50 percent ³)-----	49,000,000,000
Subtotal-----	196,581,800,000
Total, surcharge 24.23 percent (1.2423×total) ⁴ -----	⁵ 244,213,000,000

Actual tax revenues:

Federal personal income tax-----	94,737,000,000
Federal corporate income tax-----	32,166,000,000
Federal estate and gift taxes-----	5,486,000,000
Communications excise tax, estimate ⁶ -----	1,500,000,000
Subtotal -----	133,839,000,000
State and local taxes collected by 50 States to be replaced by Burman's tax system.	
Personal income tax-----	15,237,000,000
Corporate income tax-----	4,416,000,000
Inheritance and gift taxes-----	1,294,000,000
Subtotal -----	20,947,000,000
Property taxes-----	42,133,000,000
General sales taxes-----	37,488,000,000
Insurance taxes, estimate-----	2,000,000,000
Public utility taxes-----	7,787,000,000
Subtotal -----	89,408,000,000
Total, actual tax revenues-----	⁵ 244,194,000,000

¹ Adjusted gross income can continue without much change. The reason for not showing standard deductions or interest, contributions, and tax deductions, etc., is that they only complicate a tax return. Since property taxes and sales taxes have been removed, much of the need for this type of deduction has been eliminated. It may be necessary, however, to provide for deductions for charitable contributions and catastrophic losses. Remaining sales and excise taxes should not be deductible.

² This is an estimate of nontaxable income which would become subject to income tax.

³ 50 percent tax rate is to be construed as the maximum allowed by law. If corporations are to survive, this rate must be reduced in order to replace capital equipment so that employment can be maintained.

⁴ Effective tax rate 24.85 percent and 62.12 percent for persons and corporations respectively. See note ⁴ on p. 8 for 1969 comparison with 1972.

⁵ Compare proposal and revenues.

⁶ Excise taxes are a form of sales tax and would be subject to change as indicated in the proposal. As an example, liquor and tobacco taxes would be increased to compensate for the cost of surveillance and their damage to society. Excise tax on communications revenue is a tax on the world's finest communications system which serves the public well and, therefore, should not be taxed.

Data Source: Statistical Abstract of the U.S., 1974, published by the Department of Commerce.

STATEMENT OF THE GENERAL ELECTRIC COMPANY

Proposal

The purpose of this statement is to propose that the Senate Finance Committee include the HEAT PUMP as an energy conserving device and make it eligible for the same tax incentives that are being proposed in the Senate's Energy Bill for solar heating equipment.

A summary of the rationale supporting this proposal is contained on the following two pages.

SUMMARY

Rationale Supporting this Proposal

Space heating uses 18% of the nation's energy. The sources of heating energy used are gas, oil, and electricity.

Gas is no longer available in many areas for new construction. This curtailment is spreading. (Chart #4)

The use of electricity for heating can reduce dependence on gas and oil.

The principal forms of electric heating are: Electric resistance and the heat pump—

Electric resistance systems cost less to install (Chart #1)

Heat pump systems use one-half the energy used by the electric resistance system

Over a five-year period, including first cost and operating cost, the heat pump system costs less than the electric resistance system. (Chart #2)

Over 50% of all new residential construction in 1974 was heated electrically. Most of these homes were equipped with the lower first cost electrical resistance system.

Speculative builders construct 80% of all single family houses in the United States. They are keenly interested in first cost, hence they are drawn to the electric resistance systems.

A modest tax incentive to support the heat pump would be very effective in encouraging builders to install energy saving heat pumps in new construction. It would also encourage home owners to convert existing systems to heat pumps.

The final result would be an energy saving of approximately 50% over the use of electric resistance heating and a freeing of gas and oil for more critical needs.

Cumulatively, over a five-year period, it is estimated that this program would result in savings of 46 million barrels of oil in the nation's conservation program. (Chart #5)

The expected useful life of this equipment is fifteen years. The cumulative energy savings for a fifteen year period, starting with the installation of the first units, would be 240 million barrels of oil.

PROPOSAL DETAILS

The General Electric Company is working in many areas of energy conservation. The Company is developing new energy efficient products; working on methods of converting coal and shale oil to more usable energy forms; working to improve the efficiency of electrical power generation and transmission systems; working with energy substitutes to conserve scarce reserves of natural gas and oil and developing new energy alternatives, including solar heating and cooling, wind generators, photovoltaics and solar thermal units. It is our belief that we must energetically move forward on all of our options to meet the nation's energy needs. This statement addresses the areas of new energy efficient products.

1. *Electric energy offers the opportunity to conserve scarce reserves of fossil fuels by substituting more available energy forms.*

a. The problem of dwindling reserves of natural gas and oil in the United States is well known. Our nation does possess great quantities of other forms of energy, such as coal. This fuel, along with the nation's technology leadership in nuclear power, provides a secure basis for electrical power generation. Broader and more efficient use of electrical power that is generated from these abundant local fuels is certainly a major step toward national energy independence.

b. In 1973 18% of all energy used in the United States was used for space heating. The inventory of existing fuels used in 1973 for space heating divides approximately 45% oil, 45% gas, and 10% electricity. The actual use of electricity for heating newly constructed homes has been increasing very rapidly. In 1974 over 50% of all newly constructed dwellings were heated electrically. By far the largest percentage of these used the electric resistance system.

c. There are two principal systems that can be employed to use electricity for space heating; one is the resistance heating system, and the other the heat pump. The purpose of this paper is to present the merits of the heat pump.

2. The heat pump uses electrical energy efficiently—Recovers 2 units of heat for every 1 unit of electrical energy used.

The heat pump is a refrigeration cycle which reverses to provide both cooling in warm weather and heating in cold weather. In the summertime the heat pump takes heat from inside the house and exhausts it outside. In the winter it takes heat from outdoors and brings it inside the home. Even when the outdoor temperature is below freezing there is still a lot of heat in the air and the heat pump is capable of extracting it from the air and bringing it indoors. In northern climates the heat pump is slightly less efficient than in southern climates; however, on the average nationally the heat pump delivers 2 units of heat for every 1 unit of electrical energy consumed. In other words, for every kilowatt of electrical energy that the heat pump consumes it extracts the equivalent of 2 KWs of heat energy from the air and transfers it to useful work. The electrical resistance type heating systems in popular use today deliver heat energy on a "1 for 1" basis. For every KW of electrical energy used the electrical resistance system delivers 1 KW of equivalent heat energy. On the average, the heat pump is twice as efficient as the electric resistance system; or, saying it another way, the heat pump will heat the home for one-half the fuel used by the electric resistance system. Even when compared to the burning of critical fuels directly in the home, such as gas or oil, the heat pump compares favorably. Because of its 2 for 1 recovery ratio, the heat pump makes up for much of the conversion losses of power generating systems.

3. The first cost of heat pump systems is higher than electric resistance or some fossil fuel systems.

With the heat pump as attractive as it is from a fuel efficiency standpoint, one can't help but wonder why a tax incentive is desired to encourage its use. First, one must realize that speculative builders construct over 80% of all the single family houses in the U.S. These builders are highly competitive and are constantly working to keep the cost of their homes as low as possible and still comply with federal and state codes and standards. For a typical 2000 square foot house in the Philadelphia area a builder might install an electric resistance furnace with cooling equipment for approximately \$1800.¹ It might cost him about \$2600¹ to install a heat pump. (See chart #1 attached.) For a difference in his cost of about \$800 there is great competitive pressure on the builder to install the lower cost system—the electric resistance furnace.

For the consumer who owns a home and desires to convert his heating system to the more efficient heat pump, this incentive would not pay the total cost but would be effective in encouraging him to make the conversion.

4. When considering owning costs, first cost plus heating fuel costs, heat pumps compare favorably.

The problem with the electric resistance system, however, is operating cost. Unfortunately, few home buyers really understand heating and cooling systems. They get a much better understanding of it after they pay the first winter's heating bills; then it is too late.

Chart #2 attached adds the cost of fuel for five years to the installed equipment cost. Now the gas furnace moves to first place, with the heat pump in second, and the electric resistance system last. This chart assumes five-year fuel costs as shown on chart #3.

This brings up the obvious question regarding the position of the gas furnace and electric cooling systems. Gas is no longer preferred as a heating fuel for new homes for several reasons. First, and critically important, gas is not available for new construction in many parts of the country. The shaded areas in the attached chart #4 indicate some of these areas. It is forecast that these restrictions will spread in the next few years. Second, gas is critically needed in industrial processes, making of fertilizer, plastics, medicine, etc. Third, if gas is deregulated, its price would increase significantly and become less attractive.

5. Modest tax incentives would encourage broader use of heat pumps.

Only a modest incentive is required to swing the heating systems in new construction to the heat pump. Many formulas for a tax incentive can be developed but an incentive of from \$600 to \$800 would be very effective. It could even encourage some existing home owners to convert their current systems to the heat pump to save energy.

¹ All cost data in this document and on the attached charts are rough estimates only. Actual costs will vary by brand, equipment, installer, etc.

Chart #5 presents a rough estimate of the energy measured in equivalent barrels of oil that this program would save. The following assumptions were used:

- a. Tax incentive program would only last for five years.
- b. Equipment installed would have an assumed life of fifteen years. See chart #5.
- c. The tax credit would average \$600 per installation.
- d. Number units installed each year as shown in table.
- e. 5.8 million Btu/barrel.
- f. Burning oil at a 55% efficiency rate.

Referring to the table on chart #5, during the first year there would be 150,000 units installed, generating a tax cost of \$90 million and an energy saving of 1.9 million barrels of oil. The tax cost would increase each year as the number of installations increased. The savings would compound, however, as all units installed in prior years would still be in operation. The tabulation shows the energy saved each year for those units installed that year and also shows the cumulative savings of units installed in prior years.

The cumulative totals are converted to equivalent barrels of oil, showing a savings of 46 million barrels by the end of five years. In that this equipment has an assumed life of fifteen years, this rate of energy savings will continue even though the tax incentive program has stopped. The final column in the tabulation shows the cumulative savings for the entire fifteen years since the start of the program. The cumulative savings would be equivalent to 240 million barrels of oil.

This program will have a long lasting effect on the heating industry. By the time the program concludes (we recommend five years) the industry and the public will have become much more familiar with and knowledgeable of the heat pump. The use of the heat pump will have become widespread and its use will continue to grow even after the tax incentive program has been concluded.

6. The heat pump system is a type of solar heating system.

Solar energy devices are defined here as those devices utilizing the direct sun's rays to heat an intermediate collecting and storage medium to deliver heat when required to a structure from this stored energy. Solar energy can be collected in water flowing through a collector panel and stored in a tank of hot water. Solar energy can be collected and stored in nature's own system, the outdoor air. In the fluid-solar system (chart #6), a water pump moves the stored heat to a water-to-air heat exchanger to heat the facility. Comparably, in the heat pump system (chart #7), a refrigeration pump moves the heat out of the outdoor air into the facility to provide heat. With the heat pump system, a refrigerant-to-air heat exchanger is used to transfer the heat to the air. Both systems require backup, or supplementary, heating systems to provide heating during prolonged periods of reduced solar energy, in the form of cloud cover, night-time, or severe cold weather. Economics dictate that fluid solar systems be sized to handle about 50% of the total heating load, resulting in a power consumption of about one-half of that of an electrical resistance heated home. A heat pump system with a typical performance factor of 2 also uses one-half of the power which would be required if the building were heated with electric resistance heat. As you can see, fluid solar and heat pump systems perform the same functions and have approximately the same operating cost for like installations.

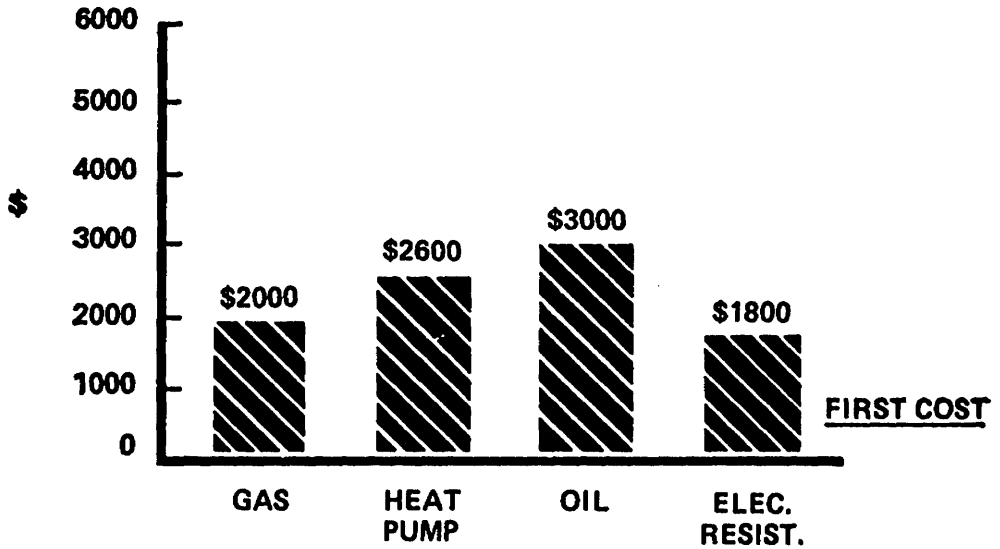
Incidentally, the fluid solar collector for the 2000 square foot house located in Philadelphia sized for 50% of the heating load, must be 1000 square feet, or 8 feet high and 125 long. The insulated water storage tank is 1500 gallons. The heat pump system includes both heating and cooling in the same equipment. Chart #8 compares the installed cost of the two systems, roughly \$12,000 for the 50% fluid solar system, with present day costs, and \$2,600 for the heat pump. Shown at the bottom of the chart is an estimate of the operating cost savings. The fluid solar system would save the home owner about \$80 per year in operating cost.

It should not be interpreted from this comparison that the General Electric Company is uninterested in the development of solar energy. This is far from the fact. The Company is deeply involved in solar projects, both with Company funds and government contracts. We have hopes of bringing the cost of these solar systems down. New developments in solar assisted heat pumps and in solar/electric driven heat pumps are being pushed as rapidly as possible. The point of this comparison is that as the Congress considers legislation that would have an immediate effect on conserving energy while these developments are under way, and, in particular, in conserving scarce fuels in the next five to ten years, the heat pump is an obvious choice for support.

General Electric Company appreciates the opportunity to offer its views on these important energy conservation proposals.

J. H. GAUSS,
Vice President and General Manager,
Air Conditioning Division.

**FIRST COST OF ALTERNATE
HEATING AND COOLING SYSTEMS**
(Installed in a typical home)



ABOVE COSTS INCLUDE HEATING & CENTRAL COOLING EQUIPMENT INSTALLED. COSTS DO NOT INCLUDE DUCTING, INSULATION, ETC. AS THESE COSTS WOULD BE COMMON.

CHART 1

TOTAL COST OF ALTERNATE HEATING AND COOLING SYSTEMS

(Includes final cost, chart # 1, plus heating energy costs only)

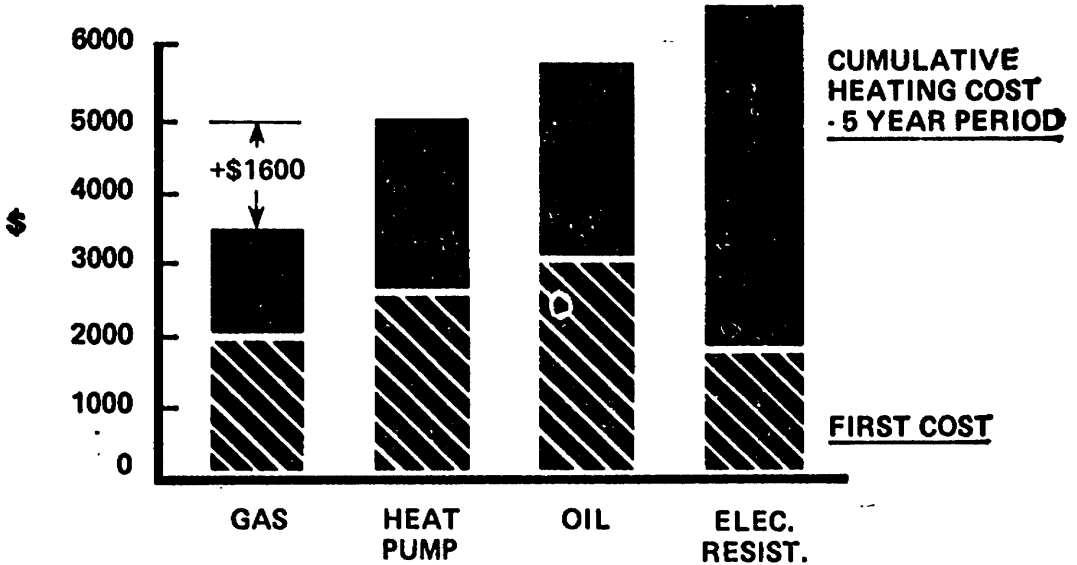


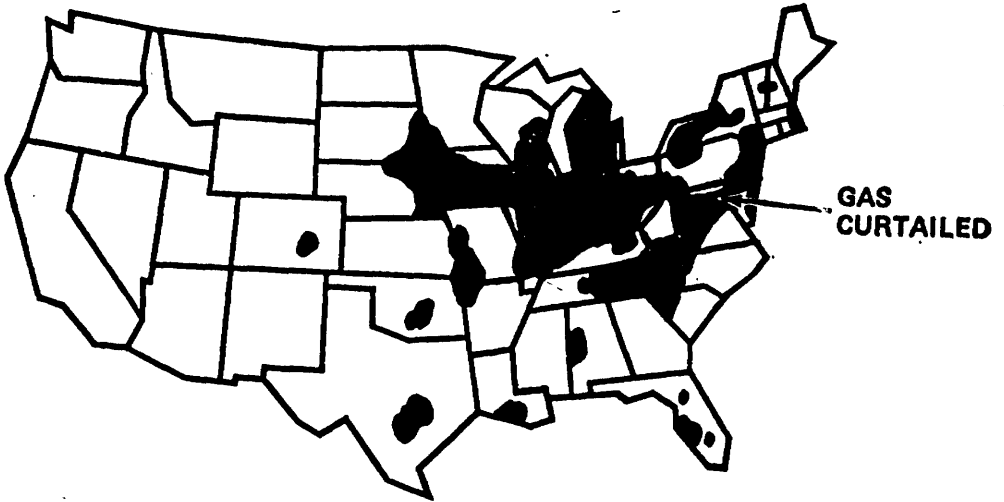
CHART 2

CHART 9.—FUEL COST ASSUMPTIONS

	1974 price	Escalation in constant dollars
Gas.....	\$1.50 per 1,000 ft ³ /kcf.....	+5 percent per year.
Electric.....	3 cents per kilowatt-hour.....	+2.5 percent per year.
Oil.....	38 cents per gallon.....	+4 percent per year (no increase 1978-80).

Source: Arthur D. Little Co. Statistics.

**1975 NATURAL GAS CURTAILMENT
FOR NEW RESIDENTIAL CONSTRUCTION**



**GAS IS CURTAILED FOR NEW CONSTRUCTION
IN SHADED AREAS.
CURTAILMENT IS SPREADING.**

CHART 5.—ESTIMATED TAX INCENTIVE AND RESULTING SAVING IN ENERGY

	1976	1977	1978	1979	1980	1990
Estimated number of units installed in each year (units in thousands)	150	200	300	400	500	1,550
Tax cost each year at \$600 per unit (dollars in millions)	\$90	\$120	\$180	\$240	\$300	0
Energy saved per year by those units installed that year (Btu × 10 ¹²)	6	8	12	16	20	0
Cumulative energy saved by all units installed (Btu × 10 ¹²)	6	20	46	88	150	770
Cumulative equivalent number of barrels oil saved by all units installed (barrels in millions)	1.9	6.2	14.2	27.2	46.4	241

¹ Sum of all units installed during program—assumes 5,800,000 Btu per barrel. Assumes 55 percent efficiency in converting oil to useful energy. All data assumes full year of operation. Assumes 42 gal. per barrel. Assumed useful life will, of course, vary and is based on adequate and timely service and maintenance and will necessarily involve some replacement of components as needed.

SOLAR COLLECTOR SYSTEM WITH COOLING ADDED (50% SOLAR)

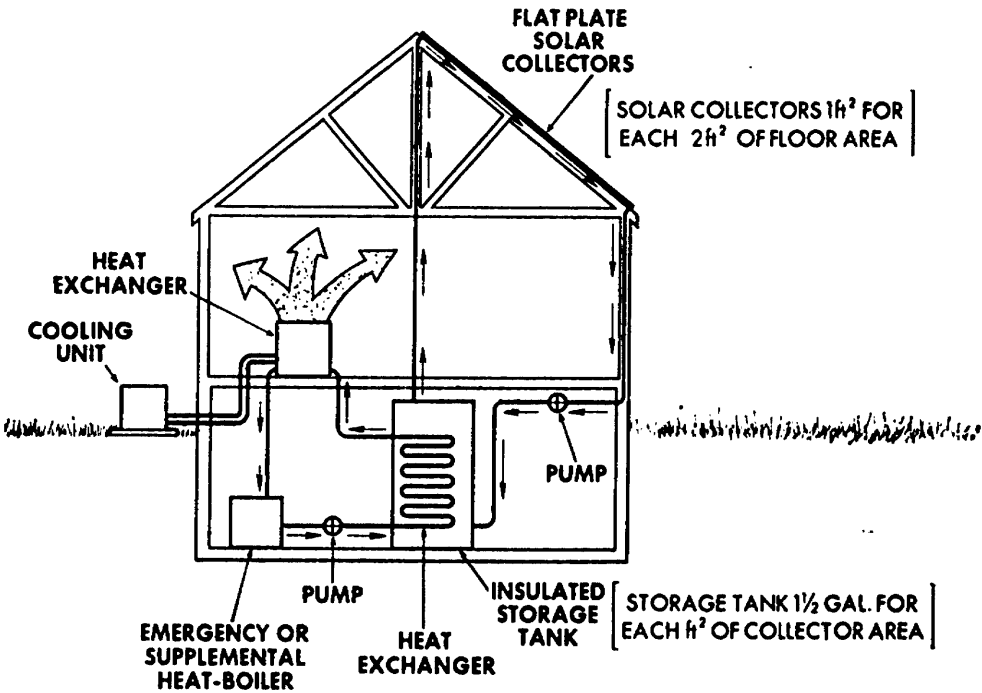
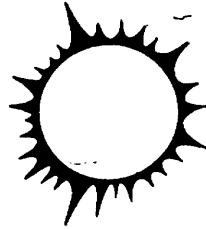


CHART 6

**AIR TYPE SOLAR SYSTEM
"HEAT PUMP"
HEATING & COOLING**

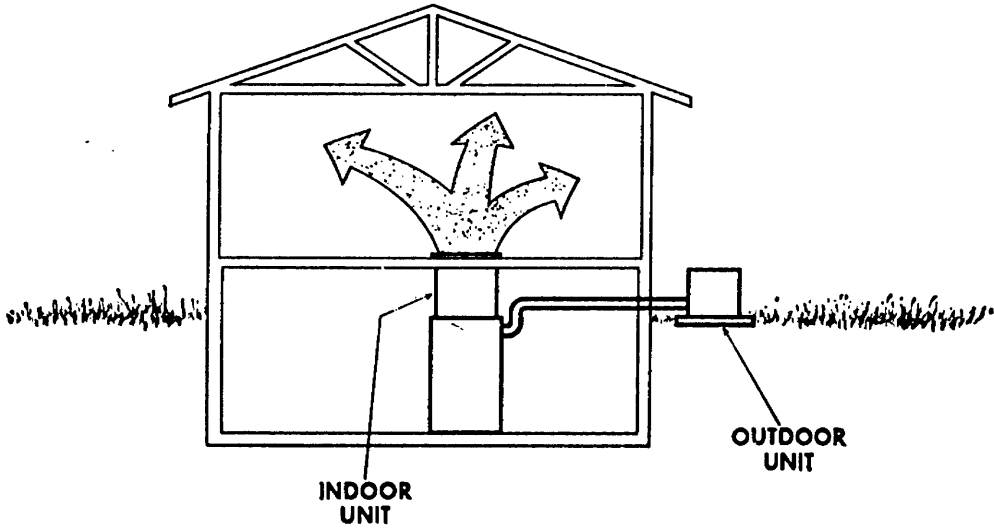
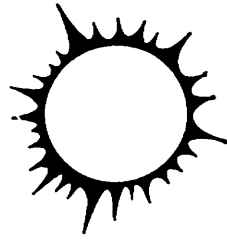


CHART 7

CHART 8

SYSTEM COST

2000 FT² HOUSE—PHILADELPHIA

Item	50 percent solar plus air-conditioning	Heat pump
Solar collector—(\$7 per square foot).....	7,000	.....
Storage tank (2,000 gal).....	450	.....
Backup heat source (boiler).....	250	.....
Piping and fittings.....	30	.....
Insulation:		
Tank.....	140	.....
Pipe.....	90	.....
Pumps.....	160	.....
Heat exchanger.....	190	.....
Labor.....	1,430	(1)
Total heating.....	9,740	
Outdoor section.....	970	1,340
Indoor section.....	470	470
Thermostat.....	20	50
Lines.....	80	80
Labor.....	400	500
Total heating and cooling.....	11,680	2,520
Estimated heating operating cost at \$0.03 per kilowatt-hour per year.....	350	434

¹ Supplemental \$80 resistance heaters.

² Circulating warm air ducts and insulation are part of the structure and are therefore not included in the comparison.

STATEMENT OF CLAUDE E. HOBBS, VICE PRESIDENT, WESTINGHOUSE ELECTRIC CORPORATION

Mr. Chairman and Members of the Committee, as the committee understands from its deliberations about energy, the energy crisis in the United States can be more accurately defined as a shortage of critical fossil fuels; namely, oil and gas. We in the United States have become dependent upon oil and gas, and because of their apparent abundant supply we are using these precious fossil fuels in increasing applications and quantities. It is apparent now that we need to find substitutes wherever practical and as quickly as possible.

One obvious area is in the application of space heating. In 1973 18% of the Nation's energy was utilized for space heating, with natural gas and petroleum supplying fuel for over 90% of this application. Natural gas for years has represented a simple and inexpensive method to heat private residences. The low first cost of installing gas heating equipment made it extremely attractive to builders, and most homes constructed had gas fired central heating furnaces.

At the present time, natural gas supplies over 45% of our energy applications in the United States while it represents less than 1½% of our energy reserves. The obvious result has been a sharp curtailment of the availability of natural gas for residential heating. In many areas of the country no new gas hookups are being permitted. Furthermore, many industries depend very heavily on the availability of natural gas for their industrial processes. If such gas is diverted to residential heating use, a serious negative effect on the employment and productivity in our country will be realized.

Oil fired space heating units have become extremely expensive to operate, since environmentally acceptable heating oil has increased several fold in cost. But more important is the realization that our dwindling oil supply makes it important, rather than burn oil, for us to use it for the most important applications such as petrochemical feedstock and specialized applications where no practical substitute is available.

Electricity is the logical substitute for oil and gas for space heating. Electricity is clean and easily delivered to even the most remote locations. Utility systems

for transporting electricity are available throughout the United States, making it the logical choice for heating both new and established homes. When electricity is generated by either coal or uranium it represents the ultimate in conservation of the fossil fuels which are in short supply.

The use of electricity for space heating has indeed been increasing. In 1973 over 50% of the new homes constructed were "all electric" homes. If the trend to the use of electricity for residential space heating continues to increase, and we expect it will, it is extremely important that we take full advantage of the most efficient systems of converting the electricity to heat so as to contribute to the solution of our energy crisis rather than to aggravate it.

Basically there are two principal systems which use electricity for space heating. One is resistance heating, and the other is the heat pump. At present resistance heating is the most popular method used since it is very inexpensive to install and simple to operate. Also, it is much better known than heat pumps. On the other hand the heat pump has been proven to be considerably more efficient than resistance heating. The heat pump recovers two units of heat for every one unit of electrical energy used. In effect it is twice as efficient as resistance heating, and therefore it costs the consumer half as much to operate as resistance heating. This increase in efficiency of the heat pump can, and in many instances does make electrical space heating competitive with heating by natural gas or by oil in many parts of the country.

It is very important that every effort be undertaken to promote the use of electrically operated heat pumps as a method of residential space heating, not only in new homes, but also for them to be installed into existing homes which presently use fossil fired heating systems.

At the present time the initial cost of the heat pump is higher than electric resistance heating by as much as 50%. Since 8 out of 10 single family homes built in the United States are built by speculative builders who engage in a highly competitive market, the initial cost of the home and its attendant equipment are most important. It is understandable that builders have tended to install the least expensive equipment despite the prospect of higher operating costs later. It is also understandable that homeowners who want to convert resistance heating systems to the more efficient heat pump find the higher first cost can be a deterrent.

In order to accelerate the switch to electric heat pumps, it is proposed that the committee's bill provide a tax incentive to taxpayers who acquire this more energy-efficient system.

If the committee adopts this concept we will be glad to work with the committee staff to devise an appropriate statutory provision.

GEOHERMAL RESOURCES INTERNATIONAL,
Arlington, Va., July 9, 1975.

HON. RUSSELL B. LONG,
Chairman, Committee on Finance, U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: This statement is submitted on behalf of Geothermal Resources International, Inc., of 4676 Admiralty Way, Suite 503, Marina del Rey, California 90921, for inclusion in the printed record of hearings on H.R. 6860, the Energy Conservation and Conversion Act, which passed the House of Representatives on June 19.

The following recommendations relating to the taxation of incomes from the production and sale of geothermal energy resources come within the Committee's invitation for testimony relating not only to the specific provisions of H.R. 6860 but also to other proposals within the Committee's jurisdiction relating to energy production and conservation.

We recommend that the Committee amend H.R. 6860 at the appropriate place so as to incorporate therein all of the provisions relating to geothermal energy which are contained in the text of H.R. 6238, a bill which was introduced in the House of Representatives on April 22 by Congressman John J. McFall.

Congressman McFall's bill would provide, in essence, for the tax treatment of geothermal resources in the same manner as oil and gas resources have been treated and, with certain exceptions, are continuing to be treated under the recently enacted energy tax legislation. Specifically, (1) intangible drilling and

development costs could be deducted as current expenses in the same manner as currently applies to oil and gas; (2) the depletion allowance provisions of the Code would be clarified and extended so as to apply the 22-percent rate to "geothermal steam and associated resources" as that term is presently otherwise defined by law; and (3) the provisions relating to deduction and recapture of mineral exploration expenditures, applicable generally to mining, would be extended so as to apply to geothermal deposits.

Justification for the proposed inclusion of the provisions of H.R. 6238 as a Senate amendment to H.R. 6860 is contained in a statement submitted to this Committee on March 12, 1975 by Mr. Travis E. Reed, Executive Vice President of GRI, during the Committee's hearings on the last preceding energy tax bill, H.R. 2166. Mr. Reed at that time advised the Committee that geothermal energy to be developed by GRI and other companies from domestic deposits can and must contribute significantly toward meeting the Nation's energy requirements during the present and later decades; but he warned that timely development will not take place unless the Congress takes steps now to provide for the proper tax treatment of incomes from the production and sale of geothermal energy.

The Committee members may recall that, partly in response to Mr. Reed's statement (printed at the request of Senator Tunney in the *Congressional Record* of March 12, 1975, page S3801), Floor action sponsored by Senator Cranston was taken by the Senate so as to provide a depletion allowance for geothermal steam and associated resources as a part of H.R. 2166. However Senator Cranston's amendment was deleted by the Committee of Conference without formal explanation.

Justification for enactment of Congressman McFall's geothermal energy tax proposals is further contained in statements which have been presented to the Committee on Ways and Means on January 29, 1975 (hearings concerning the President's tax proposals) and on March 28, 1975 (hearings on reform of energy taxation). Copies of these two statements have been submitted separately for inclusion in the files of the Committee.

Our March 28 statement referred, among other things, to information which had been submitted to the Senate in 1974 by Mr. Joseph W. Aidlin, General Counsel of Magma Power Company, which, like GRI, is an independent producer of geothermal energy. Mr. Aidlin's statement, inserted by former Senator Alan Bible in the *Congressional Record* of May 21, 1974 at pages S8719-8720, points out that geothermal energy admittedly is one of a number of fuels sources which are used to produce electricity but that it stands virtually alone in its non-recognition in the Tax Code as worthy of Governmental encouragement or support. "The question," said Mr. Aidlin, "is not whether depletion should or should not be accorded to any fuel. The question is that so long as depletion is permitted to encourage development of any fuel, failure to accord it to geothermal energy used in generations of electric power is discriminatory, impedes its development and is not in the public interest."

We can observe that the Congress in adopting H.R. 2166 without the Cranston amendment, has elected to preserve the depletion allowance in part for oil and gas and in full for coal, oil shale and uranium, while at the same time allowing the existing uncertain depletion status of "steam" to remain and failing to make any positive or specific provision of any kind for the other kinds of geothermal resources such as "hot water" and "hot brines". Yet this has been a time in which Members of Congress, among many others, have been calling more and more for rapid and effective development of geothermal energy by private industry as one of the important sources of domestic energy to replace reduced supplies of imported oil.

The personnel of the Government's energy coordination and management project have advised the President and the Congress through ERDA under date of January 15, 1975 that the Government's tentative goal calls for private industry to achieve by the year 1985 a level of geothermal energy production at the equivalent of 30,000 megawatts, corresponding to a saving of one million barrels of oil per day. The Government's geothermal R&D program, while significant in its sphere, must not be looked upon as a substitute for an appropriate tax treatment for geothermal energy, broadly defined, such as will encourage private industry to invest capital and apply management skills in the use of technology that has already been developed or will be forthcoming in a short-term period.

It should be noted, however, that depletion is only one of the subjects of Congressman McFall's bill. Another very important provision deals with the privilege,

now being accorded to oil and gas, of deducting intangible drilling and development costs from current income. No sound reason appears why this privilege should not be extended to geothermal resources.

This particular privilege, as it applies to oil and gas, has been described as follows by Professor Howard R. Williams of Stanford University Law School, writing in 27 *Stanford Law Review* at pages 969-975 (1975) :

The option to expense intangible drilling and development costs (footnote omitted) incurred in domestic oil and gas operations should be preserved. The tax cost of this option for domestic operations is relatively modest, as the difference between expensing and capitalizing is merely the time when the tax deduction becomes available to the taxpayer (footnote omitted) . . . [T]he benefits of the expanding option go to the persons whose activities contribute to an increase in the supply of oil and gas, namely the persons who expend money in exploration and development . . .

It seems reasonable also that the privilege of deducting exploration expenditures along lines now being accorded in the Code to mining firms generally should be extended to firms engaged in exploring to find valuable geothermal energy resources.

Inasmuch as the Committee on Ways and Means, in its wisdom, had elected not to include any geothermal energy provisions in H.R. 2166, the question arose, earlier in 1975, whether that Committee might see fit to include such provisions in its next round of energy tax proposals, which is now presented to the Committee on Finance in the form of H.R. 6860. On May 15, however, Chairman Ullman advised me that his Committee was temporarily deferring such consideration but might wish to consider the matter during its consideration of general tax reforms to begin in June. I now find that the Committee on Ways and Means has placed certain limits on the subject matter of its current tax hearings, and that under these limits the matter of depletion allowances will not again be heard until November of this year, although the matter of deductions for intangible drilling and development costs is to be considered in the current hearings under the heading "natural resources". Accordingly, under this schedule, the Committee on Ways and Means may not be expected to deal comprehensively with reform of geothermal energy taxation at any early date. Hence it may be incumbent upon the Committee on Finance to take this present opportunity to consider Congressman McFall's proposals.

An additional incentive toward immediate consideration of the provisions of H.R. 6238 has recently arrived in the form of a letter to me dated June 13, 1975 from Mr. Donald B. Craven, Acting Assistant Administrator of FEA, which reads in part as follows :

We have determined that income derived from geothermal development should be accorded the same tax treatment as income derived from oil and gas exploration and development. Accordingly we feel that the percentage depletion allowance should apply to the same extent it applies to oil and gas exploration and development.

By the same token, we have taken the position that intangible drilling and development costs for geothermal resource exploitation should obtain the same treatment accorded such costs in the case of oil and gas drilling and development. We have made our views in this area known both within and without the Administration. *We hope that legislation will soon be passed putting the tax treatment of geothermal resource development on a par with the tax treatment of oil and gas drilling and development . . .* (Emphasis supplied).

These legislative recommendations, coming as they do from this particularly qualified source, should be given very careful attention and favorable consideration at this time by the members of the Committee on Finance. The provisions of the McFall bill, H.R. 6238, offer a convenient and technically adequate means to accomplish this objective.

Please note that the Geothermal Energy Research, Development, and Demonstration Act of 1974, P.L. 93-410, has set up a goal of producing electricity from only 6 to 10 pilot plants by the year 1980, each having a capacity of from 1 to 10 megawatts. The remainder of the plant capacity needed toward meeting the Government's geothermal energy goals must be provided by private industry outside of the Government's R&D program. The informed judgment that I have been able to obtain concurs with the judgment expressed in the FEA letter, that legislation along lines of H.R. 6238 is essential if such favorable results are to be obtained within the indicated time frame.

I am sure that the personnel of Geothermal Resources International, Inc., will be glad to respond at any time if the Committee should require further information. Thank you for this opportunity to express these views on behalf of GRI for the Committee's information.

Sincerely yours,

KARL S. LANDSTROM,
Special Counsel.

Enclosure.

[H.R. 6238, 94th Cong., 1st sess.]

A BILL To amend the Internal Revenue Code of 1954 with respect to the taxation of income from the production and sale of geothermal steam and associated resources

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That subsection (c) of section 263 of the Internal Revenue Code of 1954 (relating to intangible drilling and development costs in the case of oil and gas wells) is amended to read as follows:

"(c) **INTANGIBLE DRILLING AND DEVELOPMENT COSTS IN THE CASE OF OIL AND GAS WELLS, OR GEOTHERMAL DEPOSITS.**—Notwithstanding subsection (a), regulations shall be prescribed by the Secretary or his delegate under this subtitle corresponding to the regulations which granted the option to deduct as expenses intangible drilling and development costs in the case of oil and gas wells and which were recognized and approved by the Congress in H. Con. Res. 50, Seventy-ninth Congress; and such regulations shall be extended so as to apply in the case of wells drilled for geothermal steam and associated resources as defined in the Geothermal Steam Act of 1970 (30 U.S.C. 1001)."

SEC. 2. Subparagraph (C) of section 613(b)(1) of the Internal Revenue Code of 1954 (relating to exemption for certain domestic gas wells) is amended to read as follows:

"(C) any geothermal deposit in the United States or in a possession of the United States which is determined to be producing geothermal steam and associated resources as defined in the Geothermal Steam Act of 1970 (30 U.S.C. 1001)."

SEC. 3. Section 617(a)(1) of the Internal Revenue Code of 1954 (relating to deduction and recapture of certain mining exploration expenditures) is amended by adding at the end thereof the following new sentence: "Notwithstanding any other provision of this section, this subsection shall apply with respect to expenditures paid or incurred for the purpose of ascertaining the existence, location, extent, or quality of any deposit of geothermal steam and associated resources as defined in the Geothermal Steam Act of 1970 (30 U.S.C. 1001)."

SEC. 4. The amendments made by the first three sections of this Act shall apply to taxable years beginning after December 31, 1974.

STATEMENT OF PETER G. KOLTNOW, PRESIDENT, HIGHWAY USERS FEDERATION

The Highway Users Federation is a nonprofit business league composed of more than 600 companies and industry associations. We have affiliated highway user organizations in every state and 85 major metropolitan areas. Our member groups and their affiliates—including food producers, rural letter carriers, shippers, motor vehicle manufacturers and dealers, insurance companies, banks, major passenger car, bus and truck organizations, news media, and petroleum, rubber and other industries directly dependent on good transportation—represent millions of Americans.

We are pleased to have this opportunity to present our views on energy matters. Our specific area of interest is highway transportation.

Our statement is addressed to three major points:

all energy users should share the burden of energy conservation programs; automobile users are willing to do their share, but they should not be singled out;

more attention and leadership should be given to workable, and voluntary conservation measures;

domestic petroleum production must be stepped up, since all indications are that the nation will continue to be dependent on this form of energy for many years to come.

AUTOMOBILE USERS

Automobile use is not a discretionary frill. It is a necessary part of our mobile way of life.

Energy conservation goals that are established by the nation—and goals must be established—should bear a reasonable relation to energy use characteristics. In this context, it is important to keep in mind that over 70 percent of U.S. petroleum (see attachment) is used for purposes other than automobile travel, and there are practical limits to auto users' share of the conservation burden.

We find fault with the argument that reduced use of automobiles is most likely to be brought about by *disincentives* such as tax increases. This is in direct contrast with proposed energy conservation techniques in other fields, such as residential and commercial use of energy. For those sections of the economy, the emphasis tends to be on incentives like tax credits for measures such as home insulation. In highway transportation, as with other elements of energy conservation programs, incentives also should be emphasized because they will prove to be most effective.

LEADERSHIP

Voluntary energy conservation measures, encouraged by Federal leadership, plus incentives present the greatest opportunity for energy use reduction in the short and middle term, and the least danger of disruption to the economy and our social structure.

In the early stages of the petroleum shortage, Americans responded admirably by turning down their thermostats, driving more slowly, curtailing some trips and insulating their homes. Industry substantially reduced its demand for energy by a host of conservation techniques.

The fact that most of these adjustments were made by citizens and businesses voluntarily has been largely overlooked. The notion is advanced that voluntary conservation has failed and that drastic mandatory measures are need to force the American public to conserve.

We think that the American people will voluntarily conserve large amounts of energy if they are presented with reasonable goals and high level leadership. We urge the Congress to assume this leadership role.

CONSERVATION MEASURES

In this regard, we would like to call your attention to several conservation measures which can be implemented in the short run—at little cost or inconvenience.

Car and vanpools

Work trips traditionally have the lowest vehicle occupancy rates of all passenger car uses. Yet, many of these trips have common origins and destinations and unrealized potential for shared riding. Government and private organizations have been established around the country to help form carpools. The Federation is engaged in a joint effort with the U.S. Department of Transportation under which we encourage employers to sponsor ride sharing programs for their employees. We have found a commendable acceptance among the executives of the 72,000 largest employers.

Existing programs have been effective but much more can be done. Currently, approximately 47 percent of auto commuters and 62 percent of auto commuter miles of travel are by carpool. It has been estimated that carpool use can be increased to 75 percent without serious disruption of usual work trip patterns. This expansion in ride sharing would save an estimated 375,000 barrels of gasoline a day, as well as bringing about improvements in air quality and relieving traffic congestion.

If there were a significant use of 10 passenger vanpools, the estimated savings would rise to 500,000 barrels daily.

Speed limit

A combination of incentives to encourage and expedite state enforcement of the 55 mile per hour (mph) speed limit and continued public education to motivate

driver compliance is another conservation program that merits attention. The fuel saving in 1974 due to the American public's initial, and substantially voluntary, response to the 55 mph limit was an estimated 100,000 barrels a day.

With increased public awareness of the need for the limit and even handed enforcement, it is reasonable to anticipate still higher levels of driver compliance. If, by 1977, 85 percent of the vehicles on 55 mph limit roads are being driven at or under that speed, an estimated additional fuel saving of at least 20,000 barrels can be realized.

Other energy saving techniques which can be applied to the transportation system include traffic engineering and vehicle engine improvements, improved truck efficiency and greater use of radial tires. The combined saving from these measures could be at least 500,000 barrels of petroleum each day.

STANDARDS AND DEVELOPMENT

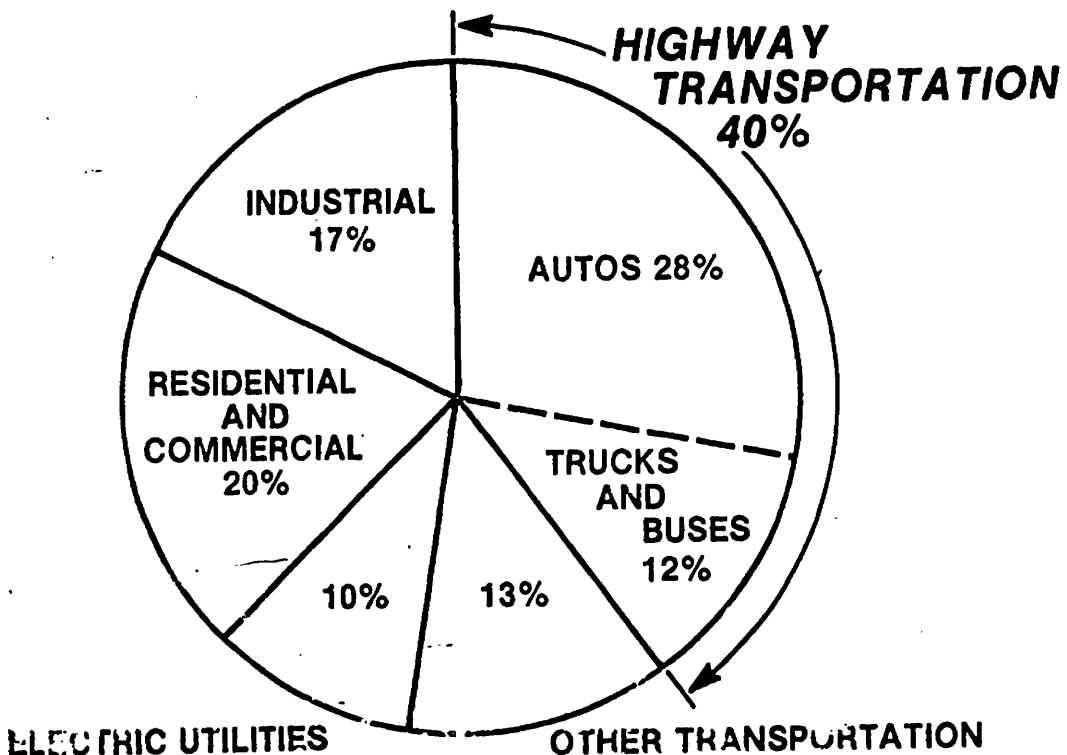
There are two other steps which must be taken to foster conservation and increase petroleum supplies.

A five-year delay in implementation of statutory motor vehicle emission standards is needed. Enforcement of the standards at present requirements will impede industry efforts to respond to the demand for more fuel efficient vehicles.

Oil exploration and development of the Outer Continental Shelf also should be expedited—a job best done by experienced private industry. The Federal role, in addition to administering the use of these public lands, should be to expedite their development with reasonable environmental safeguards.

In summary, the Highway Users Federation believes that the objective of our national energy conservation and development policy and programs should be to conserve fuel but preserve mobility, and permit the speedy development and rational use of all our domestic energy resources.

USES OF PETROLEUM



INDEPENDENT ZINC ALLOYERS ASSOCIATION,
Washington, D.C., July 18, 1975.

Hon. **RUSSELL B. LONG**,
Chairman, Senate Committee on Finance, New Senate Office Building, Wash-
ington, D.C.

DEAR MR. CHAIRMAN: The Independent Zinc Alloyers Association represents approximately 90% of production capacity of all zinc alloy sold in this country. There are 38 independent zinc alloyers in the United States and 24 of these companies are members of the Association. Zinc alloys are sold chiefly to the die casting industry to provide parts for the automotive, appliance, electrical and electronic hardware and construction industries. Alloys are produced from a grade of zinc called "special high grade" in combination with small amounts of aluminum, copper, nickel and other metal ingredients.

We make this presentation on the subject of national energy conservation and conversion under consideration by the Senate Finance Committee, the House having passed and sent to the Senate H.R. 6860. Our concern is Section 111, Paragraph (d), Petrochemical Feed Stocks which exempts that classification from the quantitative restrictions in the proposed quota on imports of petroleum and petroleum products into the United States.

It is our view that this exemption seriously and negatively impacts our energy crises and in fact contradicts the objectives of national energy conservation. Our interest in our particular commodity is parochial but our interest in energy conservation is in the national interest.

While zinc as a metal is not in abundance in the United States and we must rely heavily upon imports, it is readily available and even through the peak demands for zinc in 1973 and early 1974, we as alloyers were able fully to supply the industries which required zinc alloys. No die caster in the United States had to shut down or miss deliveries during that period for lack of zinc.

Our point is simply this: By comparison with plastics that would benefit from the petrochemical exemption from the quota on petroleum and petroleum products imports, zinc requires 75% less total energy to produce. The substitution of plastics in, for example, automobiles may well defeat some of the energy saving programs the Congress seeks to effect in the automotive industry.

Four times the amount of energy is used to produce the same amount of zinc.

A report of an ad hoc committee of the House Committee on Banking and Currency, dated December 1974, at Page 12 in tabulating the "Energy Intensiveness" of 46 industries in the United States, shows that the total requirement of primary energy for "Plastics and Synthetic Materials" is almost four times the requirement for the "Nonferrous metal ores mining" industry.

The raw materials for many plastics come directly from the energy stream. When petrochemical feed stock goes into plastics, there is that much less oil for producing energy in either residential or commercial or industrial use.

An article in the June 2, 1975 Design News, a respected publication in its field, says of our metal: "Zinc requires a slightly higher (than steel) energy investment, but the material is still comparatively insensitive to energy price increases. Indeed, by plastics industries numbers, zinc actually figures lower than plastics in its sensitivity to energy cost."

Our zinc furnaces use either natural gas or oil for their operations but the quantities are small, even minute, by comparison either with the energy required to produce plastics or the energy content contained in the petrochemical from which the plastic was made.

It strikes us as somewhat meaningless for manufacturers to reduce the weight of automobiles to save consumption of energy in gasoline while at the same time consuming great amounts of that energy in plastics which indeed has been substituted for zinc, a lesser energy user.

We therefore respectfully request that this Committee re-consider and in fact strike Paragraph (d) of Section 111, Petrochemical Feed Stocks.

Respectfully submitted,

R. M. COOPERMAN,
Executive Director.

STATEMENT OF LINEN SUPPLY ASSOCIATION OF AMERICA

The Linen Supply Association of America is a voluntary trade association with 855 member plants in the United States. Members of our association account for more than 90% of the one billion-plus dollars annual sales of our industry; and employ over 60,000 persons. In 1974, linen suppliers had an estimated sales volume of over one billion dollars, processed about 5½ billion pounds of textiles, paid employees about \$430 million in wages, used about \$48-million in laundering supplies, purchased about \$225-million of new textiles, and spent about \$30-million on machinery, equipment, and buildings.

Other sectors of commercial laundering have an additional sales volume of about 1.9 billion dollars a year.

We request exemption from H.R. 6860 under Title IV, Chapter 45, for the following reasons, which are detailed in the attached memorandum.

1. Many laundering plants cannot convert from gas and oil to other forms of energy for technological reasons. Their tumblers which dry textiles are gas- and oil-fired and cannot be converted to coal. The cost of replacing them with steam-operated tumblers is so great, (about \$20,000 a tumbler, for a total of nearly \$160-million), that in this economic crunch period, many of our plants would have to close. [See attached memo.] (Note, please, that the profit after taxes for our entire industry in 1974 was less than \$40-million.) Many of our employees are unskilled or low skilled, so that the disruption of our industry would mean wide-spread unemployment and a further burden for welfare rolls.

2. The closing of many of our plants would mean that the laundering of the soiled textiles would be shifted to private homes and small on-premise facilities in motels, hotels, nursing homes, and small hospitals, all of which are exempt from the bill and still use gas and oil for their small equipment. Such equipment uses gas and oil far less efficiently than do commercial plants with much larger and more efficient machines. For example, washing machines used in the small on-premise facilities use over fifty percent more energy in gas and oil now in the washing process than do our larger commercial operations. [See attached memo.]

This means that if our industry is not exempted, the use of gas and oil will actually increase substantially, since textiles must be laundered, either in our plants or elsewhere: in the home and by the small on-premise facilities.

It is to be noted that the bill exempts many sectors of textile laundering, i.e., private homes, nursing homes, motels, hotels, and hospitals; but does not exempt commercial laundering plants. This is most discriminatory, especially when the commercial plants are far more efficient in their use of gas and oil.

3. The over-all cost of replacement of drying equipment, plus the cost of shifting boilers from gas or oil to coal (most linen suppliers have package boilers that cannot be converted), and then maintaining them, would be so large—anywhere from one hundred thousand dollars to several hundred thousand dollars a plant—that plant closures in our industry would be most extensive. Coal requires storage space. Most of our plants do not have such space and, in many cases, there is no possibility of adding new structures for this purpose. In many instances, the design of the boiler and the building would have to be altered to make feasible the use of coal. Even facilities for ash removal by petroleum-using vehicles are lacking in metropolitan areas, and this alone would present an acute problem.

4. Even if some plants could convert their boilers to coal despite the enormous costs involved and could also replace their tumblers despite the costs, they would then use three times as much in energy from coal in terms of BTUs for their tumblers as required now by gas and oil. [See attached memo.]

5. Were the excise taxes imposed on our industry and not on our competitors who are exempt—the small on-premise facilities in motels, hotels, nursing homes, and small hospitals, and the larger hospitals as well—it would be economically impossible for our industry to survive.

The linen supply industry has worked long and hard to promote national hygiene and the efficient use of energy and, through our recycling process, a cleaner environment. We urge that the Senate exempt laundering of textiles in its version of H.R. 6860.

Respectfully submitted,

LINEN SUPPLY ASSOCIATION OF AMERICA,
LOUIS ZIPPERMAN, *President*.

MEMO TO SUPPORT LSAA STATEMENT

1. Cost of steam-operated tumblers

The linen supply industry processes about 5.5 billion pounds of textiles annually.

About one tumbler of 400 pounds capacity is needed to process 1,000 pounds of textiles per hour. (Regular cycle time of 20 to 25 minutes per 400-pound load, plus loading and unloading time.) Thus, one tumbler can process 8,000 pounds of textiles per eight-hour day.

Based on 260 yearly work days, the linen supply industry uses some 2,644 400-pound capacity tumblers. (5.5 billion pounds of textiles ÷ 260 days = 21,163,846 pounds of textiles per day ÷ 8,000 pounds per day per 400-pound equivalent tumbler = 2,644 400-pound capacity tumblers.)

At a cost of about \$20,000 per 400-pound steam tumbler, the linen supply industry would spend \$53-million to convert to steam tumblers on a one-for-one conversion basis.

However, the physics of steam drying require longer drying times in equivalent steam tumblers, as compared to gas-fired tumblers. About three times as many steam tumblers would be required to dry the same linen in the same time as gas tumblers. Thus, it would cost the linen supply industry about \$160-million to convert to steam drying tumblers to replace present gas- and oil-fired tumblers. (Steam coil tumblers need about 3,750 BTUs per pound of dry weight; a gas-fired tumbler needs about 1,200 BTUs per pound of dry weight.)

2. Inefficient gas and oil use by on-premise facilities

On-premise facilities generally use small capacity laundering and drying equipment. Many small facilities use 50- to 60-pound washers and 50-pound dryers. In contrast, professional laundries operated by linen suppliers use 800-pound washers and 400-pound dryers.

Typical of the machines used for washing soiled laundry in an on-premise laundry is what is known in the industry as a 36" x 21" washer/extractor. This machine has a 60-pound capacity and performs both the washing and extraction operations.

Typical of the machines used by the linen supply plants are the 54" x 108" washers and separate machines for extraction. These washers have an 800-pound capacity. The washer contents are then removed in four 200-pound units and placed in special-purpose extractors.

A direct comparison of these two machines, in terms of the amount of water required and the energy input required to raise the temperature of the water is:

	36 by 21 in 60-lb washer/ extractor	54 by 108 in 800-lb washer
Gallons of water required per load.....	195.5	1,410.0
Gallons of water required per pound of laundry.....	3.25	1.76
Btu's required per load.....	86,989	738,040
Btu's required per pound of laundry.....	1,449.8	922.5

The preceding figures show that the small machine requires 57.1% more heat input per pound of laundry than the large machine. The fact that the small machine also does the extraction, while the larger one does not, is not relevant to heat input for washing. Extraction is a mechanical operation and does not require heat in either type of equipment. Actually, the fact that the small machine does do intermediate extraction results in the consumption of still more water which must be heated—as we point out in Appendix A.

The detailed calculations underlying the preceding figures are attached as Appendix A and B.

A wide variety of machines are available in which the washing operation may be done in either type of laundry. Throughout the preceding comparison, we have selected a commercial 60-pound washer/extractor because it has the best extraction use in the on-premise laundry. The water retention requirements are considered to be more favorable than for many of its competitors. As representative of the washers used in the linen supply industry, the 54" x 108", 800-pound machine has been selected, because it has been in widespread use for many years.

The specific model selected for the comparison does not incorporate any of the water or fuel-saving features now used in newer type washers. Models exist of the 800-pound washer which will bring the water and energy requirements (on a per pound basis) considerably lower than we have stated. An increasing array of special-purpose washers are available which will bring water and energy consumption still lower, but which require substantial capital outlay. These have not been considered here.

We omit consideration of electrical demand because this is thought to be insignificant in the overall energy requirement of the laundry.

The second laundry operation that requires a large unit of energy is the drying or conditioning operation—which is done in a tumbler.

Typical of the tumblers used in the small on-premise laundry is the 37-inch, 50-pound tumbler. The larger professional laundry or linen supplier more often uses the 400-pound tumbler.

The 50-pound tumbler, conservatively speaking, will require 1,412.5 BTUs per pound of laundry for drying. The 400-pound tumbler, for the same job, will require 1,204 BTUs per pound of laundry, thus giving an advantage to the larger tumbler of 208.5 BTUs per pound of laundry. Again, this comparison is conservative. The advantage to the large tumbler could be shown as high as 480 BTUs per pound of laundry. The details of the calculations used to determine these figures are in Appendix C. For the purposes of the following comparison, we use the more conservative figures, thus giving an advantage to the smaller equipment.

ENERGY CONSUMPTION (BTU'S REQUIRED PER POUND OF LAUNDRY PROCESSED)

Operation	On-premise laundry	Linen supply plant	Difference
Heat laundry water.....	1,449.8	922.5	527.3
Tumble dry.....	1,412.5	1,204.0	208.5
Total.....	2,862.3	2,126.5	735.8

The linen supply industry processes an estimated 5.5 billion pounds of textiles annually. Applying the preceding energy consumption rates to this volume of production tells us that if all the linen supply business was washed and fully dried in the small machines, it would increase the energy consumption over four trillion BTU's annually. This would be the equivalent of increasing the consumption of fuel by one or some combination of the following :

Barrels No. 2 oil per year.....	688,248.2
Barrels No. 6 (low-sulphur) oil per year.....	670,060.9
Billion cu. ft. of natural gas per year.....	4.0460

APPENDIX A

LIGHT SOIL FORMULA

[Example: 36×21—washer/extractor=60 lb loading]

Step	Water level	Gallons of water required	Temperature (gallons H ₂ O)	
			Hot	Cold
1.....	Wet down.....	20.0		
2.....	5 in.....	20.0		
3.....	5 in.....	20.0		
4.....	Extract.....	8.0		
5.....	10 in.....	34.5		
6.....	Extract.....	12.0		
7.....	10 in.....	34.5		
8.....	Extract.....	12.0		
9.....	10 in.....	34.5		
Total.....		195.5	149.0	46.5

Note: 195.5 gal+60 lb=3.25 gal/lb. Uses 13½ loads to equate to a 800-lb/54×108. Assume hot H₂O at 140° F; cold water at 70° F. 149 gal×8.34=1,242.7 lb×70°=86,989 Btu's. 86,989 Btu's+60 lb=1,449.8 Btu's/lb.

Source: Taken from the laundry machinery Equipment-Manual of one of the leading manufacturers of washer/extractors

APPENDIX B
LIGHT SOIL FORMULA¹

Step and water level	Water required		Temperature	Temperature difference (temperature minus incoming water)	Btu's
	Gallons	Pounds			
1. Wet down.....	240	2,002	160°	160° minus 70° equals 90°.....	180,180
2. 5 inches.....	128	1,068	160°	160° minus 70° equals 90°.....	96,120
3. 5 inches.....	128	1,068	145°	145° minus 70° equals 75°.....	80,100
4. 12 inches.....	262	2,185	140°	140° minus 70° equals 70°.....	152,950
5. 12 inches.....	262	2,185	120°	120° minus 70° equals 50°.....	109,250
6. 12 inches.....	262	2,185	110°	110° minus 70° equals 40°.....	87,400
7. 5 inches.....	128	1,068	100°	100° minus 70° equals 30°.....	32,040
Total.....					738,040

¹ Example: 54 × 108—open pocket=800 lb loading.

Note: Total, 1,410 gal+800 lb=1.76 gal/lb 738,040 Btu's+800 lb=922.5 Btu's/lb Formula: Table 29, p. 172 "What You Should Know About Laundering and Textiles" P. Eugene Smith, Ph.D. and Pauline Beery Mack, Ph.D.

TUMBLERS

Example: An American "Super" Thermatic Class 2290 Tumbler.

Capacity: 400 lb. dry weight.

Firing Rate: 2,300,000 Btu/hr.

Tests of drying ability: 19.1 lbs. of water/minute.

Assume a 60% water retention:

400 lb. (dry weight) × 60% = 240 lb. water

240 lb. of water + 19.1 lb. of water evaporated/minute = 12.56 minutes

2,300,000 Btu/hr. ÷ 60 min./hr. = 38,333 Btu/min.

∴ 12.56 minutes × 38,333 Btu/min. = 481,462.5 Btu's to dry

∴ 481,462.5 Btu's ÷ 240 lb. of H₂O = 2,006 Btu's/lb. of H₂O

∴ 481,462.5 Btu's ÷ 400 lb. (dry weight) = 1,204 Btu's/lb. of dry weight

Example: An American Thermatic "37" 37" x 30" tumbler

Capacity: 50 lbs. dry weight.

Firing Rate: 113,000 Btu's/hr.

No tests available: Assume 100% efficiency.

Assume a 60% water retention:

50 lbs. × 60% = 30 lb. water.

Btu's used at 15 min. = 28,250

20 min. = 37,667

25 min. = 47,083

30 min. = 56,500

Time	= Btu/consumed	+ pounds of H ₂ O	= Btu/pounds of H ₂ O	Btu/consumed divided by pounds of dry weight
15 min.....	= 28,250	+ 30	= 941.7	+ 50 = 565.0
20 min.....	= 37,667	+ 30	= 1,255.6	+ 50 = 753.3
25 min.....	= 47,083	+ 30	= 1,569.4	+ 50 = 941.7
30 min.....	= 56,500	+ 30	= 1,883.3	+ 50 = 1,130.0
32 min.....	= 60,267	+ 30	= 2,008.9	+ 50 = 1,205.3
35 min.....	= 65,917	+ 30	= 2,197.2	+ 50 = 1,318.3
40 min.....	= 75,333	+ 30	= 2,511.1	+ 50 = 1,506.7

In order to have equal consumption of Btu's/lb. of dry fabric, the 50 lb. tumbler would have to dry in 32 minutes. However, several assumptions were made:

1. 100% efficiency in utilizing Btu input.
2. Capability of being loaded to 50 lb.
3. Retention factor of 60%.

Industry experience has shown that this tumbler although called a 50 lb. really holds closer to 40 lbs. No equipment is 100% efficient. The retention factor can rise to 75% if lighter 60 lb. washer extractors are used.

At 40 lbs./load and with a 50% moisture retention, these small tumblers can only produce two loads an hour. At 100% efficiency, this would equate to 1,412.5 Btu's/lb. of Dry Weight.

Example: 113,000 Btu's/hr. ÷ 80 lbs. dry weight = 1,412.5 Btu/lb. dry wgt. ∴ the 400 lb. Tumbler using 1,204 Btu's/lb. of Dry Wgt. and the 50 lb. (40 lb.) Tumbler using 1,412.5 Btu's/lb. of Dry Wgt. shows an advantage of 208.5 Btu's/lb. of Dry Wgt. or 17.3% for the larger tumbler.

General industry averages from manufacturers of tumblers indicate a wide range of Btu's/lb. of H₂O evaporated.

These are:

400 lb. Tumbler = 2,000-2,800 Btu/lb. of Water Removed.

200 lb. Tumbler = 1,850-2,800 Btu/lb. of Water Removed.

100 lb. Tumbler = 3,000-3,600 Btu/lb. of Water Removed.

50 lb. Tumbler = 3,600-4,000 Btu/lb. of Water Removed.

Using the above figures and taking the highest usage for a 400 lb. Tumbler and the lowest usage for a 50 lb. Tumbler; each with a 60% moisture retention indicates:

400 lb. Tumbler has 240 lbs. of H₂O × 2,800 = 672,000 Btu's ÷ 400 = 1,680 Btu's/lb.

50 lb. (40 lb.) Tumbler has 24 lbs. of H₂O × 3,600 = 80,400 Btu's ÷ 40 = 2,160 Btu's/lb.

2,160 Btu's - 1,680 Btu's = 480 Btu's ÷ 1,680 Btu's = 28.5% Greater Efficiency for the 400 lb. Tumbler or 480 Btu's/lb. of Dry Fabric.

4. Inefficiency of Steam-Operated Tumblers

One method of drying in laundry technology, is to use steam-coil tumblers. However, this method is extremely inefficient in terms of energy use.

For example, a high-efficiency, gas-fired tumbler uses about 1,200 Btu's per pound of laundry processed. [See Appendix C.] By contrast, a steam-heated tumbler requires about 3,750 Btu's per pound of laundry processed. [See Appendix D.]

If the linen supply industry could convert to a fuel other than natural gas or oil, our energy consumption for drying would triple. This would be the equivalent of increasing the consumption of fuel by one or some combination of the following:

2,384,534 Barrels No. 2 oil per year.

2,321,511 Barrels No. 6 (low sulphur) oil per year.

14.021 Billion cubic feet of natural gas per year.

APPENDIX D—STEAM-HEATED TUMBLERS

According to tumbler manufacturers, all steam coil tumblers, regardless of size, use about 4,000 Btu's to evaporate one pound of water.

This calculates, using a 60% water retention factor, to:

4,000 Btu's/lb. H₂O ÷ 1.667 lb. dry fabric = 2,400 Btu's/lb. dry weight.

However, from the boiler to the tumblers and heat transfer accounts for a 20% Btu loss:

4,000 Btu's/lb. H₂O ÷ 80% = 5,000 Btu's/lb. H₂O.

5,000 Btu's/lb. H₂O ÷ 1.667 lb. dry fabric = 2,999.4 Btu's/lb. dry weight.

Boilers operating at a maximum of 80% efficiency account for another 20% loss of Btu's:

5,000 Btu's/lb. H₂O ÷ 80% = 6,250 Btu's/lb. H₂O.

6,250 Btu's/lb. H₂O ÷ 1.667 lb. dry fabric = 3,749.3 Btu's/lb. dry weight.

Processing 5.5 billion pounds of linen to a full dry condition, with a 60% moisture retention, would require the removal of 3.3 billion pounds of water.

1. Using steam coil tumblers:

5.5 billion pounds of linen × 3,749.3 Btu's/lb. dry weight = 20.261 trillion Btu's.

2. Using gas- or oil-fired 400-pound tumblers:

5.5 billion pounds of linen × 1,200 Btu's/lb. dry weight = 6.6 trillion Btu's.

∴ 20.621 trillion Btu's - 6.6 trillion Btu's = 14.021 trillion Btu's per year additional

This additional consumption of energy (Btu's) would convert to:

1. 14.021 trillion Btu's ÷ (1,000 Btu's/cu. ft.) = 14.021 billion cu. ft. of natural gas/year.

2. No. 2 oil @ 140,000 Btu's/gal. × 42 gal./barrel = 5,880,000 Btu's/barrel, No. 6 (low sulphur) oil @ 143,000 Btu's/gal. × 42 gal./barrel = 6,039,000 Btu's/barrel:

(a) 14.021 trillion Btu's ÷ 5,880,000 Btu's/barrel = 2,384,534 barrels No. 2 oil/year.

(b) 14.021 trillion Btu's ÷ 6,039,000 Btu's/barrel = 2,321,511 barrels No. 6 (low sulphur) oil/year.

STATEMENT OF THE NATIONAL ASSOCIATION OF COUNTIES

The National Association of Counties, the only national organization representing county government, appreciates this opportunity to present our views before this committee on one of the most critical needs ever facing the country—the need to develop a national energy program. We will focus our remarks on those portions of the Energy Conservation & Conversion Act, H.R. 6860, which directly affect county governments across the nation.

There are a number of provisions in this bill which if left intact would have severe ramifications for local governments.

At the outset, we are deeply concerned that there are no provisions for exempting crude oil manufactured into asphalt from the import quota system and import tariff system established under Title I of the bill. The bill does exclude, by definition, imports of finished asphalt, however finished asphalt accounts for only 8 or 9% of all the asphalt used in this country. Over 40 percent of the liquid asphalt binder used for the composition of highway surfaces in this country is derived from foreign crude oil sources.

As you know, about 93 percent of the 1,737,000 miles of paved highways in the United States have asphaltic surfaces, and at present asphalt is the only material of practical use in repair and maintenance of these highways. As county governments in 40 states have the prime responsibility for highway construction, maintenance and repair, asphalt is a significant item in the budgets of most counties.

While overall maintenance costs on highways have increased by 30 percent in the past year, the severe reductions in imports of petroleum and escalation of costs during the energy crisis have already escalated the cost of asphalt cement from about \$28.00 per ton to current prices in the range of \$90.00 per ton and more. With the numerous fiscal problems facing county government at a time of increasing demand for public services, our member units and the public they serve can ill afford the burden of further increases in the cost of asphalt.

We are deeply concerned about potential long-term shortages of asphalt—particularly the effect this condition will have on our highway investment. This investment totals approximately \$93 billion. Highway funds are woefully inadequate to upgrade and maintain our current system. We, as a nation, certainly cannot afford to let our present highway system degrade further. We would thus urge the Senate to take steps to secure the exemption of asphalt from import quotas and tariffs so as to insure the adequate supply of asphalt at a reasonable cost.

Along with the asphalt exemption, we urge that any plan which increases other fuel and petrochemical costs must provide a formula for compensating state and local governments as well as school districts for increased expenses thus incurred.

Title II of this bill contains a section which authorizes the repeal of excise taxes on intercity buses and radial tires. The revenues incurred from these taxes account for 80 million dollars annually of the Highway Trust Fund. This repeal is an unjustified intrusion into funds earmarked for our nation's highways.

The Trust Fund expires on September 30, 1977. Both the House and Senate are currently holding extensive hearings to determine the future of the program. Any decision to interfere with this Trust Fund should be made only after these hearings are completed.

It is important to understand that most of the revenues from our Highway Trust Fund are used for the repair and reconstruction of our nation's existing highway system—not the construction of new highways. In testimony before the Senate Public Works Committee, Federal Highway Administrator Norbert Tiemann has indicated that highways are physically wearing out at a rate of

50 percent greater than we are replacing it. Most intercity public transportation systems utilize our nation's highway systems. Therefore, any action to interfere with the maintenance of an adequate highway system will be counter productive to efforts aimed at energy conservation.

Title IV of the bill provides incentives through tax credits and a 5-year amortization program for certain energy saving equipment including but not limited to solar energy. While we support this provision, we believe there needs to be more incentives given to local governments for the installation of solar or related energy conservation equipment. The present ERDA program which addresses solar energy does not provide sufficient financial and technical assistance for local governments to demonstrate the effectiveness of alternative energy sources.

We strongly support Title II of the bill establishing automobile efficiency standards. We believe that any comprehensive program of energy management must recognize the key factor of automobile efficiency and use, and should include federal adoption of minimum fuel economy performance standards for new cars so as to achieve an average fuel economy of at least 20 miles per gallon. We would recommend that the Senate take this provision one step further to require the efficiency of all other existing energy consuming devices other than the automobile. Such provisions might include mandatory energy labelling of all appliances.

Title II of the bill, as originally reported to the full House by the Ways & Means Committee, provided for taxes on gasoline and special motor fuels. Although this section was stricken from the bill by a floor amendment, we want to insure that our position is known in the event that this provision is reconsidered by the Senate. Because the gasoline tax has been a traditional source of revenue for the repair and maintenance of roads and highways by state and local governments, we would urge the Congress to allow states to pre-empt at least 50% of any gasoline tax which may be imposed. We would further urge that states return to local governments an amount of revenues collected based on sharing formulas in existing state statutes.

In conclusion, we would like to submit for the record the official energy policy statement of the National Association of Counties. This statement outlines a number of other elements which NACo believes are crucial to a national energy program.

NACo appreciates the opportunity to present our point of view to your committee. We strongly urge you to consider carefully the needs of county governments in serving our mutual constituents across the Nation.

AMERICAN COUNTY PLATFORM ON ENERGY

5.5 Energy

The National Association of Counties strongly believes that a national energy management program must be developed which focuses attention upon a balance between energy resource development and energy consumption levels that is consistent with efficient utilization of our natural resources and continued concern for protection of the environment.

It is clear that it will not be feasible to significantly expand domestic energy production in the immediate future. What we must do now is develop a program for managed growth of energy consumption.

NACo encourages the creation of a dialogue between all levels of government, the public, and the private sectors of the economy to plan now for future energy uses and resource development that will commit this country to rational and efficient energy consumption. This dialogue should lead to the establishment of a national energy management program founded on strong federal leadership through appropriate legislation and federal programs developed in coordination with state and local elected officials.

5.51 National Program.—NACo recommends that a national energy management program include the following elements:

A. Establishment of a conservation program emphasizing the critical importance of reduced energy consumption growth rates. ~

B. Creation of a reliable energy information system available for public review.

C. Coordination of various federal programs and agencies which are related to energy, including, but not limited to, mass transit, environmental quality, resource management and development, land use, and housing.

D. Incentives to increased production of domestic energy sources and adequate funding for research and development of more efficient utilization of such sources.

E. Incentives to increased research and development of alternative uses of existing energy sources as well as exploration of new energy sources.

F. Encouragement of programs to review the efficiency of existing energy consuming devices (such as the internal combustion engine and all types of appliances) and for research and development directed to the creation of more efficient energy utilization systems.

G. Careful consideration of the social, economic and environmental impact of energy decisions.

H. An active program for resource and energy recovery.

I. Development of resources on public lands (both on shore and off shore) in conformance with a national energy plan and an intergovernmental process, including an active decision-making role for local elected officials, and those local agencies responsible for planning and controlling environmental risks.

J. Incentives to increase research, development and implementation of alternate energy sources, especially those in the renewable resource area.

K. Energy facility siting legislation which considers land use and environmental factors and does not pre-empt local interests.

L. Provisions for assistance to "boomtown" communities (communities impacted by energy development) in the form of financial, management, planning, technical and implementation aid.

5.52 Delineation of State and Local Roles.—Elected officials of local government should participate in the initial decision making processes leading to the planning and development of national energy policies and programs. Elected local officials should also participate in the planning and development of implementation processes for all energy regulatory, conservation and economic impact programs. Elected officials should:

A. Provide data on local and regional requirements for energy consumption and on social and economic impact of energy shortages;

B. Establish guidelines for conservation efforts within their jurisdictions;

C. Be provided with grants to fund energy information exchanges, promote conservation measures, and alleviate unemployment and economic dislocations within their communities.

5.53 Automobile Efficiency.—Any comprehensive program of energy management must recognize the key factor of automobile efficiency and use, and should include federal adoption of minimum fuel economy performance standards for new cars so as to achieve an average fuel economy of at least 20 miles per gallon and incentives for the manufacture and purchase of efficient vehicles.

NATIONAL ASSOCIATION OF MOTOR BUS OWNERS.

Washington, D.C., July 8, 1975.

Subject: Energy Conservation and Conversion Act of 1975 (H.R. 6860).

Hon. RUSSELL B. LONG,
Chairman, Committee on Finance,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: On behalf of the National Association of Motor Bus Owners (NAMBO) I submit for the consideration of your Committee five amendments to the Proposed Energy Conservation and Conversion Act of 1975 (H.R. 6860).

NAMBO is the national trade association for the intercity bus industry. Our 450 operator members provide more than 90 percent of the intercity bus transportation in the United States.

Intercity bus transportation is the nation's most energy-efficient mode of travel. A 43-passenger intercity bus obtains six miles per gallon of fuel and thus, fully loaded, can produce 258 passenger miles per gallon. By contrast, a standard automobile carrying a driver and three passengers only obtains 72 passenger miles per gallon of fuel and only 18 passenger miles if the driver is the only occupant of the vehicle.* In local and suburban traffic the energy advantage of the bus over the automobile is much more pronounced.

*Report to the Congress on the Rail Passenger Service Act, Secretary of Transportation, July 1974 (Appendix C).

The amendments which are hereinafter explained are designed to encourage the general public to travel by bus rather than by private automobile. Such an incentive is obviously consistent with the national energy conservation objectives of H.R. 6860.

First, we suggest the pending bill be amended to repeal the 8 percent excise tax on bus parts and accessories imposed by section 4061(b) of the Internal Revenue Code. Taxes in 1974 on parts purchased by intercity bus operators amounted only to about \$2,000,000. Taxes on parts and accessories sold to operators of transit buses in 1974 amounted to about \$800,000.

Secondly, we suggest that the effective date for repeal of the manufacturers' excise tax on buses used in intercity public transportation be March 17, 1975 rather than the effective date of the Act, as provided by section 221(b) (1) of H.R. 6860. The House of Representatives concluded it was unwise to continue to impose manufacturers' excise taxes on intercity buses and on radial tires because greater use of each would reduce fuel consumption. In the case of radial tires, however, the effective date of repeal was established as March 17, 1975 so that prospective tire purchasers would not defer buying radial tires. We believe prospective purchasers of buses are entitled to the same treatment, and that those operators who purchased buses subsequent to the introduction of the predecessor bill (H.R. 5005) should not be penalized.

Thirdly, we recommend an amendment to H.R. 6860 to amend section 6421 (d) (2) (A) of the Internal Revenue Code of 1954 relating to the definition of commuter fare revenue. Under present law, refunds of excise taxes on diesel fuel are provided for motor carriers of passengers if 60 percent or more of their revenue is "commuter fare revenue," the principal test of which is "amounts paid for transportation which do not exceed 60 cents." Inflation since 1956 has rendered this test virtually meaningless. Because of inflation and the continuing movement of people to more distant suburbs, we recommend that the pertinent definition of commuter fare revenue be revised to read as follows:

"(A) Amounts paid for single trips of less than 50 miles."

Fourth, we do not believe it is consistent with a sound national energy policy or with the basic objectives of H.R. 6860 to make refunds of excise taxes on fuel used in commuter and suburban service contingent upon any particular percentage of a carrier's revenue derived from such operations. Accordingly, we recommend that sections 6421 (b) (2) and 6427 (b) (2) of the Internal Revenue Code of 1954 be amended to delete the requirement that at least 60 percent of the total passenger fare revenue be derived from commuter fare revenue. In other words, we believe that refunds should be available with respect to all of the fuel used in providing commuter and suburban service even though the carrier involved may be predominantly engaged in providing intercity service.

Finally, we believe that monies in the proposed Energy Conservation and Conversion Trust Fund should be made available for the purpose of improving State as well as local and regional projects and for the purpose of improving intercity as well as local bus transportation. Accordingly, we recommend the insertion of "State" before the word "local" on line 7, page 71, of the pending bill and addition at the end of line 15 of the following new subsection: "(H) intercity transportation by bus."

I would appreciate having this letter printed as part of the Committee's record of hearings on H.R. 6860.

Respectfully submitted,

CHARLES A. WEBB,
President, National Association of
Motor Bus Owners.

[Telegram]

WASHINGTON, D.C., June 6, 1975.

Re H.R. 6860, Energy Tax bill.

AL ULLMAN,
House of Representatives,
Washington, D.C.

We urge you fully to support section 533 of H.R. 6860, the recycling tax incentive section of the Energy Tax bill, when it is reached for a vote on House floor next week, and to oppose and vote against the Gibbons-Green motion to strike section 533.

Section 533 is critically important to (1) industrial energy conservation, (2) reduction of city, state and county solid waste disposal costs and problems, (3) conservation of scarce natural raw materials, and (4) to the alleviation of several other crucial problems of great national and local interest.

Its enactment by the Congress plainly cannot be delayed any longer.

In addition to the undersigned, section 533 is supported by the Environmental Protection Agency, the Citizens' Advisory Committee on Environmental Quality, the American Paper Institute, the Institute of Scrap Iron and Steel, the Glass Container Manufacturers Association and Recycling organizations throughout the United States.

Your strong support will be deeply appreciated.

The National League of Cities.

The National Governors Conference.

National Assn. of Recycling Industries, Inc.

JUNE 2, 1975.

HON. RAY J. MADDEN,
Chairman, House Rules Committee,
Washington, D.C.

DEAR MR. CHAIRMAN: We are writing today to ask your support for a rule for H.R. 6860, the Energy Conservation and Conversion Act of 1975. The bill, as reported by the Committee on Ways and Means two weeks ago, represents an alternative approach to the Administration's energy program—a program stridently opposed by the nation's cities.

Section 533 of the bill would establish a recycling tax credit program for producers of recycled goods. A survey conducted by our offices recently indicated that well over half of the nation's cities will run out of landfill disposal sites within the next two years. Enactment of the Ullman recycling tax credit program would be one method of reducing the overall volume of waste cities have to handle and dispose of. Further, it would have the additional benefit of providing significant energy savings, and of equal importance would be the substantial savings realized in natural resources—savings which in the long term will serve to reduce our dependence on foreign sources.

Our first preference would be that the tax system pertaining to the direct utilization of virgin materials be revised. However, the Ullman proposal is at the present time the only legislative initiative being actively considered. Within this context, we urge you to vote in favor of the rule in order that the entire House membership be afforded the opportunity to discuss and take action on this matter.

We appreciate this opportunity to comment on a matter of tremendous urban concern.

Sincerely,

ALAN BEALS,
Acting Executive Vice President.

[An Interview with the Secretary of the Interior]

A MINERALS CRISIS WOULD BE WORSE THAN THE ENERGY CRISIS

A minerals crisis? Far more than it depends on imports of oil, the U.S. economy depends on imports of various ores and minerals. Suppose the producer nations got together on things like iron ore and bauxite and copper and decided to create cartels and jack up the prices? There would be not one Organization of Whatever Exporting Countries but a dozen.

Rogers C. B. Morton, U.S. Secretary of the Interior, thinks the possibility should at least be taken seriously. At a press conference not long ago he cited bauxite, the raw material for aluminum. "There is no reason," the tall, silver-haired Morton said, "why the bauxite producers can't get together like the Arabs in oil and double the price."

How real is the possibility? Forbes put the question directly to Morton in an exclusive interview.

MORTON: I just think as a matter of safety and economic security it would behoove us to make sure that we are not overly reliant on foreign sources of essential mineral ores and minerals. If we ever get at their mercy. . . . You know, there's a lot of anti-American sentiment around, and even some of the friendliest countries change under pressure. I'd hate to see us get ourselves over

the barrel and have to go around the world begging with our hat in our hand for some of these essential minerals. This isn't a crisis situation, but we could get into a crisis situation if we don't do anything.

In the case of energy, we crossed suddenly over the threshold from surplus to short supply, but that's not going to happen in other materials. It's going to be a gradual thing and therefore might be more insidious. You're not going to be as conscious of it. So I think it behooves us to examine every one of our strategic mineral resources—particularly those that are not domestic—and examine what the trade-offs are. Probably won't cost us any great bunch of money. We might want to enlarge our supplies. Maybe there are some countries we are not buying from. We maybe ought to develop recovery and extraction technologies of minerals we have that are in lower-grade ores and put together programs to bring this utilization of domestic resources up to at least the demonstration level.

What you're saying is that we can't depend any longer on any foreign source of supply—not even on those, like Canada and Venezuela, that we've always considered in the past almost a part of our domestic supply.

MORTON: The Canadians are our friends, but you've got to remember the Canadians and every other country have problems with their own industries. Certainly there's nationalistic pressure developing in Canada to say, "Don't export all of our minerals, don't export all of our oil, don't export all of our gas." Australia is the same way. Australia is actually passing legislation in this area. Before we get down to the last drop in the cup, let's make sure we don't get to that last drop. If we do that, we won't have a minerals crisis.

What are some of the things we should do?

MORTON: First, we're trying to get a little bit better feel of what the projected demand is for those minerals for which we are dependent upon foreign sources. I think we also sought to review our policy regarding the liquidation of the stockpile, particularly in those minerals we do not have or do not have the technology to extract economically in the U.S. and so have to buy from other countries—like manganese or chromite. I don't think we ought to reduce these stockpiles too much because the inventory itself is a stabilizing influence on the availability of the resource as well as on its price. If you've got a big inventory, a big stockpile, sure, it sits there, it doesn't produce any revenue, sure, it costs money, but it may in the long run hold down the price to where it's worth its weight.

Manganese and chromite are small-volume materials that are easy to stockpile, but what about the large-volume materials—aluminum, for instance? We import close to 90% of the bauxite ore we need to make it.

MORTON: I would like to see us put together some sort of program, demonstration size, for the extraction of aluminum from ores other than bauxite—clays and other aluminum sources. We have an abundance of these other ores in this country, but we've never felt the economic necessity for developing the technology and processes of producing it.

But bauxite is only a small part of the total cost of a pound of aluminum, so that, even if the price of bauxite should double, it wouldn't have that much of an impact on the selling price of aluminum itself.

MORTON: It would have both a direct and an indirect effect. If you doubled the price of bauxite, the Bureau of Mines believes that the \$600-a-ton (30-cents-a-pound) current aluminum price would go up 5 cents to 8 cents a pound, or at least \$100 a ton. That would be 15% or so. We don't expect this to happen, but it could be tough if it did.

The other thing it would do is sort of set an example that might spill over into tin and copper and manganese and other areas that would also double in price, and if that happened, altogether, across the board, it would have a very significant impact on our balance of payments.

Is this likely to happen soon?

MORTON: Thank goodness, there's enough stuff around the world so I don't think anybody can get a total grip on any one material, with the exception of a few things—gold and stuff like that where you're dealing with maybe one or two countries. Even so, we don't want the escalation of foreign mineral prices give a bad trade deficit, because that in itself has its problems.

Why did you cite bauxite as being particularly vulnerable?

MORTON: In copper and lead and zinc we've got a good domestic base. But in bauxite we don't have a very substantial base in production.

There might be efforts on the part of the bauxite group to get more money; we can understand that in the light of the world situation and general cost escalations that are going on throughout the world. For example, our relationship with Jamaica, where an awful lot of our bauxite comes from—35% to 40%. I don't see, and I don't think anybody else sees, a deterioration in the relations between the U.S. and Jamaica. They're a good trading partner. On the other hand, you might find some pressures developing for an increase in prices.

Your remarks at that December press conference suggested a much higher state of alarm than you evidence today.

MORTON. Well, I wouldn't be able to get done the things we have to get done unless I waved the flag, and I did. We could have a materials crisis. I think we can live at a lower consumption level in energy, whether it's 10% or 5% or 15% or 20%, and we can live there and still have a very active economy, because we have been a kind of wasting nation as far as energy is concerned. But I think that, if we got into a situation where we really got in short supply on minerals, this could have a much more severe type of impact.

That's why I feel we've got to make some decisions on where we're going. We've got to start assessing what's really going to waste in this country through the failure to recycle, especially in junk automobiles and all the rest of it. Maybe it's going to cost more, but at the same time maybe that's a good investment to make.

You see, basically we're in a pretty good position. When King Faisal was over here, one of his staff people asked what we were doing, and I said we're doing everything we can to perfect the utilization and development of 45% of the world's coal supply. I said there's no reason for us to be forever dependent on oil from overseas. Certainly this is in everybody's best interest, in the best interest of our friends who don't have any, our friends in Japan, Germany, The Netherlands, Britain. Every time we go for a barrel of oil in the Near East market, we're competing with them.

You can make the same case for minerals.

STATEMENT BY THE NATIONAL CLAY PIPE INSTITUTE

SUMMARY OF PRINCIPAL POINTS SUBMITTED

1. The National Clay Pipe Institute is submitting for its members and for the clay pipe industry a request for an exemption from the excise tax on the use of natural gas/petroleum.

2. The reasons for this exemption request are based on (1) the unique characteristics of the process involved in the manufacture of clay pipe, and (2) the inequity of the proposed tax which excludes by definition the use of natural gas/petroleum as a feedstock in the manufacture of plastic pipe, our strongest competitor.

3. The technological and practical bases for seeking the exemption are outlined in detail in the statement. Briefly, the drying and firing of clay in tunnel and insulated fire-brick periodic kilns demand precise control of temperatures which are required to achieve verification of the clay. The ceramic process used in the manufacture of clay pipe is directly comparable to that employed in the glass industry, which is exempt in H.R. 6860. The conversion to coal, the only conceivable alternative, is simply not technologically feasible if the clay pipe industry is to produce a product capable of competing with at least four other materials and a variety of plastic pipes.

4. Since, under the Act, the use of natural gas/petroleum as a feedstock is excluded from the tax, plastic pipe will be virtually free of taxation whereas clay pipe would be faced with an ever-increasing tax burden. Such a result is discriminatory and inequitable and we seek appropriate relief.

STATEMENT

Mr. Chairman and Members of the Finance Committee; my name is James B. Millikan. I am President of the Pomona Corporation of Greensboro, North Carolina. We are manufacturers of vitrified clay pipe used in sanitary sewers and have been in business since 1886. I am appearing here today as the Chairman of the Government Relations Committee of the National Clay Pipe Institute. I am accompanied by the Chairman of the Board of the Institute, Mr. Richard H. Hoil of Logan, Ohio, and our Washington Vice-President, Mr. Jack Newbould.

The National Clay Pipe Institute is an international trade association and represents the major manufacturers of vitrified clay pipe in the United States. Our product is used exclusively in sanitary sewers for the collection and conveyance of municipal and industrial wastewater, an essential element in the national program to clean the nations' waters. Vitrified clay pipe has been for many years the principal material used for municipal sanitary sewer systems.

Today there are twenty companies engaged in the manufacture of vitrified clay pipe. These companies operate 38 plants located in 20 states of the United States. Shipments in 1974 amounted to approximately 1,500,000 short tons, for a value of \$135,000,000. The clay pipe industry is made up of small to medium-size regional companies. The total annual energy requirements of the industry expressed in Natural Gas MCF equivalents are approximately 22,000,000 MCF. This equivalency is used because Natural Gas is the primary fuel used in 36 of the 38 plants in existence, the other two utilizing fuel oil.

Simply stated, the process for manufacturing vitrified clay pipe involves mining and blending high quality clays, grinding and screening these clays to a desired consistency, mixing the processed clay with water to attain plasticity, by extrusion methods forming the material into the desired shapes, and then drying and firing the product to the point of vitrification. The majority of clay pipe produced in this country are fired in tunnel kilns or in insulated fire-brick periodic kilns.

All of the kilns are fired with natural gas or petroleum, because the processing of the raw clay into its final form demands uniform moisture-elimination drying and carefully-controlled heat application of several days, following a pre-set curve to a maximum 2000 degrees Fahrenheit. At this point vitrification occurs. Vitrification is the process whereby the interfacing surfaces of the clay mineral particles become fused into a glass-like, dense, chemically stable structure. This action gives the pipe its principal characteristics of rigidity, strength, and resistance to attack by the chemicals found in all sanitary sewers.

The high quality of today's vitrified clay pipe is a direct result of the modernization of the industry which began following World War II. Prior to that time the majority of clay pipe were fired in beehive kilns using coal as a fuel. Since that time, however, requirements for strict dimensional tolerances plus longer lengths of pipe have made it necessary to maintain precise control during the firing process. The introduction of the gas/petroleum-fired automated tunnel kiln and the insulated fire-brick periodic kiln with high velocity burners permitted an increase in productive capacity with greater fuel efficiency and with less heat loss than was experienced in the original beehive kiln. While the beehive kilns are still in use today because they are required for the firing of very large diameter pipe, strenuous efforts are underway in the industry to replace these with insulated fire-brick periodic kilns or to modify tunnel kilns to accept the larger pipe in order to increase production and to conserve fuel.

We must have natural gas or petroleum to fire our tunnel and insulated fire-brick periodic kilns. There is no feasible alternative for us. The manufacture of clay pipe is a ceramic process directly comparable to that in use in the glass industry. The average tunnel kiln is four or five hundred feet long and is equipped with a hundred or more gas or oil burners, a multitude of fans for draft and recirculation purposes, and an intricate system of temperature indicators and controls. Only natural gas or petroleum can provide the combustion efficiency and the delicate response of control to insure against variations from the vitrification curve required, particularly near the critical point of vitrification. It is simply not technologically feasible to convert a tunnel kiln to the use of coal; nor is it possible to convert modern insulated fire-brick kilns to the use of coal; nor, could we hope to maintain the standard of our product whereby we are able today to compete with at least four other materials and a variety of plastic pipes.

The purpose of the excise tax in Title IV of H.R. 6860, according to the Ways and Means Committee report accompanying the Act, is to encourage industry to conserve fuel and to convert to coal or nuclear energy. Our concern with the tax as proposed is, therefore, two-fold. As we have attempted to explain, it is simply not feasible for our industry to convert to coal. Just as disturbing to us, however, is the discrimination in the tax on our use of natural gas as a fuel coupled with an exception for the use of natural gas as a feedstock in the manufacture of plastics. Plastic pipe is currently our strongest competitor in the sanitary sewer market. The plastic pipe is formed by the use of electric power from the resin produced from the natural gas feedstock. Consequently, plastic pipe would be virtually free of taxation under the Act, while our product would be subjected to

an ever-increasing burden of taxation. This is clearly inequitable and we respectfully request the Senate Committee to adjust this imbalance in the law. For this purpose, we are attaching a proposed amendment to provide an exemption from the natural gas/petroleum tax for the vitrified clay pipe industry.

In summary, there are two points which we wish to make:

(1) It is not technologically feasible to convert existing firing facilities for vitrified clay pipe from natural gas or petroleum to coal because of the necessity to maintain precise firing control that cannot be accomplished with coal. A requirement to convert would simply eliminate this industry and a vital product from the sanitary sewer market.

(2) It is discriminatory and totally unfair to tax natural gas used by the clay pipe industry without placing an equal tax on the natural gas used by the competing petrochemical industry.

I will be pleased to try to answer any questions the Committee may wish to pose.

AMENDMENT TO H.R. 6860 RECOMMENDED BY NATIONAL CLAY PIPE INSTITUTE

On page 79 of the Act of June 23, 1975, line 24, following the word "products", delete the period, insert a comma and add the following:

"and (I) in the process of drying, firing, or other industrial processes used in the manufacture of vitrified clay sanitary sewer pipe."

STATEMENT OF NORTH AMERICAN CAR CORPORATION REGARDING SECTION 423 OF H.R. 6860

North American Car Corporation is pleased to have the opportunity to file a statement with the Senate Committee on Finance in connection with its consideration of H.R. 6860. North American Car Corporation is a private railcar leasing company which currently owns a fleet of approximately 40,000 railcars, which are leased to shippers and railroads throughout the United States and, to a lesser extent, in Canada. North American Car Corporation is a vital part of the transportation industry and in a unique position to judge its needs and requirements.

We interpret the aim of Section 423 (H.R. 6860) as twofold: first, to stimulate investment in railcars because they are an energy efficient means of transportation, and second, to assist utilities as they convert from burning of petroleum to burning of coal, an abundant United States resource.

The proposed legislation falls short of its objectives because it will stimulate investment in railcars only purchased by railroads and coal cars only purchased by utilities. Therefore, this measure does only half the job. A second major source of railcars for the nation's rail system are the private leasing companies who own several hundred thousand railcars of the nation's current fleet of 1,700,000 railcars. These leasing companies provide equipment to shippers and railroads alike. Approximately 30% of the 1,700,000 railcars in the nation's fleet are owned by non-railroads.

Both railroads and utilities require large amounts of capital for the operations of their businesses. The leasing industry is an alternative source of capital for both of these capital consuming industries. The proposed legislation would not allow the private railcar leasing companies the proposed preferential tax treatment even though they supply a large portion of the railcars used in the United States.

Section 423 should be amended to cover railcars-irrespective of the owner or user to stimulate further investment in the nation's supply of efficient transportation equipment for the following reasons:

1. Railroads are not the only providers of equipment for the movement of goods in the United States. The trend toward shipper-supplied rail equipment has increased over the past 75 years, while the number of railcars purchased or built by railroads has been declining. In 1974, at least 52% of all new railcars were built for private ownership rather than for the nation's carriers (35,019 of a total 66,607). In addition, the railroads also lease from other (primarily financial institutions) several hundred thousand railcars which are usually recorded as owned by the railroad.

Of primary importance is the trend among the railroads themselves to welcome the notion of shipper-supplied equipment, an acceptance which is based on the

realization that railroads generate revenues by hauling freight, rather than through ownership of equipment. The railroad industry's capital can best be used for maintenance of way and the purchase of locomotives where outside sources of capital are not readily available. However, equipment can be provided by many leasing companies.

2. Apropos of specific legislative references to utilities, North American Car Corporation is currently bidding on transactions involving approximately 15,000 railcars for electric utilities. Naturally, the utilities' cost will in large measure be determined by the tax consequences accorded. As a provider of railcars for coal shipments, North American Car Corporation has a direct interest in encouraging the use of coal and, therefore, should be accorded the same tax benefits as the railroads and utility owners as long as the railcars are used for the transportation of coal.

3. Since 1888, when the Interstate Commerce Commission absolved railroads from maintaining large inventories of specialized railcars to serve the year-round needs of all the shippers along their lines, private car companies have enabled entire industries to grow and prosper—notably the chemical and petroleum industries. Today, the energy saving benefits of rail transportation continue to attract a wide variety of commodities heretofore shipped only in more expensive (and smaller) containers—solely through the development of specialized rail equipment by the private car companies.

4. To discriminate in favor of railroads is inconsistent with the policy of providing stimulation to investment by all companies engaged in the rail business to provide more railcars.

5. Through a variety of lease instruments, the private leasing companies provide tens of thousands of cars to the railroads and their charges to the railroad companies are greatly affected by the tax treatment under which they operate. Since all railcars provide an energy efficient means of transportation, the role of leasing companies is as important to the conservation of energy as that of the railroads, and thus should be accorded the same tax benefits as the railroads. Naturally, a reduction in the tax to the private car companies will be passed on to the railroads.

As a primary source of capital for the transportation industry, leasing companies provide investment capital to many railroads whose credit ratings are less than ideal. North American Car Corporation, for example, has on lease with Penn Central and Rock Island \$65,570,000 worth of equipment, at a time when their business is being avoided by many financial institutions.

6. The private railcar leasing industry invests more than even the largest railroad; investments by individual leasing companies exceed investments by 90% of the individual railroads. In the period 1971–1974, North American Car Corporation invested approximately \$450,000,000 in the purchase of new railcars. In addition, our company maintains railcar assembly and maintenance facilities throughout the United States and Canada representing a capital investment in excess of \$3,000,000; our present annual maintenance budget is \$15,500,000.

Attached hereto as Annex I are proposed changes to Section 423(b) which we feel are necessary to more fully implement the Congressional policy for the reasons set forth above.

ANNEX I

PROPOSED AMENDMENT TO SECTION 423(B) H.R. 6860

(b) CERTAIN COAL CARS AND RAILROAD FERRY VESSELS.—Subsection (d) of section 184 (defining railroad rolling stock) is amended to read as follows:

“(d) QUALIFIED RAILROAD ROLLING STOCK.—Except as provided in subsection (e) (4), the term ‘qualified railroad rolling stock’ means, for purposes of this section—

“(1) rolling stock [of the type used by a common carrier engaged] in the furnishing or sale of transportation by rail[road and subject to the jurisdiction of the Interstate Commerce Commission] if—

“(A) such rolling stock is—

“(1) used [by a domestic common carrier by railroad] on a full-time basis in the United States, or on a part-time basis if its only additional use is an incidental use [by a Canadian or Mexican common carrier by railroad on a per diem basis,] in Canada or Mexico, or

- "(ii) owned and used by a switching or terminal company all of whose stock is owned by one or more domestic common carriers by railroad, and
- "(B) the original use of such rolling stock commences with the taxpayer after December 31, 1968;
- "(2) any railroad rolling stock not described in paragraph (1)—
- "(A) which is a car used **[by the taxpayer]** predominantly in the hauling within the United States of coal which is used (other than for resale) **[by the taxpayer in his trade or business]**, *in the trade or business of the furnishing or sale of electrical energy*, and
- "(B) the original use of which commences with the taxpayer after May 7, 1975; and
- "(3) any vessel—
- "(A) which is used predominantly by the taxpayer, in hauling railroad rolling stock between terminals located within the United States, and
- "(B) the original use of which commences with the taxpayer after May 7, 1975."

NOTE.—Italic indicates proposed new language. Language in bold brackets indicates proposed deletions in original language.

STATEMENT BY EDWARD F. RENSHAW, DEPARTMENT OF ECONOMICS,
STATE UNIVERSITY OF NEW YORK AT ALBANY

QUOTAS ON IMPORTED OIL

The House of Representatives has recently approved a bill which would set a quota on oil imports subject to Presidential adjustment. For the bill to be effective at stabilizing the price of imported oil the President should be given the authority to reduce the import quota by a somewhat greater percentage than any future OPEC price increase. A fairly simple way to provide such authority would be to permit oil imports to be reduced by as much as .5 million barrels per day for each one dollar increase in the price of foreign oil.

If such authority were exercised, OPEC members would not be able to increase their oil revenues from the U.S. by raising prices. The knowledge that the President had the power to actually reduce their revenues if they raise prices should inhibit them from doing so and also increase the President's bargaining power in any forthcoming negotiations between the oil consuming and producing nations.

This approach would be more effective if other consuming nations were to adopt similar legislation. Much of our own imported oil comes from some of the weaker members of OPEC, however. Since a sizable cut back in U.S. oil imports would hurt Venezuela disproportionately, there is reason to believe that the quota system just described would strain the cohesiveness of OPEC and greatly improve our own balance of payments and bargaining position even if the other oil consuming nations were not to emulate the U.S.

The price of oil is, to a considerable extent, a matter of gamesmanship. If the President could defeat the income raising objective of a price increase for some members of OPEC, there is a possibility that the President's authority to do so would not have to be exercised and that consumers would be able to enjoy lower prices and taxes than would otherwise be necessary to curb the power of the international oil cartel.

STATEMENT OF CAREL OTTE, VICE PRESIDENT, GEOTHERMAL DIVISION, UNION OIL
Co. OF CALIFORNIA

Mr. Chairman and Members of the Committee, The prompt development of geothermal energy can be of major importance in meeting the future energy needs of the nation. It is urged, therefore, that in its consideration of H.R. 6860, the Energy Conservation and Conversion Act of 1975, the Committee consider appropriate legislation designed to assist and promote the development of geothermal energy.

BRIEF HISTORY OF GEOTHERMAL ENERGY DEVELOPMENT

The only major U.S. geothermal energy development is The Geysers field located about 90 miles north of San Francisco in California's Sonoma County. The development began in 1960 with a 12.5 megawatt generating plant. In 1973, it became the largest geothermal development in the world, with a capacity of 400 megawatts. The installed generating capacity now exceeds 500 megawatts, sufficient to supply electrical requirements of a city of 500,000. The Geysers eventually is expected to achieve a capacity of more than 1,500 megawatts, but it will have required more than 20 years to achieve it.

Other areas which have promised for early development in the near future—given the needed incentives—are in north central New Mexico and the Imperial Valley of California, and active exploration is also being carried on in other parts of California and New Mexico and in Nevada, Oregon, Idaho, Utah and Arizona. The geopressed areas of Louisiana and Texas hold promise for the longer range future.

Everything accomplished in the geothermal energy field up to the present time has been financed by private companies. There have been no grants or encouragement from the Federal government; however, although The Geysers itself is of commercial significance, the industry is still clearly in its infancy.

PRACTICAL UTILIZATION AND POTENTIAL ROLE IN NATIONAL ENERGY PICTURE

Geothermal energy undoubtedly has the potential for a fairly wide range of use in coming decades, and even today in some nations it is utilized for space heating and industrial process heat, such as in the New Zealand paper industry. However, the immediate and near-term practical use in the United States is and will almost certainly continue to be primarily for electrical power generation. A pound of steam from the earth is indistinguishable from a pound of steam from a fossil-fuel-charged boiler and has been proven to be as effective in powering conventional electrical generating equipment.

The outlook for geothermal energy production has been studied extensively in recent months by the Federal Interagency Panel for Geothermal Energy Research, the Energy Research and Development Administration and its industry liaison group. The consensus emerging from this review of all factors is that there is the geological opportunity for up to 20,000 megawatts of electrical generating capacity by 1985. Indeed, the Project Independence report has set this 20,000 megawatts as a 1958 goal for the nation. Such capacity—equal to 5% of current national electrical capacity—represents the equivalent of almost 300 million barrels per year of low sulfur crude oil. And this amount of energy could be developed in an acceptable environmental manner.

But there are tremendous economic barriers which this industry must overcome: the tremendously high costs of drilling for geothermal deposits in hard rocks, with high temperatures and corrosive fluids; the very large capital investments required over several years before revenues can begin for a geothermal project; the requirement for drilling many replacement wells at each development site to maintain a constant stream of energy; and the present discouraging Federal income tax treatment.

The projected investment for achieving the 1985 goal includes the costs of drilling at least 800 exploratory wells and 6,000 development wells at a minimum cost of \$500,000 per well, or a total of \$3.4 billion in 1975 dollars in drilling costs alone. Depreciable investment in hook-up facilities will add another \$2 billion. Moreover, some 2,000 replacement wells will be required, with the attendant depreciable investment, bringing the total investment requirement to about \$10 billion.

TAX CONSIDERATIONS

It is extremely unlikely that the 1985 goal of 20,000 megawatts of geothermally-generated electric power will be achieved unless encouraging tax legislation is enacted and tax incentives thereby clearly established.

At the present time the Federal income tax treatment of geothermal well costs and production is in doubt. In spite of the decision of the Circuit Court of Appeals in the *Reich* and companion cases (*Reich et al. v. Commissioner*, 454 F.2d 1157 (9 Cir. 1972), affirming 52 T.C. 700 (1969)) and the clear scientific evidence that

geothermal energy is an exhaustible natural resource, the national office of the Internal Revenue Service is disallowing intangible-drilling costs treatment and percentage depletion in respect of all geothermal activity and has announced its intention to press its position in the courts.

Discouraging uncertainty has resulted from this IRS position and geothermal development is consequently being held back. Loss of the right to expense intangible drilling costs would itself involve an estimated \$2.5 billion in after-tax costs to the industry in achieving the 1985 goals.

As a fledgling industry, geothermal energy must compete with the lowest cost alternative energy available to electric power utilities. In the west, where geothermal resources are most prevalent, the alternative is low-cost, strip-mined coal. Loss of percentage depletion and the right to deduct intangible drilling and development costs for geothermal energy would mean that many of the geothermal resources needed to achieve the 1985 and later goals would be noncompetitive with coal and other alternative sources of energy which have the benefit of more favorable tax treatment. As a result, the nation's geothermal resources would remain largely undeveloped.

The language included in the Tax Reduction Act of 1975, as enacted, will not provide a satisfactory solution because of expressed Congressional intention, as evidenced in the report of the House Ways and Means Committee on this subject (93rd Congress, 2nd Session, House of Representatives Report No. 93-1502, p. 54). The Ways and Means Committee, after referring to the probability of future litigation of the tax issues, indicated that no inference was to be drawn from the language of the Act that the depletion deduction for geothermal steam under present law had been approved by the Committee or by Congress, and further stated that the issues peculiar to geothermal steam should be considered at a later time.

Thus, because of the present position of the Internal Revenue Service and the need of this infant high-cost industry for assured tax incentives, specific legislation is now required. It is proposed that the Congress adopt an amendment to the Internal Revenue Code to provide percentage depletion and to provide for the current deduction of intangible drilling and development costs for geothermal energy. It is further proposed that such amendment include the option to expense geothermal exploration costs, similar to such treatment now applicable to mining exploration costs.

A copy of proposed draft legislation to accomplish these objectives is attached.

CAREL OTTE,
Vice President, Geothermal Division,
Union Oil Co. of California.

A BILL To amend the Internal Revenue Code of 1954 with respect to the taxation of income from the production and sale of geothermal steam and associated geothermal resources

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Section 1. Subsection (c) of section 263 of the Internal Revenue Code of 1954 (relating to intangible drilling and development costs in the case of oil and gas wells) is amended to read as follows:

"(c) INTANGIBLE DRILLING AND DEVELOPMENT COSTS IN THE CASE OF OIL AND GAS WELLS, OR GEOTHERMAL DEPOSITS—Notwithstanding subsection (a), regulations shall be prescribed by the Secretary or his delegate under this subtitle corresponding to the regulations which granted the option to deduct as expenses intangible drilling and development costs in the case of oil and gas wells and which were recognized and approved by the Congress in House Concurrent Resolution 50, Seventy-ninth Congress.—; and such regulations shall be extended so as to apply in the case of wells drilled for geothermal steam and associated geothermal resources as defined in the Geothermal Steam Act of 1970 (30 U.S.C. 1001)."

Section 2. Subparagraph (C) of section 613A(b)(1) of the Internal Revenue Code of 1954 (relating to exemption for certain domestic gas wells) is amended to read as follows:

"(C) any geothermal deposit in the United States or in a possession of the United States which is determined to be [a gas well within the meaning of section 613(b)(1)A.] producing geothermal steam and associated geothermal resources as defined in the Geothermal Steam Act of 1970 (30 U.S.C. 1001)."

Section 3. Section 617(a)(1) of the Internal Revenue Code of 1954 (relating to deduction and recapture of certain mining exploration expenditures) is amended by adding at the end thereof the following new sentence: "*Notwithstanding any other provision of this section, this subsection shall apply with respect to expenditures paid or incurred for the purpose of ascertaining the existence, location, extent or quality of any deposit of geothermal steam and associated geothermal resources as defined in the Geothermal Steam Act of 1970 (30 U.S.C. 1001).*"

Section 4. The amendments made by the first three sections of this Act shall apply to taxable years beginning after December 31, 1974.

STATEMENT OF EDWIN M. WHEELER, PRESIDENT, THE FERTILIZER INSTITUTE

Mr. Chairman and Members of the Committee, by way of introduction The Fertilizer Institute is a trade association representing all segments of the U.S. fertilizer industry. All the major nitrogen fertilizer producers in the U.S. are members.

Nitrogen fertilizer is the key to U.S. farm output. Effect the supply or price of nitrogenous fertilizer and the ramifications of decreasing production are many. Lower farm output means higher grocery prices; overseas it can well mean starvation. Use of nitrogen, phosphate and potash by our farmers adds 30+% to the nations crop production.

The basis for all nitrogen fertilizer is anhydrous ammonia containing 82% nitrogen. Farmers may use the anhydrous ammonia directly as it is produced or in the form of urea, ammonia nitrate, solutions and in the ammoniated phosphates. Restated, for emphasis, synthetic nitrogen is absolutely essential in the food product chain.

Currently U.S. capacity for ammonia is about 17 million tons of which 12.5 million is used in fertilizer and the balance is consumed by other industries. To produce 12.5 million agricultural tons requires 450 billion cubic feet of natural gas per year. Should American farmers be permitted to maximize their farm output the need for gas will rise from the 450 billion cubic feet to 600 billion by 1980.

The basis for all nitrogen production in the United States is natural gas. Gas is the feedstock. As the plants are especially designed in both the feedstock and reformer sections for gas, conversion to other hydrocarbons is not possible. Large amounts of steam are required and this part of the manufacturing process is subject to conversion. Indeed, many of our plants are already switching to oil for steam. We do not ask for special gas tax consideration on boiler fuels. We do point out that fuel for steam generation, phosphate and potash drying and sulphur is a major cost input item and that both the price of oil as well as import levies and the tax schedule approved by H.R. 6860, if enacted into law, are inevitably going to substantially increase farmer input costs.

What we seek from this Committee is a clarification and broadening of the natural gas tax exemption. As sent to the Senate from the House of Representatives, H.R. 6860, Section 4991(b)(1) provides for the following schedule:

If the taxable use occurs during calendar year:	Tax per 1,000 cubic feet (cents)
1977 -----	4
1978 -----	8
1979 -----	12
1980 or thereafter -----	18

"Taxable use means any use as a fuel in trade or business" unless it is specifically exempt.

It thus would appear that feedstock not being a "fuel" would be exempt but the equally vital reformer fuel would not.

This is buttressed by the House Ways and Means Committee in its Report to the House (Report No. 94-221, Pg. 59) wherein the Committee stated:

"In the case of fertilizer *the use of feedstock is not a taxable use*" (emphasis supplied). Unfortunately this is Committee report language (i.e., the "intent" of Congress) and not spelled out in the final wording of the bill itself. More unfortunate is that the reformer gas appears to be subject to the tax. Reformers are as critical to the ammonia process as is the feedstock itself. Existing reformer furnaces are:

1. Specially designed in the fire box for the use of gas. Mere conversion to oil is out of the question.

2. Highly accurate temperature control (1725-1750 degrees F.) is a must to maximize production. Feedstock gas is wasted unless very stringent temperature is maintained.

3. The tubes are specially designed for gas and the use of oil will destroy them. The risk to personnel and facilities is too great to use oil unless a new design and new furnace is accomplished.

We find it difficult to understand why the House specifically exempted the process gas for textiles and glass making but did not do the same thing for the industry that provides our food.

The tax is substantial. Based on the table the tax would amount to \$26 million in 1977 and rise to annual basis of \$127 million in 1980. Both dollar figures include feedstock and process gas for the then capacity and are limited to agriculture ammonia.

One could hardly argue that Congress wants to increase farm input costs and raise food prices. The House specifically exempted increased oil and gas taxes for farm use in Sec. 4992(2) (D). It is clear that for irrigation, crop drying, etc., no tax is to attach.

We respectfully and urgently request the Senate Committee on Finance to amend Sec. 4992(2) (D) as follows:

(D) on a farm for farming purposes (determined in a manner similar to that provided by section 6420 (c)), *or for the production and manufacture (including feedstock and process fuel) of fertilizer, herbicide and pesticides.*
(Suggested new language italicized.)

As an alternative amend Section 4992(2) by adding a new sub-part delineated "I" immediately following the glass manufacturing exemption, (H), by providing a specific special exemption in essentially the same language immediately above.

We appreciate the opportunity to present our views on this important subject and would be pleased to answer any questions or provide the Committee with additional information.

Respectfully submitted.

EDWIN M. WHEELER,
President, the Fertilizer Institute.

COMMON CAUSE,
Washington, D.C., July 18, 1975.

Hon. RUSSELL B. LONG,
U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: The Senate Finance Committee is about to face a most difficult challenge—the task of acting courageously on the energy crisis. The most critical energy policy decisions before the nation will be made in the upcoming mark-up sessions on H.R. 6860, the Energy Conservation and Conversion Act of 1975.

The original draft submitted for mark-up to the House Ways and Means Committee by Chairman Ullman proposed a hard-hitting conservation program that faced up squarely to excessive United States dependence on foreign oil. It established oil import quotas and proposed to reduce gasoline consumption through imposition of a gasoline surtax that would steadily increase over a period of years. The program provided a rebate of the surtax through the tax system. There was also a stiff tax on gas guzzlers; an energy trust fund to help develop new energy technologies and improve public transportation systems; and a stand-by Federal purchasing authority to buy and sell oil imports. The bill was weakened in Committee, but as reported to the House still retained the centerpiece of the program—import quotas and a gasoline tax.

The House of Representatives then walked up to the energy crisis and struck out. The Members failed themselves and they failed the nation. They did not have the political courage to pass the gasoline tax. Bowing to an unprecedented lobbying effort by the auto industry and organized labor, they defeated the amendment on gas guzzlers, killing the last hope for any measure in the bill to cut gasoline consumption. Though a recent FEA report showed a dramatic increase in oil imports in the first quarter of 1975, H.R. 6860 would not conserve any significant oil until 1980. Unless the act is strengthened, our economic future may well be mortgaged to foreign oil producers.

Common Cause believes it is imperative that the Committee approve the Ribicoff-Packwood amendment to tax gas guzzlers and to impose a steadily increasing gasoline surtax with a rebate through the tax system.

Enclosed for the committee record is the Common Cause statement on energy policy.

Sincerely,

JOHN W. GARDNER.

Enclosure.

STATEMENT OF JOHN W. GARDNER, CHAIRMAN OF COMMON CAUSE

One of the most dramatic setbacks that this country has experienced—in a devastating decade—is the energy crisis. It had been visible on the horizon for years. But we have an unbroken record of not looking straight at a crisis until it knocks us flat. It wasn't until the oil embargo of 1973 that the crisis exploded on the national consciousness.

The inaction at the federal level since then—16 long months of inaction—is a classic example of the paralysis of leadership produced by the powerful behind-the-scenes operations of special interests. Common Cause has long been committed to remedying that kind of paralysis, and we have watched with deep concern as the central issues of the energy crisis have disappeared under an avalanche of special pleading. We would like, in this testimony, to lay bare one central issue that has been blurred and distorted in the continuing debate—the issue of energy conservation.

We are well aware that the energy issue has other dimensions as well. Successful conservation will not eliminate the need to develop additional energy sources—and the choices will be tough. Similarly, effective conservation policy represents only one aspect of the international leadership the United States must provide to other oil-consuming nations. We focus here on energy conservation because rigorous conservation is an absolute prerequisite to thoughtful development of new energy supplies and to our political and economic effectiveness in the international arena.

Let us look at the nature of the energy crisis.

The basic fact, as everyone knows, is that this country consumes energy with such wastefulness that we are excessively and unnecessarily dependent on foreign energy sources. With 6% of the world's population we consume 33% of available energy requirements, including 40% of our oil.

We need not be totally independent; but our present degree of dependence is exceedingly dangerous. If we had ever doubted that, we should have been convinced when the oil-producing nations cut off our supplies, and we were helpless.

When the embargo was ended, imports were resumed at quadrupled prices, giving an enormous boost to our already spiraling inflation and subsequent recession. As of this writing oil prices have quintupled since early autumn, 1973. The Administration informs us that the embargo, lasting less than half a year, cost Americans half a million jobs and over 1% of national output, while adding at least 5 percentage points to the price index.

Some of the most important oil-producing nations have supplemented economic coercion with a powerful element of political coercion.

One consequence of all this has been serious talk of war. Another has been—in one after another of the oil-consuming nations—grave hardships stemming from shortages, soaring prices, monetary instability, and the ever-present danger of economic collapse.

So one ingredient in the energy crisis is the vulnerability stemming from our excessive dependence on imports. *There is only one short-term solution to that vulnerability: a sharp reduction in our wasteful consumption of energy.*

We must not forget the causal role that high energy prices have played in generating inflation and recession. In 1974, \$35 billion in raw energy price increases rippled out to cost American consumers as much as \$100 billion in lost purchasing power. The \$24 billion paid for oil imports directly reduced demand and capital from the American economy. And let's be clear, lost purchasing power and reduction in demand and capital mean fewer jobs and human suffering.

Just as the energy crisis played its part in bringing inflation and recession, so proposed solutions must take inflation and recession into account. But this ~~doesn't~~ mean we're justified in using recession as an excuse for avoiding the energy problem. Recession is a painful reality. But if we drift into war that will

also be a painful reality. If we passively accept a vulnerability which allows certain of the oil-producing nations to destabilize our economy any time they choose, the consequences may prove to be another kind of painful reality.

This nation can tackle more than one problem at a time. It can tackle both the economic and energy crises. We believe that any of the energy solutions proposed below should be accompanied by measures to diminish hardship to middle and lower economic levels. These are the principles on which we base our recommendations for a tough energy policy centered on conservation now. Our proposals are similar to those generated by the Ways and Means Committee.

To deal directly with the critical problem of U.S. dependence on foreign oil, Common Cause urges the imposition of oil import quotas. Quota levels, that is, conservation goals, can be adjusted in relation to economic recovery. Resultant shortages must be apportioned through an allocation system that protects against regional needs and essential consumption. We must recognize that some regions are disproportionately dependent on oil imports and that some fuel uses cannot be reasonably curtailed. The federal government should assume a direct role in negotiating oil imports as quotas are set in place.

The planned reduction created by import quotas can be concentrated on gasoline consumption—the most discretionary use of fuel—through imposition of a gasoline tax. Such a tax should steadily increase over the next several years, and appropriate rebates should be provided for low income consumers. The purpose of this tax should be to cut gasoline consumption, and only incidentally to generate revenue.

An oil import quota system combined with fair allocation and a progressive gasoline tax is the central element of a "conserve now" energy policy. Other steps must be taken that will ensure energy conservation over the longer term. Legislated standards for gasoline efficient automobiles, increased funding for mass transit, measures to reduce waste in the heating and air conditioning of buildings, energy-efficient labeling, elimination of promotional discounts for big energy users, and increased R & D funding for energy-saving technology and methods are examples of actions that would result in significant energy savings. Commercial and industrial conservation goals by sector should be developed and monitored by an appropriate federal agency, and suitable incentives or penalties enacted if they prove necessary.

Tax policies should be reviewed or amended to ensure that they encourage energy conservation. For example, the deductibility of state/local gasoline taxes for federal income tax purposes should be eliminated. A tax on heavy, high-horsepower automobiles should be enacted. Tax incentives can be developed to encourage energy-saving residential heating and cooling methods. And, very important, tax adjustments should be made to ensure that low-income citizens are not confronted with budget-breaking energy prices.

This Committee should also deal with the matter of oil companies' windfall profits should substantial deregulation of oil prices occur. Common Cause supports a windfall profits measure that opposes attaching any plowback provision to such a tax.

These proposals represent an energy package that is properly cognizant of our current economic situation. It is a package that mandates strong and immediate steps toward energy conservation. Common Cause believes it is a package that most Americans will endorse. We urge the Finance Committee to demonstrate its recognition of the gravity of the energy crisis by supporting conservation now. We look forward to the opportunity to work with the Committee on this crucial matter.

STATEMENT OF THE SPECIAL TRAVEL INDUSTRY COUNCIL ON ENERGY CONSERVATION,
WILLIAM D. TOOHEY, CHAIRMAN

The Special Travel Industry Council on Energy Conservation (STICEC) is composed of representatives from all segments of the travel/tourism industry—transportation, food, lodging, and recreation. It was organized during the Fall of 1973 to respond to various energy measures affecting the industry. Its efforts over the last two years have focused attention on the industry's need for a new conservation ethic and for concrete programs to save energy. To that end, STICEC members have developed various programs.

For instance, the American Automobile Association has instituted Gas Watchers—a national voluntary program designed to convince the public of the gravity of the energy problem and to show the public how to conserve gasoline. Its

specific goal is to get every licensed driver to make five gallons of gasoline do the work of six. This is but one example of the programs which STICEC is attempting to coordinate and encourage throughout the industry.

Another example are the activities of the Energy Task Force of the American Hotel and Motel Association. These include an energy information center, dissemination of conservation tips, establishment of conservation goals and a public education program.

The airline industry has undertaken effective fuel conservation programs such as routing and schedule changes. In 1974, it used one billion gallons less fuel than in the prior year, at the same time carrying six million more passengers.

Council members are firmly committed to energy conservation and to instituting specific programs to achieve that goal. The industry acknowledges its responsibility to reduce fuel consumption, but expects that national policy will deal with it equitably.

STICEC has adopted two resolutions in the past six months which bear directly on the considerations of this Committee. One expresses its strong opposition to gasoline rationing except as a measure of last resort, the other strongly opposes any action by the Administration or Congress which would lead to the ban on retail sales of gasoline on Sundays. Because the Council believes these resolutions to be important, it sets them out verbatim for the record of these hearings:

SPECIAL TRAVEL INDUSTRY COUNCIL ON ENERGY CONSERVATION

RESOLUTION

Whereas the Council was organized during the fall of 1973 to react to voluntary and mandatory energy measures impacting on the travel/tourism industry under consideration or being undertaken by the Congress and the Administration; such measures were responding to a condition of growing shortages of energy supplies aggravated by a sudden shortage of imported petroleum caused by an embargo;

Whereas the Council met on February 10, 1975, to review current conservation practices within the travel/tourism industry and to consider the impact on the industry of administrative initiatives and legislative proposals contained in the Administration's energy program to constrain imports on crude petroleum and petroleum products, to increase domestic production and develop other sources of energy; the program was responding not to actual shortages but to a relative abundance of energy, albeit at high prices and to conditions of an economy subject to the combined pressures of inflation, recession and growing unemployment, the Council was aware that there were a number of counterproposals being advocated including delay, modification or compromise actions designed to conserve energy through fuel price increases and proposed allocation and rationing measures;

Whereas it has been determined that \$61,000,000,000 is spent annually by foreign visitors within the United States and by residents on trips within the United States away from their home environment traveling for any purpose except commuting to and from work, for transportation, food, lodging, recreation, and for other goods and services.

Whereas this expenditure directly and indirectly sustains the employment of about 4,000,000 men and women, or about 5 percent of civilian employment; the travel/tourism industry is labor intensive employing many with low skills and with few job options;

Whereas travel/tourism as an industry ranks among the top three industries in 46 of the 50 states;

Whereas it has been estimated that tourism contributes at least \$4,300,000,000 a year in local, state and federal taxes;

Whereas the travel/tourism industry depends in the first instance upon a viable public and private transportation system including airlines, railroads, motor coach operators, sightseeing and rental car companies, cruise lines and the private automobile including recreational vehicles;

Whereas the tourism industry is significantly important to the economy and essential to a sound and healthy society and neither it nor any of its individual components should become, inadvertently or otherwise, a casualty of policies or of measures designed to accomplish other objectives;

Whereas among the standby energy emergency authorities sought by the Administration is one to ration automobile gasoline to users under conditions of national emergency; gasoline rationing authority is sought by others as a counter proposal to achieve fuel conservation;

Whereas analysis of gasoline rationing proposals by the Federal Energy Administration and the travel industry reveal that implementation would impact severely on the recreation and tourism industry as well as the automobile industry;

Whereas it is the view of the Council that the goal to reduce the importation of crude petroleum and petroleum products by 1,000,000 barrels per day by 1975 and 2,000,000 barrels per day by 1977 has not been adequately explained or justified nor has there been sufficient time to fully evaluate the measures proposed to achieve the goal: Now, therefore, be it

Resolved, by the Special Travel Industry Council on Energy Conservation, That those considering the Administration's proposals be appropriately informed of the travel/tourism industry's strong opposition to gasoline rationing except as a measure of last resort and now, therefore, be it

Further Resolved, That those concerned with the implementation of the program to achieve conservation by the imposition of increased import fees on crude oil and petroleum products be urged to delay such implementation to provide additional time to permit the travel/tourism industry to evaluate their impact and also the impact of counter proposals and compromise proposals on the industry.

SPECIAL TRAVEL INDUSTRY COUNCIL ON ENERGY CONSERVATION

RESOLUTION

Whereas the Special Travel Industry Council on Energy Conservation was organized during the fall of 1973 to react to federal energy measures impacting on the travel/tourism industry:

Whereas the Council met on March 5, 1975, to review current conservation practices within the travel/tourism industry and to consider the impact on the industry of energy programs of the Administration and Congress;

Whereas it has been determined that \$61,000,000,000 is spent annually by foreign visitors within the United States and by residents on trips within the United States away from their home environment traveling for any purpose except commuting to and from work, for transportation, food, lodging, recreation, and for other goods and services;

Whereas this expenditure directly and indirectly sustains the employment of about 4,000,000 men and women, or about 5 percent of civilian employment; the travel/tourism industry is labor intensive employing many with low skills and with few job options;

Whereas travel/tourism as an industry ranks among the top three industries in 46 of the 50 states;

Whereas it has been estimated that tourism contributes at least \$4,300,000,000 a year in local, state and federal taxes;

Whereas, during the four month period from November 1973 to March 1974, a Sunday ban on gasoline sales was imposed nationally as a "voluntary conservation measure" by the Administration;

Whereas, prior to that period, weekend tourism expenditures were estimated to have been in excess of \$11 billion annually and to sustain employment in that portion of the industry of approximately 720,000 people;

Whereas the results of the ban were disastrous to major segments of the travel industry including hotels and motels oriented to the highway system, popular historical sites, attractions and recreation areas and ski resorts, all of which depend on weekend business. Such enterprises reported weekend occupancies of as low as 5 percent and losses in their revenues of from 20 to 70 percent.

Whereas one of the major consequences of these low weekend occupancy rates and losses of revenues was corresponding losses in employment: Now, therefore be it

Resolved, That because of the inequitable treatment of the travel/tourism industry which would result, the Special Travel Industry Council on Energy Conservation strongly opposes any action by the Administration or Congress which would lead to the ban on retail sales of gasoline on Sundays.

Resolved, That the Special Travel Industry Council on Energy Conservation communicate to the Administration and to Congress the strong opposition of the travel/tourism industry to any proposal restricting retail gasoline sales on Sundays.

THE IMPORTANCE OF TOURISM TO THE U.S. ECONOMY 1975

In May, 1975, STICEC issued a report entitled *The Importance of Tourism to the U.S. Economy 1975*. It was prepared in cooperation with the U.S. Travel Data Center. The following month the report was sent to all members of Congress.

The following sections of the report are pertinent to the considerations of this Committee:

PREFACE

The Special Travel Industry Council on Energy Conservation (STICEC) was established to represent the energy policy interests of travelers, tourism employees, and the various businesses that are major components of the tourism industry. STICEC seeks equitable treatment, not special consideration, in connection with legislative and administrative actions taken in response to our national energy requirements. We believe that this will follow from placing the travel industry's economic significance in proper perspective.

STICEC also believes that the interests of the Nation and the tourism industry are best served by a national policy to reduce dependence on foreign energy supplies by developing U.S. resources and to stimulate conservation of energy among all users in both business and government. If such a policy is not implemented, America and its tourism industry will become even more vulnerable to disruption of foreign petroleum supplies in the years ahead.

The Council comprises leaders from all major sectors of the tourism industry. The membership reflects the varied nature of tourism, and is listed below.

Air Transport Association	International Passenger Ship Association
American Automobile Association	National Air Carrier Association
American Hotel and Motel Association	National Association of Motor Bus Owners
American Society of Travel Agents, Inc.	National Innkeeping Association
Car & Truck Renting & Leasing Association	National Ski Areas Association
Conference of National Park Concessioners	National Tour Brokers Association
Discover America Travel Organizations, Inc.	Recreational Vehicle Industry Association
Florida Caribbean Cruise Association	State Government Travel Offices (CORTE)
Gray Line Sight-Seeing Companies Associated, Inc.	Trans-Pacific Passenger Conference
Amtrak	

ENERGY AND TOURISM

Tourism is an industry uniquely dependent upon transportation. By definition, if Americans cannot move out of their home areas by automobile, recreational vehicle, airplane, bus or train, they cannot travel. In a real sense, transportation is the cornerstone upon which rests the entire tourism industry.

America's transportation infrastructure—the network of highways, airline routes, trackage and terminals—is second to none in the world. In normal times, a prospective traveler can be assured of reaching any of the 500 cities served by scheduled airlines, 450 cities served by rail passenger service, 15,000 cities served by regular route motor coach operators, or the countless cities, towns, villages and resorts accessible by major highways.

However, the successful and efficient operation of this entire system is dependent upon adequate transportation fuel at reasonable prices. If gasoline, diesel and jet fuel supplies are significantly cutback, or rise drastically in cost, the entire investment is jeopardized and the continued viability of the tourism industry is threatened.

TOURISM'S ENERGY REQUIREMENTS

The transportation sector of the economy accounted for 25 percent of all energy consumed in the U.S. during 1974, and showed the greatest drop in consumption from the previous year of any major sector.¹⁴ Petroleum products account for 96 percent of all energy consumed by transportation. Consequently, tourism's dependence on adequate and reasonably priced petroleum supplies is immense. There is no alternative fuel.

¹⁴ Bureau of Mines, "U.S. Energy Use Down in 1974 After Two Decades of Increases," U.S. Department of the Interior, Washington, D.C. (press release), April 3, 1975, 11 pp.

The volume of petroleum used by Americans on trips away from home accounts for only a small portion of the energy consumed in this country. In 1974, U.S. certificated air carriers consumed about 3 percent of all petroleum used in this country, or less than 2 percent of all energy consumed. Tourism by automobile accounted for 1.2 million barrels of petroleum per day on the average in 1974, or 7 percent of total petroleum use and 3.2 percent of all energy consumed.¹⁵

All modes of transportation involved in moving tourists to and from their destinations are estimated to have accounted for about 10 percent of domestic petroleum consumption and 4.6 percent of total energy consumed, a very small percentage.¹⁶ Tourism is a major U.S. industry requiring relatively little of the Nation's petroleum supplies. This small consumption, however, translates into the production of 4 million jobs and \$61 billion of expenditures, a healthy portion of the country's economy.

Eighty-five percent of all person-trips and 70 percent of all tourism person-miles are produced by automobile travel. Restrictions on the availability of gasoline would produce some shifts to public transportation, but relative to the total demand for travel, these would be small. The greater danger is that potential auto travelers would not travel at all.

Both short- and long-term adjustments would be necessary in the public transportation infrastructure to accommodate any significant portion of the current auto travel market. Recent data indicate that at this time common carriers in domestic service have the additional capacity to handle only 15 percent of the travelers who normally take automobile trips in a year's time.¹⁷ The realities of destination choice and lack of capacity during peak periods of travel demand reduce the amount of auto travel that could actually be accommodated by common carriers. Moreover, a sizeable expansion of common carrier capacity cannot be accomplished in the short run. Measures to allocate or restrict gasoline consumption should be based upon this reality.

TOURISM'S SHARE OF U.S. PETROLEUM CONSUMPTION

Tourism uses only a minor proportion of petroleum consumed in the U.S. In 1974, transportation connected with tourism accounted for about 10 percent of total U.S. demand for petroleum fuel, and this share was divided between aircraft, automobiles, buses and rail transportation. All other transportation use accounted for 43 percent of the total. Fuel consumption for purposes other than transportation used 47 percent of the total. The breakdown of fuel consumption for all transportation in 1974 was as follows, in million of barrels consumed.¹⁸

Automobile tourism.....	425.7
Domestic air carriers.....	176.2
Intercity bus.....	4.5
Rail (Amtrak).....	1.9
Total tourism.....	608.3
Other automobile trips.....	1,362.8
All other transportation.....	1,277.2
Total transportation.....	3,248.3
Other fuel and power users.....	2,119.3
Total fuel and power.....	5,367.6
Non-fuel users.....	713.2
Total domestic petroleum demand.....	6,080.8

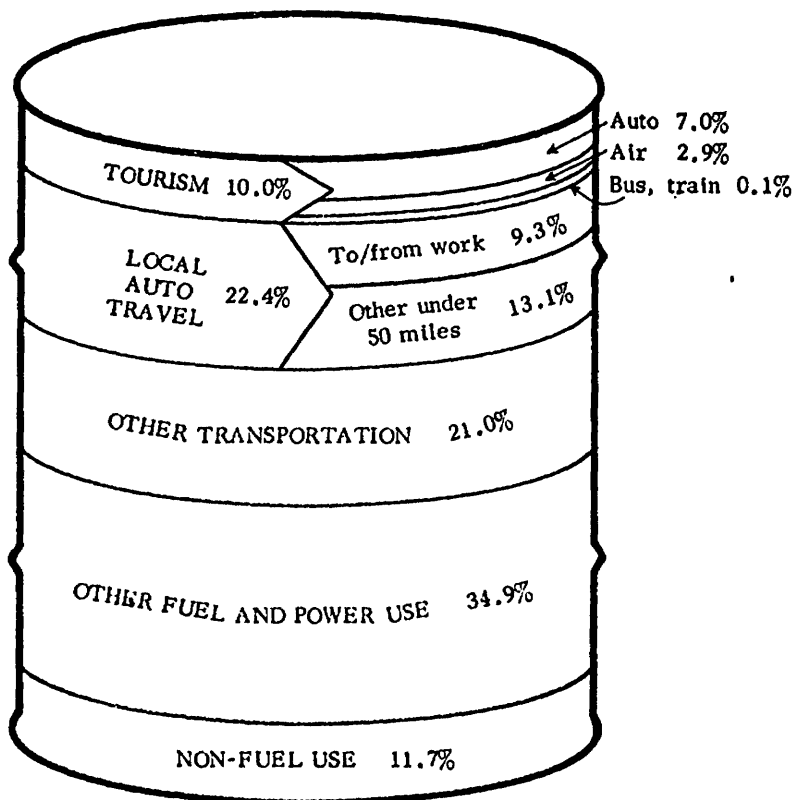
¹⁵ Based on Federal Energy Administration data published March 11, 1975, and calculations by the U.S. Travel Data Center.

¹⁶ In 1974, preliminary estimates indicate that petroleum consumption accounted for about 45.8 percent of total energy consumption in the U.S.

¹⁷ Capacity for shifts from automobile to common carrier based upon the 1972 *National Travel Survey, op. cit.*, and other data, and computed by the U.S. Travel Data Center.

¹⁸ Computed by the U.S. Travel Data Center from preliminary data supplied by the Bureau of Mines, U.S. Department of the Interior; National Highway Administration, U.S. Department of Transportation; Air Transport Association; National Association of Motor Bus Owners; National Rail Passenger Corporation (Amtrak). It is unclear whether the tourism estimates include self-contained recreational vehicles, estimates to have consumed 42.6 million barrels of petroleum in 1973, or 0.7 percent of total petroleum consumption that year.

Tourism* Uses Only 10% of Domestic Petroleum Consumption



*Tourism = travel to places 50 miles or more away from home, as defined by the National Tourism Resources Review Commission, *op. cit.*, Vol. 2, p. 4.

U.S. consumption of petroleum in 1974 was 6,080.8 million barrels (preliminary).

Source: U.S. Travel Data Center based on data supplied by the Air Transport Association; Bureau of Mines, U.S. Department of the Interior; Federal Highway Administration; Federal Energy Administration, National Association of Motor Bus Owners; National Railroad Passenger Corporation (Amtrak).

PRESENTATION OF SUPERVISOR DICK BROWN, CHAIRMAN, BOARD OF SUPERVISORS OF SAN DIEGO COUNTY

Thank you for this opportunity to present testimony regarding national energy policy. I am Dick Brown, Chairman of the Board of Supervisors of San Diego County. On May 21, 1975 our Board adopted a set of policy statements detailing our concerns and objectives for national energy policy. In conjunction with these policy statements, our Board also affirmed its support, in principle, for the Ullman bill as originally proposed in H.R. 5005, or revisions thereafter that conform to the County's policy statements.

In general, the County of San Diego believes that:

1. National energy policy should emphasize reduction in demand for energy as opposed to increasing total energy supply.

2. National energy policy should emphasize conversion to renewable energy resources as opposed to expanded use of nonrenewable resources.

The County of San Diego therefore, supports H.R. 6860, the Ways and Means Committee revision to H.R. 5005. However, we believe that H.R. 6860 needs to be substantially amended to conform to the intent of H.R. 5005 and to the following specific policy statements adopted by our Board of Supervisors:

1. National energy policy should emphasize direct oil import quotas as opposed to import taxes to achieve energy self-sufficiency.

For this reason we support H.R. 6860 rather than the Administration alternative (H.R. 2633, H.R. 2650, S. 594) which would seek to restrict energy demand and imports principally through costs of energy.

2. National energy policy should emphasize direct fuel taxes at the point of the fuel consumption (e.g. gasoline tax, excise taxes on business use of oil and natural gas), as opposed to taxation remote from the point of consumption. (e.g. crude oil tax).

For this reason we support Amendment of H.R. 6860 to reinstitute gasoline tax increases as the most preferred alternative to the administration proposal which would pass energy taxes through the production process and thus have them become a hidden part of the cost of gasoline. We also support reinstitution of special motor fuels conservation taxes into the bill.

3. National energy policy should include income tax rebates to return a portion of additional fuel taxes collected from each individual taxpayer.

For this reason we support Amendment of H.R. 6860 to allow for exemptions and credits which would refund additional tax monies back to those persons and businesses paying the taxes.

4. National energy policy should include windfall profits taxes on energy suppliers.

We, therefore, strongly favor Amendment of H.R. 6860 to reinstate the windfall profits provisions previously contained in H.R. 5005. We believe that the lack of such provisions in H.R. 6860 will make it extremely defective unless amendments are made as we propose, unless other legislation provides for this variety of taxation.

5. National energy policy should not include an "energy stamp" rationing or allocation program. Both H.R. 6860 and the Administration of proposals are consistent with this policy.

6. National energy policy should include deregulation of natural gas prices.

We strongly favor amendment of H.R. 6860 to deregulate natural gas prices as was proposed in H.R. 5005, or passage of other legislation which would accomplish these aims.

7. National energy policy should include a graduated tax on energy inefficient vehicles.

We recommend amendment of H.R. 6860 to eliminate the fleet mix calculations and return to calculations based on each vehicle model sold in a manner similar to that proposed in H.R. 5005. We also recommend that any auto efficiency tax that is imposed be displayed on each automobile sold so that the consumer can know that the extra taxes are being paid because of low fuel economy. We support the relaxation and/or repeal of excise taxes related to sale of intercity buses, radial tires and reused oil products.

8. National energy policy should include mandatory labeling of products and vehicles to show energy efficiency.

We recommend amendment of H.R. 6860 to require mandatory energy labeling of all appliances (not just automobiles) at the point of purchase. This is similar to the Administration's proposal.

9. National energy policy should include enforcement of existing clean air standards and timetables for emissions from vehicular and industrial sources.

We therefore recommend support of H.R. 6860.

10. National energy policy should include investment tax credit allowances for energy suppliers.

We therefore recommend support of H.R. 6860.

11. National energy policy should include reasonable provisions to assure that government-regulated energy utilities recover costs and receive adequate earnings, without relinquishing government's right to regulate such utilities in the public interest.

We therefore recommend amendment of H.R. 6860 to delete provisions that seek to remove investment credits from use by utilities.

12. National energy policy should include imposition of thermal efficiency standards for buildings.

We therefore recommend amendment of H.R. 6860 to make provisions for insulation write-offs and credits on all buildings, and/or imposition of thermal insulation efficiency standards. California, we might add, has such insulation standards now in effect on all new residences and will be implementing insulation on all new non-residential buildings within a few months.

13. National energy policy should include granting of investment tax credit for installation of insulation, solar heating, and other energy-conserving devices, and should include elimination of investment tax credit for installation of air-conditioning and other energy consuming devices.

We therefore recommend amendment of H.R. 6860 to reinstitute the recycling tax investment tax credit provisions as proposed in earlier versions of H.R. 6860. These provisions would promote added usage of post-consumer solid wastes and thus serve both energy and reclamation/disposal priorities needing solution.

14. National energy policy should include establishment of a Trust Fund for monies received as a result of fuel taxes, windfall profits taxes, and energy efficiency taxes, and include use of these monies for new energy technology research, development of new energy resources, provision of regional transportation systems, and direct subsidies to low income groups for basic energy needs, and as incentive for energy-conserving capital investments.

We therefore recommend amendment of H.R. 6860 to allow use of trust fund monies for direct subsidies to low income groups to provide for "lifeline" levels of energy usage.

15. National energy policy should include establishment of standby reserves from imports and current production as well as from new resource development.

We recommend amendment of H.R. 6860 to reinstate the standby petroleum reserve proposed in H.R. 5005 as a needed provision of a unified national energy policy.

16. National energy policy should reserve for Congress certain powers such as fuel allocations, price controls or rationing.

We therefore support H.R. 6860.

Thank you for the opportunity to discuss this most important problem. The San Diego County Board of Supervisors respectfully requests that you amend H.R. 6860 as we have proposed and then act favorably upon it.

STATEMENT OF NORTHWEST FLORIDA COMMERCIAL FISHERMEN ASSN., INC.

Mr. Chairman and members of the Committee: My name is Karen E. Smith. I represent the Northwest Florida Commercial Fisheries, Inc., of Pensacola, Florida. I am pleased to appear before you today and testify in support of exempting the fishing industry from any tax on the fuel we use in the industry in fishing vessels and other equipment used in the industry.

First of all, let me say that the fishing industry is of tremendous importance to the nation as a whole. Although the amount of food product is not as great as that taken from the land, it is a significant amount in actuality and at least an equal amount in potentiality. The recent past has shown us all too clearly that there can be a shortage of agricultural products in this Nation of supposed abundance and, as we all know, there has been such a shortage worldwide since the beginning of time. Consequently, the harvesting of the seas has grown in importance and it is imperative upon us to stabilize and promote this much neglected industry.

The federal government has been slow to recognize the importance of the fishing industry. As a matter of fact, except for certain brief periods in our history, the federal government has neglected this industry almost entirely. The federal programs assisting other segments of our economy far outweigh in number of programs and amount of money the effort made in behalf of the fishing industry. We need some help.

But I am not here today to request affirmative assistance in the form of new programs because I know that is not the purpose of these hearings. Although I understand that later on this Committee will be holding hearings on tax reform and we could certainly use some reforms in that area that would benefit our industry, I'm here to impress on you the strong desire not to impose on the fishing industry any more taxes.

In addition to the importance of the fishing industry, let me stress the acute cost squeeze we find ourselves in at the present time. Inflation has hit us hard. Vessels, equipment, wages and fuel have skyrocketed and we're not in a position to pass on these additional costs to the consumer. If the price of fish products goes up, the consumer will simply switch to another food product—meat, for example, in lieu of shrimp.

Furthermore, imports of fish products force us to keep our prices down. Foreign products are generally cheaper and are coming in to the United States in abundance, especially now at a time when foreign markets are depleted because consumers in Europe and other formerly strong demand areas are feeling the recession pinch worse than we are and have lessened considerably their demand for fish products.

Finally, Mr. Chairman and members of the Committees, the fisherman is not in a position to convert his need for oil based fuel, primarily diesel, to some other energy source such as coal. He is in the same position as the farmer in this regard and should receive the same treatment tax-wise in this bill as the farmer.

For the foregoing reasons, Mr. Chairman, I strongly urge the Committee to grant to the fishing industry an exemption from any tax on energy which your Committee may consider in your deliberations on H.R. 6860. Thank you.

STATEMENT OF GERALD HASLER, PRESIDENT, NATIONAL REMODELERS' ASSOCIATION,
ON H.R. 6860

This testimony is submitted to the Senate Finance Committee on behalf of the National Remodelers Association, the trade association representing the nation's 160,000 local home improvement contractors. Our industry is directly interested in and supports Section 231 of H.R. 6860, which provides a tax credit of 30% on certain qualified expenditures (up to \$500) made to conserve energy within the nation's residences.

Throughout the considerations of the House Ways and Means Committee and while this matter was before the House, our Industry openly supported the tax credit as the most effective means of enlisting the public in Congress' program of energy conservation in the home. It was, and is, our position that there would be no such program unless it was sold in each town and city and, indeed, in each neighborhood by the local home improvement contractor, whose economic existence from day to day depends on this selling. It was, and is, our position that because our members across the land will be out front doing this selling, and then doing the actual work, it was very important for us that Congress arm the industry with an aid to merchandising that the public would understand and would react favorably to. The tax credit found in Section 231 is such an aid. Armed by it, the 160,000 home improvement contractors can go to homeowners and offer an attractive economic package that will mean, in the ultimate, vast savings in home-heating fuel.

From a technical point of view—as the artisans who must do the work under Section 231 if it is to become effective—we commend the House for the language now set out in Section 231 and urge the Senate to adopt it in the same language. For that language broadly embraces (as qualifying for the tax credit) the full range of energy-conserving installations from insulation, itself, through storm windows and doors, down through and including the various forms of insulated siding—all of which will play a vital part in achieving Congress' goal under this provision. If homeowners are to buy this program it must be broad and flexible enough to include all permanent energy-saving installations, giving the public the right to pick and choose the one that fits each home. That freedom to choose

among the full range of substantial energy-saving devices is incorporated within the present language, insuring maximum public effort toward the Congressional goal underlying Section 231.

The magnitude of fuel savings resulting from the installation of energy-conserving installations within the residence underscores the importance of this program. Industry figures reveal that the savings resulting from insulated siding alone would amount to approximately 41,000,000 gallons of fuel oil per year, based on the 1974 market alone. In addition, fuel savings from storm windows and doors amount to another increment 90% as large as the savings from insulated siding. Both of these installations would qualify for the tax credit; wholly apart from ordinary insulation, these two popular forms of energy-conservation within the home, both of which have a present market which would be substantially stimulated by the tax credit, would create future savings of close to 80 million gallons of fuel oil, based on industry figures for 1974. And, it should be recalled, that these are savings for only one year. It is thus very clear that energy-conservation in the home has a vital role to play in the overall effort to bring our country to self-sufficiency in the use of energy.

Supporting the tax credit, as it does, the home improvement industry is also mindful of the challenge to us that this provision holds out. We are fully mindful of past controversies surrounding our industry. Whatever their merit, this industry now has come of age; it now has a national organization which has articulated standards for contractor conduct; it now has a voice and presence in the nation's capital, NRA and ETHIC (its legislative arm) which are dedicated to insuring that this industry's public responsibilities are met. A major new obligation for this industry will be the responsible implementation of Section 231's mandate. We are eager to meet this public challenge.

On behalf of the home improvement industry, therefore, we urge your Committee to report favorably on H.R. 6860 with Section 231 in its present form.

STATEMENT OF JOINT GOVERNMENT LIAISON COMMITTEE

This statement in *opposition* to a "recycling tax credit" is made on behalf of the Joint Government Liaison Committee which is composed to the Association of Brass and Bronze Ingot Manufacturers and the Brass and Bronze Ingot Institute. The members of these two association produce over 90 percent of the brass and bronze ingot manufactured and consumed in the United States. Brass and bronze ingot is produced by smelting and refining copper base scrap, primarily old scrap, and therefore firms in this industry would be eligible to receive the proposed recycling tax credit.

However, even though the brass and bronze ingot producers would be beneficiaries of a "recycling tax credit" they recommend and urge that a tax credit for the use of copper base scrap *not be included* in the Energy Conservation and Conversion Act of 1975 for the following reasons:

- (1) Tax credit would cause a large loss in tax revenues without any corresponding benefit;
- (2) Tax credit would cause severe dislocations in scrap market;
- (3) Copper base scrap prices are extremely sensitive to changes in demand and tax credit would increase price of scrap and articles produced for scrap;
- (4) Ultimate consumers of products produced from copper base scrap would not benefit from lower prices due to tax credit;
- (5) Large fluctuation in copper base scrap prices have not significantly affected the supply of scrap;
- (6) Tax credit does not assure most economic use of scrap versus alternate sources of copper;
- (7) Lack of demand for copper base scrap in the United States is not a problem. One of the first items reclaimed from a junked car is the radiator. It has been necessary in the past for the United States to control exports of copper base scrap.

On July 18, representatives of the National Association of Recycling Industries (NARI) testified before the Senate Finance Committee in support of a recycling tax credit. Unfortunately, the testimony was vague and cast in generalities about savings in energy and did not, in 24 pages, explain the specifics of the proposed recycling tax credit. The testimony did condemn the House of "unwisely" deleting the recycling tax credit when H.R. 6860 was before the other body "apparently" as a result of "misunderstanding" and "misinformation."

The action taken by the House of Representatives on the recycling tax credit was decisive. First, the Ways and Means Committee deleted copper base scrap from the credit and severely limited the use of the credit for all other materials. Then the House of Representatives by a vote of 249 to 170 deleted the complete watered-down recycling tax credit provisions from H.R. 6860. This was not the result of the alleged "misunderstanding" or "misinformation" on the part of 249 members of Congress; it was a result of them seeing the tax credit for what it is—an unjustified windfall, a rip-off.

A member of the Ways and Means Committee said it very well in the Committee's report as follows:

"The recycling tax credit (Sec. 533) is a particularly bad provision. It will cost us about \$1 billion in tax revenues lost over the next five years, yet it will probably increase recycling by only 2 percent! It would provide tremendous windfalls to those connected with this industry. Even the environmentalists, who strongly support recycling, oppose this give-away."

It was pointed out during the debate on the House floor that the recycling tax provision is opposed by environmental groups such as the Sierra Club, the Environmental Action Organization, the Friends of the Earth, the Conservation Congress and the Environmental Policy Center as well as the AFL-CIO and the Department of the Treasury. It was also pointed out during the House debate that it is opposed by major recycling groups such as the Aluminum Recycling Association, and the American Iron and Steel Institute.

The recycling tax credit is too important and costly to be rammed through Congress on an unsubstantiated claim of equity because of certain tax advantages enjoyed by virgin materials. Congress legislated depletion allowances and if they are wrong they should be changed rather than adding to the tax laws new special interest tax loopholes. The attempt to use the energy crisis to justify immediate action on this unwise tax credit is a farce. Tax reform legislation is now underway and would be the appropriate vehicle to consider the special tax advantages of virgin materials such as depletion. It is difficult to understand how a tax credit set at one level—10%—could be equitable for all the types of materials covered by the proposal from wastepaper to glass and rags to gold scrap.

Attached to the NARI statement were five exhibits showing energy savings by recycling metals rather than using competing ores. There is no question of the energy savings by recycling. However, it is interesting to see the comments in these exhibits on the use of taxes to encourage increased recycling. For example, on page 198 of the Ford Foundation's *Energy Conservation Papers* on changes in taxes it is stated "Whether or not 'reform' would lead to significant increases in the recovery of metals in mixed wastes is still undemonstrated."

What will be the actual effect of the recycling tax credit? Senator Nelson asked a question at the July 18 hearing about the effect of the credit on foreign purchases of U.S. scrap. The sponsors of this tax credit replied that it would keep material in the United States by *increasing prices!* This is just what we need—higher prices and more inflation.

Senator Nelson also put his finger on a major inequity in the proposed recycling tax credit between established recyclers and new recyclers. The full credit would apply only to recycling purchases that exceed the amount of purchases during the base year (1975). This would be a definite advantage for a taxpayer going into recycling because his base year volume would be his first year purchases and no doubt very small. Purchases in subsequent years would no doubt be much larger and the increase would qualify for the full tax credit. A decided advantage for the new recycler as opposed to one that has been recycling for years.

The members of the Joint Government Liaison Committee agree that the United States should conserve energy and natural resources and, as recyclers, have been doing this for years. The brass and bronze ingot industry justifies its existence by the fact that its members can produce ingot from copper base scrap at a cost lower than the same ingot could be produced from virgin metals. This is done through our free market system without windfalls and rip-offs.

The brass and bronze ingot industry urges that if the recycling tax credit is considered by the Senate Committee on Finance that it specifically provided that it not include copper base scrap.

Respectfully submitted on behalf of the Joint Government Liaison Committee.

STATEMENT OF PHIL D. HELMIG, WASHINGTON REPRESENTATIVE,
ATLANTIC RICHFIELD CO.

An excise tax on fuel used to produce fuel is extremely counter-productive to the generation of domestic supplies of fuels. That is the thrust of a provision of Energy Conservation bill, H.R. 6860.

Under present regulations and controls, pass-through of the tax is questionable. That means millions of dollars in refining alone not to mention exploration and development, transportation of fuel, etc., will be eliminated from our effort of finding, developing, and producing domestic supplies at a critical point in time.

Most of these elements are a vital part of our Alaska operations and are not excluded from the tax while vehicles, residences, farms, textiles and certain electrical generating facilities are excluded. We are trying to get Alaska oil to market as rapidly as possible to help offset OPEC imports.

Attached is a fact sheet and our commentary on Title IV, Part 1, Sec. 411 (a) (2) Excise Tax on Business Use of Petroleum and Petroleum Products.

I would certainly appreciate any help you may be able to offer and having your opinion on this provision of the bill.

H.R. 6860

ENERGY CONSERVATION AND CONVERSION ACT OF 1975

Title IV—Encouraging Business Conversion for greater Energy Saving; Part I—Business Use of Petroleum and Petroleum Products; Sec. 411—Excise Tax on Business Use of Petroleum and Petroleum Products.

In the processes of the petroleum industry, from exploration through distribution—the tax is not necessary for the purpose of reducing fuel use and is counter-productive to national purpose of increasing domestic supply.

Programs to reduce fuel consumption in refineries are already under way due to economic reasons and the national goal of greater self-sufficiency in energy.

Close temperature control necessary for petroleum refining does not lend itself to conversion to coal as an alternative fuel nor is transportation of coal practical or viable when the petroleum fuel is already on location.

Greater limitations in the use of alternative fuels are to be found in pipeline fuel consumption as well as exploration and development where mobility is the key.

The imposition of an additional tax burden on fuel utilized to produce fuel products makes little sense when the nation vitally needs to increase its' domestic supply of fuels. Moreover, there is little practical effectiveness from the tax in view of existing government programs.

Conservation rather than revenue without decreasing domestic supply is the underlying principal purpose of the bill. An excise tax on fuel to produce fuel should be exempt from the business use provision. This could be simply accomplished by amending the bill, Title IV, Part I, Sec. 411(a) as follows:

Add: Sec. 4992(a) (2) Certain Uses Expected—

“(I) for the exploration, development, production, manufacture and/or transportation of petroleum products in the petroleum and/or the synthetic fuels industry.”

ATLANTIC RICHFIELD COMMENTARY ON TITLE IV; H.R. 6860

PROVISIONS REGARDING TAX ON BUSINESS USE OF PETROLEUM PRODUCTS

The provisions of Title IV, Part 1, pertaining to a tax on business use of petroleum and natural gas fuels when read within the context of the “Energy Conservation and Conversion Act of 1975”, appears primarily intended to modify the behavior of energy users. While the tax would contribute revenues which could be applied to research and development as provided for by the “Energy Trust Fund” provision, it is incorporated in the Conservation section underlining the fact that conservation rather than revenue is the principal purpose for the levy on fuel use.

We applaud and fully endorse the development of mechanisms for inhibiting the inefficient use of petroleum. However, implementation of laws/regulations to accomplish such objectives must be developed with care. The objectives should

be achievable within an acceptable range of benefit and cost. The tax proposed will no doubt tend to discourage any existing wasteful petroleum consumption, but it is the contention of Atlantic Richfield Company that in the processes of the petroleum industry, from exploration through distribution—the tax is (1) not necessary for the purpose of reducing fuel use; and (2) could prove counter-productive to national purpose of encouraging U.S. self-sufficiency in energy. Therefore, we believe that fuel consumed in exploration, development, production, manufacture and transportation of petroleum and petroleum products should be exempted from this tax. Perhaps the clearest illustrations of this point are found in the two most energy intensive sectors of the industry—refining and pipeline transportation. While we feel our advocacy applies with full force across the process spectrum, detailed comment in regard to these particular examples follows:

Refinery Fuel Use

The current and future projected cost of petroleum-based fuel provides motivation and economic justification to reduce refinery fuel usage through improved operations and capital investment. Atlantic Richfield Company fully intends to comply with, and hopefully exceed, the voluntary fuel conservation program sponsored by the FEA, to reduce fuel consumption 15% for the period 1972 to 1980. At the present time this Company is actively expending substantial capital for such items as furnace air preheaters, and the like, to improve fuel efficiency. We have allocated capital in our long range plans for a variety of conservation projects. The plans for expansion of our Houston Refinery scheduled "on stream" next year include the most modern technological advances in energy conservation.

The Company has a full time Energy Conservation Manager whose function is to coordinate and oversee the activities of energy conservation personnel in the refineries and to direct the expenditure of capital to the projects with the largest potential for reduction in energy consumption. On-site audits are made to reduce fuel usage through such items as replacement and maintenance of steam traps, tuning furnace operations, etc. In addition, we have contracted with a design and construction firm to assist in energy conservation projects.

These programs are not unique as is evident by the industry's response to the FEA conservation program. However, they do represent substantial efforts by this Company parallel to similar commitments by others. A commitment by this Company to reduce consumption voluntarily is based on these considerations:

(a) Economics drive us to that position. Energy consumption costs in domestic refinery operations for this Company rose substantially in 1974 when compared to the 1973 level.

(b) As corporate citizens we share in the obligation of all citizens to do what we can to help achieve the national goal of greater self-sufficiency in energy.

(c) We believe a strong program of voluntary action is to be preferred over an elaborate and arbitrary regulatory scheme.

An additional refinery fuel tax in our view, will not significantly enhance the progress already taking place under the FEA voluntary program. Moreover, a tax on both liquid and gaseous fuels could, in addition to reducing consumption of these fuels, drive users to consume coal. Such would not be the case in petroleum processes. The close temperature control necessary for petroleum refining does not readily lend itself to the use of coal as an alternative fuel. The bill already contains exceptions for certain uses obviously offering relief where no reasonable alternative fuel can be consumed.

For the reasons cited above, the tax on business fuel use would not substantially bring forth or improve upon the conservation ethic in petroleum processing.

Pipeline Fuel Use

Application of the tax to pipeline fuel consumption would be at best marginally effective because here there are even greater limitations in the use of alternative fuels just as is the case in refining. Because power is one of the pipeline's relatively most expensive cost elements, much attention has always been given to its conservation. Computer programs are used that take into account such items as pump efficiency, unit selection by size of pumping units, and viscosity of the fluid transported to determine the most efficient pumping units for a predetermined throughput. The hope of improving on this mode of operation would be to change size of impellers in pumping units or replace pumping units as the throughput changes. This would be a most costly action, as throughputs are subject to change almost daily. Crudes could be blended in a common stream to lessen the effect of the most viscous type crude, but shippers who have particular requirements could not permit this. Even if all of the above were adopted, energy

efficiency would only be improved in an insignificant amount despite relatively high cost. We therefore cannot recommend this approach.

Conclusion

Atlantic Richfield Company maintains that the imposition of an additional tax burden on fuel utilized in the process of providing fuel products makes little sense when it is a generally accepted goal that there is a need for greater domestic self-sufficiency in energy. The concept is basically incompatible with the greater goal. Moreover as the foregoing illustrates, little practical effectiveness can be expected from this type of tax on petroleum processes, particularly in view of already existing governmental programs.

Therefore, we believe that it is of great importance that there be a specific exemption from the business use tax provision for petroleum production processes. This could be simply accomplished by amending the bill, Title IV, Part 1, Sec. 411 (a) as follows:

Add: Sec. 4992 (a) (2)—

"(1) for the exploration, development, production, manufacture and/or transportation of petroleum or petroleum products in the petroleum and/or the synthetic fuels industry."

JOHNS-MANSVILLE CORP.,
Washington, D.C., July 18, 1975.

Dear Sirs: The Johns-Manville Corporation is herewith submitting for the record, a study entitled "Economic Impact of Energy Savings Achieved in the Residential Sector by Increasing Thermal Protection" which was prepared by Chase Econometrics, Inc., of New York.

In brief, this study indicates that an incentive for thermal insulation of 40% for the first \$500 expenditure and 20% for the second \$500 expenditure extended over a five-year period, would not cause a drain on the Federal Treasury and would not increase the current or projected budget deficit.

It is hoped that after careful review of this report, tax credits for this program would be increased by the Senate. If you or any of the members of your staff have any questions or would like additional information, I will be most happy to forward the information or meet personally with you.

Sincerely,

JOHN S. AUTRY,
Vice President and Director of Public Affairs.

ECONOMIC IMPACT OF ENERGY SAVINGS ACHIEVED IN THE RESIDENTIAL SECTOR BY INCREASING THERMAL PROTECTION

I. SUMMARY

The importance of achieving energy savings in the Residential Sector, which accounts for approximately 20% of our national energy consumption, is generally recognized. In fact, with the passage of H.R. 6860 by the House of Representatives in June 1975, tax incentive legislation to stimulate thermal protection activity by homeowners has moved closer to becoming reality. The Senate, on two previous occasions (November 1973 and March 1975) proposed similar legislation.

There has been a belief within some government agencies, however, that tax credits to homeowners would cause a "drain" on the Treasury and further increase current and projected budget deficits. A study recently conducted by Chase Econometrics, Inc. directly contradicts this belief, indicating instead that the net effect of such legislation will be a gain to the Treasury. The amount of the gain will, of course, vary with the provisions of the legislation and the degree of consumer response it generates. Other results of tax incentive legislation, according to Chase, include an increase in manufacturing employment as well as an improvement in international trade balance, through the reduction in imported oil.

II. INTRODUCTION

To study the effects of tax incentive legislation designed to stimulate thermal protection activity by the homeowners, Chase Econometrics, Inc. processed three alternative tax credit provisions for the five-year period 1975-1980, and compared the results of each with the "standard" Chase economic forecast for the same period. The result, detailed for each year, is specified in Appendix No. 1.

For summary purposes, the following shows the overall effect for the five-year period of each of the three tax credit alternatives as compared to the "standard" Chase forecast without such tax encouragement to Residential Energy Conservation:

A. Alternative.—Congressman Ullman's proposal (March 1975) a 40 percent tax credit for the first \$500.00 expenditure and 20 percent of the next \$500.00 spent for Residential Energy Conservation purposes. Results:

1. A net gain to the Treasury of \$11.5 billion over five years;
2. An increase in manufacturing employment of 580,000 man-years of labor;¹ and
3. A positive trade balance of \$19.0 billion.

B. Alternative.—A provision which would strongly encourage homeowners to "Do It Now" by establishing a 50 percent tax credit on a \$1,000.00 expenditure for the first two years, reducing to 30 percent of \$500.00 for the following three years.

Results:

1. A five-year net gain to the Treasury of \$7.2 billion;
2. An increase in manufacturing employment of 460,000 man-years of labor;² and
3. A positive trade balance of \$15.6 billion.

C. Alternative.—The provisions of H.R. 6860 as passed by the House of Representatives (except for the term limitation) of a 30 percent tax credit on a maximum \$500.00 expenditure.

Results:

1. A net gain to the Treasury of \$6.0 billion over five years;
2. An increase in manufacturing employment of 470,000 man-years of labor;³
3. A positive trade balance of \$10.8 billion.

III. DISCUSSION AND ASSUMPTIONS

Five-year term.—First, to achieve our national energy savings goals, a five-year term was used rather than the provision in H.R. 6860 of less than three years. After legislation is finally enacted, a period of several months will be required to adequately inform the public of its provisions. In fact, five years may not be sufficient to accomplish the 20 million homeowner "actions" so badly needed.

4 Million homes maximum capacity.—Second, a retrofit "maximum capacity" of 4 million homes per year was assumed which could be generated only by Congressman Ullman's proposal, and during the first two years of Alternative B. In other instances (H.R. 6860 and the final three years of Alternative B) there would not be sufficient incentive to the homeowner to achieve this level of activity. At a 30 percent tax credit level, the maximum level of activity that could be expected would be in the 3.0–3.5 million homes per year range.

Dollar limitation.—In addition, the dollar limitation of a tax credit is important. H.R. 6860 places a maximum expenditure of \$500.00 per house, whereas the average expenditure for a "retrofit" job may be in the \$600.00–\$700.00 range.

Consumer expenditures are critical in starting the ripple (multiplier effect) through the economy. Congressman Ullman's proposal would generate a consumer expenditure of \$2.4 billion annually, as would the first two years of Alternative B, while H.R. 6860 would create only \$1.75 billion in annual expenditures. Over five years, total expenditures, government outlay (through tax credits) and oil savings would look as follows:

Alternative	Consumer expenditure	Government outlay	Oil savings (barrels)
A. (40 percent of 1st \$500, 20 percent of next \$500)	\$12,000,000,000	\$4,400,000,000	1,200,000,000
B. (50 percent of \$1,000 for 2 yr, 30 percent of \$500 for 3 yr)...	5,300,000,000	5,350,000,000	990,000,000
C. (H.R. 6860—30 percent of \$500 but for 5 yr).....	8,750,000,000	2,630,000,000	787,000,000

¹ It should be noted that the increase in employment is in manufacturing only and does not include those added jobs in service industries which, in turn, would be supported by increased manufacturing employment. In total, the increase in employment—both in manufacturing and related service capacities—could be up to five times the stated figure.

² *Ibid.*

³ *Ibid.*

IV. CONCLUSIONS AND RECOMMENDATIONS

It is clear that tax credits for energy saving "retrofit" in the residential sector will:

- (1) create *positive* effects on the U.S. Treasury
- (2) increase employment—both in manufacturing and service industries; and
- (3) help to *reverse our negative international trade balance* more rapidly and to higher positive levels than would otherwise occur, thereby *strengthening the value of the U.S. dollar* relative to foreign currencies.

Reduced oil imports

More important, however, the energy savings will be quickly translated into substantial reductions in oil imports. It will be a major step in achieving independence from foreign energy suppliers—both on a short and long-term basis.

These facts are inescapable, and will apply to most of the provisions which have been discussed in the process of developing the final tax incentive legislation to be enacted. The interest here is in the degree to which these improvements can be made, and in the comparison of alternatives.

To this end, three very "real" alternatives have been compared. From the data presented, it is clear that Congressman Ullman's proposal in March 1975, creates the most favorable economic effects of those alternatives studied. It also provides the motivation for homeowners to act. An incentive of lesser proportions would require a far greater length of time to accomplish our energy savings goals.

Further, it is clear that such an incentive should continue through 1980, even though its effective starting date may be established as the date of final enactment into law.

APPENDIX I

IMPROVEMENTS BY YEAR 1976-80, 3 TAX INCENTIVE LEGISLATION PROVISIONS VERSUS STANDARD CHASE FORECAST

[Dollar amounts in billions]

Year	Gain to the Treasury	Increase in manufacturing employment	Increase in net exports
I. (40 percent of 1st \$500, 20 percent of 2d \$500 expenditure):			
1976.....	\$2.2	120,000	\$0.6
1977.....	2.4	170,000	2.0
1978.....	2.0	120,000	3.7
1979.....	2.3	90,000	5.5
1980.....	2.6	80,000	7.2
Total.....	11.5	1 580,000	19.0
II. (50 percent of \$1,000 for 2 yr, 30 percent of \$500 for 3 yr):			
1976.....	1.2	130,000	.5
1977.....	1.8	200,000	1.7
1978.....	1.1	80,000	3.4
1979.....	1.2	20,000	4.7
1980.....	1.9	30,000	5.3
Total.....	7.2	1 460,000	15.6
III. (H.R. 6860—30 percent of \$500 but for 5 yr):			
1976.....	1.7	80,000	.4
1977.....	1.5	120,000	.1
1978.....	.7	100,000	2.2
1979.....	1.0	90,000	3.5
1980.....	1.1	80,000	4.6
Total.....	6.0	1 470,000	10.8
Total job years.			

APPENDIX 2

ECONOMIC IMPACT OF ALTERNATIVE PROGRAMS FOR RETROFITTING HOME INSULATION (SIMULATED BY CHASE ECONOMETRIC ASSOCIATES' MODEL FOR THE U.S. ECONOMY)

	1975	1976	1977	1978	1979	1980
Scenario I—40 percent tax credit for 1st \$500, 20 percent for 2d \$500, 1976-80:						
Federal budget deficit (billions).....	-\$85.2	-\$76.6	-\$53.0	-\$61.1	-\$78.6	-\$69.5
Manufacturing employment (million persons)...	18.09	19.46	20.65	19.75	18.73	19.62
Net exports (billions).....	\$3.4	-\$2.8	-\$1.0	\$3.8	\$8.3	\$9.0
Scenario II—30 percent tax credit for 1st \$500, 1976-80:						
Federal budget deficit (billions).....	-\$85.2	-\$77.1	-\$53.9	-\$62.4	-\$79.9	-\$71.0
Manufacturing employment (million persons)...	18.09	19.42	20.60	19.73	18.73	19.62
Net exports (billions).....	\$3.4	-\$3.8	-\$2.9	\$2.3	\$6.3	\$6.4
Scenario III—50 percent tax credit for 1st \$1,000 for 1976-77, 30 percent for 1st \$500 for 1978-80:						
Federal budget deficit (billions).....	-\$85.2	-\$77.6	-\$53.6	-\$62.0	-\$79.7	-\$70.2
Manufacturing employment (million persons)...	18.09	19.47	20.68	19.71	18.66	19.57
Net exports (billions).....	\$3.4	-\$2.9	-\$1.3	\$3.5	\$7.5	\$7.1
Scenario IV—Chase "Standard" forecast:						
Federal budget deficit (billions).....	-\$85.2	-\$78.8	-\$55.4	-\$63.1	-\$80.9	-\$72.1
Manufacturing employment (million persons)...	18.09	19.34	20.48	19.63	18.64	19.54
Net exports (billions).....	\$3.4	-\$3.4	-\$3.0	-\$0.1	\$2.8	\$1.8

STATEMENT SUBMITTED BY THE NATIONAL LEAGUE OF CITIES

The National League of Cities, representing 15,000 municipalities, appreciates this opportunity to be able to share our views with you concerning an issue intrinsically important to the future of our cities—the development of a national energy program. Specifically, we would like to deal with certain portions of the Energy Conservation and Conversion Act, H.R. 6860, which would have direct consequences for local government.

Our first concern deals with the import quota system provided for in Title I of this bill. While we support the concept of stringent import quotas in freeing our nation of dependency on foreign oil, we urge that exemptions from this system be granted for all crude oil manufactured into asphalt. Street and road construction and maintenance is a substantial investment and expenditure of local governments. Forty percent of the asphalt binder of highway surfaces originates from foreign crude oil sources, while 93 percent of the pavement of highways is composed in part of asphaltic surfaces. The only feasible material in the maintenance of these highways is asphalt.

As you well know, the fiscal difficulties of our cities are mounting as well as the need for public services. Overall maintenance cost of highways alone has increased by 30 percent. With the additional reduction in imports of petroleum carried over from the energy crisis, costs have skyrocketed from \$28 to \$90 per ton of asphaltic cement. We cannot allow the gradual degradation of our highway system to continue, nor can we permit the fiscal position of our cities to deteriorate further. The exemption of asphalt from the import quota system is an urgent need.

Along with the requested exemption of asphalt, we also urge the initiation of a formula to compensate state and local governments for increased expenditures for other fuel and petrochemical products. The cities must not be made to bear the expansive and uncontrollable costs of fuel.

Title II of the Energy Conservation and Conversion Act creates auto efficiency standards. We firmly support those actions such as minimum fuel economy performance standards for new cars and mandatory energy labeling of energy consuming appliances along with increased public awareness of energy costs. The National League of Cities membership, last December, adopted a comprehensive energy policy platform which called in part for the establishment of: "mandatory energy efficiency labeling of all energy consuming products."

Also included in this section of the bill is the repeal of excise taxes on intercity buses and radial tires. These taxes account for 80 percent of the annual revenues earmarked for the Highway Trust Fund. To repeal these funds would be a rash infringement of the continuance of the Trust Fund program, causing the deterioration of roads used by intercity buses and the eventual interference with the aims of an adequate energy conservation program.

Important to any energy program is the changeover from oil to waste and solar heat as energy resources. The five-year amortization and tax credit incentives for wasteburning and recycling equipment, solar equipment and other energy-saving devices have the full support of the League. More incentives are needed, however, for local governments to install this equipment, including both financial and technical assistance.

Finally, we urge the repeal of the depletion allowance for virgin resources. Only through this measure will the local governments have adequate incentives to create resource recovery systems.

The cities are in themselves energy conserving. Yet they must bear the burden of both environmental and financial difficulties that arise out of the use of energy. This country is in critical need of a comprehensive energy program. Yet we cannot close our eyes to the fiscal plight of our local governments. We urge you to be mindful of this point when you consider H.R. 6860 in your committee.

STATEMENT OF MICHAEL DINGMAN, PRESIDENT OF WHEELABRATOR-FRYE, INC.

Mr. Chairman and Members of the Committee :

This statement sets forth the views of Wheelabrator-Frye, Inc. on Titles III and IV of The Energy Conservation and Conversion Acts of 1975 (H.R. 6860), and recommends the creation of additional incentives to further the national objective of developing energy sources other than oil and gas while preserving environmental quality.

I. INTRODUCTION

Wheelabrator-Frye, Inc. is a recognized world leader in the design, construction and operation of environmental and energy systems. As a company, we are deeply committed to both the development of energy sources other than oil and gas and the preservation of environmental quality.

It is the stated policy of the United States to reduce its dependence on foreign oil and gas. To a considerable degree, this can be done by developing alternative energy sources that are available domestically. Among those of greatest and most immediate promise are the conversion of coal to clean fuels through gasification and liquefaction (including the solvent refined process), and the conversion of solid wastes to energy. Wheelabrator-Frye has extensive experience with all of these systems.

Based on our experience, we are confident that, with the help of Government incentives, there will be a dramatic increase in the construction of solid waste energy facilities and a more rapid development of commercially viable solid waste energy systems and clean coal plants. The technologies have been largely proven, and Wheelabrator-Frye and other private companies are presently prepared to construct, own, and operate such facilities. The missing ingredient is appropriate incentives to assist in financing the enormous cost of constructing such facilities.

Accordingly, we are in general agreement with the provisions of H.R. 6860 dealing with (a) the establishment of an Energy Conservation and Conversion Trust Fund for the development of new energy sources, and (b) the five-year amortization of capital expenditures for "qualified energy use property", combined with qualification of such property for investment tax credit.

In addition, Wheelabrator-Frye urges Congress to enact the following incentives:

12% Investment Tax Credit for three years, proposed by President Ford for "public utilities", should be made available for all energy alternatives, including Solid Waste Energy Systems and Clean Coal Plants.

Federal Power Commission approval of utilities entering into Long-Term Purchase Contracts for the purchase of clean coal.

II. NEW SOURCES OF CLEAN ENERGY

The United States has been made acutely aware of the need to reduce its dependence on foreign oil and gas and to rapidly develop alternative sources of energy. Both President Ford in his State of the Union Message and leaders in Congress have proposed various means of encouraging the nation's conversion to alternative sources of energy.

These proposals have emphasized, in particular, the need to exploit our abundant reserves of domestic coal, and recognize that additional energy supplies from coal will not be available as a substitute for other fuel sources unless an effort is made by the Government to promote their development. Most authorities now agree that, because of the pollutants which are discharged into the environment when coal is burned directly, the only way to significantly increase the use of coal is to develop more economical ways to convert coal to clean synthetic fuels. Coal cleaning by gasification is commercially available now; coal cleaning by liquefaction (solvent refined coal) is on the threshold of commercial application.

These proposals also recognize the potential contribution of solid waste energy systems and the need for Government incentives to realize this potential.

Solid waste energy

If the municipal refuse collected annually in the United States were burned in solid waste energy systems, the energy produced would equal about 6 percent of the present U.S. power generation. While not all municipal refuse can be considered for energy extraction, a reasonable estimate is that 100 plants processing 1,200 tons of refuse a day (one-third of the annual collection) could provide the energy equivalent of more than 50 million barrels of oil annually.

Solid waste energy systems have been operating in Europe and Japan for more than twenty years and a number of systems have been installed in the United States. More are under construction and in the planning stage. For example, Wheelabrator-Frye is currently constructing a refuse-to-energy plant in Saugus, Massachusetts, due to be completed in the fall of 1975. The plant is expected to dispose of 1,200 tons of garbage daily and to produce steam energy equivalent to approximately 600,000 barrels of oil per year.

Clean conversion of coal

Pollutants can be removed either after the coal is burned by cleaning the flue gas and disposing of the ash residue, or by cleaning the coal prior to burning. Wheelabrator-Frye, along with some utilities and industrial users, believes cleaning the coal before it is burned is both a potentially more efficient form of pollution control and of energy production.

Although some suggestions indicate that synthetic fuels production would not be meaningful until 1985, we believe that if appropriate incentives are provided, commercial development of clean coal plants would be substantially accelerated. Coal gasification technology has existed for 40 years and is in wide use in Europe and South Africa. A realistic goal for the United States is the construction by 1985 of 50 medium-size coal gasification plants each with a daily capacity of 2,000 tons of coal. These plants, costing approximately \$70 million each, could produce clean fuel equivalent to 146 million barrels of oil per year.

The feasibility of coal liquefaction technology (solvent refined process) is now being proven. Under the auspices of the Bureau of Mines, a demonstration facility which processes 50 tons of coal per day was opened in Fort Lewis, Washington in September, 1974. A number of major utilities are interested in building commercial-size installations, and Wheelabrator-Frye is involved in planning a \$100 million demonstration plant which after its economics are proven will be expanded to a \$350 million facility to process 25,000 tons of coal per day. The completed facility could produce clean fuel equivalent to 36 million barrels of oil per year.

III. THE NEED FOR INCENTIVES

Private industry unaided would find it very difficult at this time to provide or obtain the large sums required to construct solid waste energy and coal gasification plants based on proven technology in the numbers required to meet our energy need. The estimated capital cost of the Wheelabrator-Frye refuse-to-energy plant now under construction is \$35 million and plants costing as much as \$100 million are being planned. Medium size coal gasification plants costs \$70 million each.

The difficulty of attracting capital is even more acute for coal liquefaction (solvent refined process) plants because of the larger costs and the risks involved in commercializing new technology. The complete coal liquefaction (solvent refined process) facility projected by Wheelabrator-Frye and a major utility would take over three years to build at an estimated cost of \$350 million. There are few private companies which can finance sums of this magnitude on their own credit.

In addition, the risk of investing large sums in the search for alternative sources of energy is particularly great at this time. The price of oil in the world market, while presently exorbitant, is precarious. A sudden drop in the price of oil might render investments in other sources of energy worthless.

While the private sector would probably sometime in the *future* furnish the necessary capital without government-created incentives, we need such incentives to encourage private investment *now*.

THE ENERGY CONSERVATION AND CONVERSION ACT OF 1975 (H.R. 6860)

H.R. 6860, as passed by the House, recognizes the desirability of providing government financial assistance in the development of new energy sources and recognizes to some extent the need for incentives to encourage private investment in such development.

Title III of the Act would establish an Energy Conservation and Conversion Trust Fund funded by net revenues from the several conservation taxes contained in the bill. These revenues would be used to provide priority financing of various energy conservation and conversion research and development programs.

Wheelabrator-Frye is in general agreement with the energy trust fund concept and with the four trust fund expenditure categories set forth in Title III Section 4 of the bill.

Wheelabrator-Frye also favors five-year amortization of qualified energy use property as provided in Title IV of H.R. 6860. We believe that five-year amortization of capital investments in such areas as solid waste energy and clean coal systems would provide a significant impetus to the construction and development of those technologies.

Title IV establishes a new Section 189 to the Internal Revenue Code—*Amortization of Qualified Energy Use Property*. We believe that certain definitions in Section 189 should be amended to more accurately reflect the intent of the House as to the type of facilities to be included within the meaning of "qualified energy use property."

Section 189(b)(1) provides that "qualified energy use property" means:

- (a) qualified waste equipment;
- (b) qualified shale oil conversion equipment;
- (c) qualified coal processing equipment;
- (d) a qualified coal pipeline;
- (e) qualified solar energy equipment; or
- (f) qualified deep-mining-coal equipment

The term "qualified waste equipment" is defined in Section 189(b)(2)(B) to include any machinery or equipment "used to process waste into a fuel," . . . As drafted, this language might be construed not to include a more efficient facility such as the refuse-to-energy plant currently under construction in Saugus, Massachusetts which uses *waste as a fuel* and which converts the fuel directly into *useable energy*. We suggest that Section 189(b)(2)(B) be amended to read "used to process waste into a fuel or *directly into useable energy*." This amendment would clarify the definition of "qualified waste equipment".

The term "qualified coal processing equipment" is defined in Section 189(b)(4) to mean "any machinery or equipment (of a character subject to the allowance for depreciation) for processing coal into a liquid or a gaseous state." The problem with this language is that it might not include one of the principal liquefaction processes, i.e. solvent refining of coal. The solvent refining process produces a clean solid fuel by removing most of the sulfur and ash from coal. While the process involves the "liquefaction" of coal, the final product is coal in a *clean solid state*. We suggest that Section 189(b)(4) be amended to read as follows:

(4) **Qualified Coal Processing Equipment**—The term "qualified coal processing equipment" means any machinery or equipment (of a character subject to the allowance for depreciation) for use in the liquefaction (including the solvent refining process) or gasification coal.

This amendment would include in the definition of "qualified coal processing equipment" any machinery or equipment used in liquefaction (including the solvent refined process) or gasification of coal regardless of the state (liquid, gaseous, or solid) of the final product.

ADDITIONAL INCENTIVES

12 percent investment tax credit

In his State of the Union Message, President Ford proposed, as part of a temporary, anti-recession tax cut, an increase for one year in the investment tax credit to 12 percent for all taxpayers including utilities. The Tax Reduction Bill of 1975 increased the investment tax credit to 10 percent. President Ford also proposed, as part of his Energy Program, that utilities receive a 12 percent credit for two additional years for qualified investment in electrical power plants other than oil- or gas-fired facilities.

We agree with the President that the need to decrease national dependence on oil and gas warrants a 12 percent investment tax credit and the extension of the 12 percent investment tax credit for two years for utility power plants powered by fuels other than oil or natural gas. However, we also believe that Congress, in enacting such legislation, should not limit the extension to public utilities. In order to provide the greatest incentives for changing from oil- and gas-fired electrical plants to coal and nuclear powered facilities, the credit should be available to all power plants. Thus, solid waste energy plants, although not public utilities, should qualify as eligible for the extended credit.

Fuel cleaning systems such as coal, liquefaction (including solvent refined process), and gasification systems should also be eligible for the extended tax credit. Coal gasification and liquefaction plants are intended to transform coal into pollutant-free fuel, enabling utility users to avoid the large capital commitments for pollution control facilities of questionable effectiveness. Where, as here, there are alternative strategies to accomplish a similar end result (environmentally sound use of coal) our policy should not be to provide a tax incentive only to one alternative (pollution control) when the other alternative (coal cleaning) is potentially the more efficient.

Because of the long lead time involved in constructing solid waste energy and clean coal plants, it is essential that expenditures committed during the two-year extension period be made eligible for the 12 percent credit. The Tax Reduction Act of 1975 adopts this concept in part by applying the credit to progress expenditures where construction will take more than two years. However, under the Act only a percentage of progress expenditures would be eligible for the credit prior to 1979. We believe that 100 percent of qualifying energy-related expenditures should qualify for the investment tax credit beginning immediately. Because of the extremely long lead time in obtaining new sources of coal and planning and constructing the necessary capital facilities, we also believe that the credit should be made applicable to all expenditures, whether incurred during or after the eligibility period, for plants on which construction commences during the next *five* years.

Federal Power Commission Approval of Long-Term Utility Contracts

Purchase guarantees could be provided through long-term contracts between clean coal plant owners and public utilities. The utilities would then be able to distribute the cost of the synthetic fuels to their consuming public by including such cost in their rate structure. Of course, such action would require the approval of the appropriate regulatory authorities. Public utilities have recently applied to the Federal Power Commission for permission to include the costs of fuel purchased under long-term contracts in their rate structure, but the Federal Power Commission has not responded. The Federal Power Commission should not only grant this permission but should also specifically authorize public utilities to enter into long-term contracts for the purchase of synthetic fuels. Financing coal gasification and liquefaction systems (solvent refining process), and the costs of converting to synthetic fuels from oil would be passed on to consumers who are ultimately the beneficiaries of the resulting energy conservation and pollution control. If existing regulatory authority is inadequate, the necessary enabling legislation should be passed.

We wish to thank the committee for using their precious time to consider our views on the matters before you.

STATEMENT OF AMERICAN ASSOCIATION OF STATE HIGHWAY
AND TRANSPORTATION OFFICIALS

Dear Senator Long: State highway and transportation officials are most interested in legislative proposals for the conservation of energy such as those contained in H.R. 6860 on which your Committee has scheduled hearings.

On April 22, 1975, the Policy Committee of the American Association of State Highway and Transportation Officials adopted an energy policy statement in which they recommended that a minimum of 25% of revenues obtained from any new Federal tax be made available to fund transportation projects that meet the goal of conservation and development of energy resources, and that any Federal legislation imposing new taxes provide that States could enact new taxes in lieu of a portion of new Federal taxes to make up for losses from reduced fuel consumption. A copy of this policy statement, together with an explanatory statement, is enclosed.

States recognize the need to control the consumption of fuel as a means to conserve energy but are concerned over the impact of conservation measures on revenues derived from State gasoline taxes, which in 1974 amounted to \$7.6 billion and 12% of all State revenues.

States have already suffered from decline in gasoline taxes at a time of sharp increases in costs, and anticipate future declines in gasoline consumption resulting from Congressional or Presidential action from as much as 20% in 1976 to 40% in 1985.

States can offset some of the losses decreased consumption by increasing State tax rates, but such increases would be most difficult to enact if new Federal gasoline taxes preempt the field.

A provision to allow States to enact new State taxes in lieu of at least part of any new Federal tax would be entirely consistent with overall conservation efforts.

We all can take pride in the achievements we have accomplished in developing this nation's highway network to its present high state of performance. Our work is far from finished, however, and we cannot afford to neglect unmet needs, which are immense.

Highways have an average life of approximately 20 years, and the existing highway plant is wearing out at the approximate rate of 5% a year. The cost of maintaining current standards during the period from 1975 to 1990 on highways, other than the Interstate and local streets and roads, has been estimated to be \$231 billion. Furthermore, there are needs for improvements to protect the present investment in highways by allowing more efficient operation, and to promote safety and energy conservation.

A decrease of a source of funding for highway construction will not enhance energy conservation, and is likely to exacerbate energy problems by stifling needed transportation improvements.

Improved highways lead to efficient driving by providing more direct routes and more consistent traffic flow, which, with implementation of 55 mile-an-hour speed limits, is most important to fuel conservation.

For instance, in an environmental impact statement prepared recently for the bill for a Federal-aid Highway Act of 1975 (S. 2078) the Department of Transportation found that a "no-build" alternative would result in more fuel consumption, as well as more air pollution, than the other alternatives considered for different levels of highway construction.

The second major element of the AASHTO energy policy statement is the recommendation that at least 25% of revenues obtained from any new Federal tax be made available to fund transportation projects that meet the goals of conservation of energy and development of energy resources.

The provisions of H.R. 6860 as passed by the House which would dedicate a portion of the Energy Conservation Trust Fund only for research and development and demonstration transportation projects are not nearly sufficient for transportation needs.

We suggest that the use of a portion of proceeds from any new Federal taxes to establish a dedicated source of funding for energy efficient transportation would have much more impact on energy conservation.

We wish to commend your efforts to formulate constructive legislation for the conservation of energy and hope you will feel free to call upon us, if we may be of further assistance.

ENERGY POLICY

The American Association of State Highway and Transportation Officials recommends that in light of the increasing demand for more energy efficient transportation a portion of any revenues generated by energy conservation taxes be earmarked for transportation projects. Since transportation consumes ap-

proximately a quarter of all energy used in the United States, it would seem appropriate that a minimum of 25% of all energy conservation revenues be returned by the Federal government and be devoted to transportation projects that meet the goal of conservation and development of energy resources.

While the American Association of State Highway and Transportation Officials support the goal of energy conservation in transportation, it strongly recommends that provisions be included in enacted legislation to offset the adverse consequences that reduced fuel consumption will have on Federal, state and local programs. In general, state and local highway and transportation programs depend upon gas tax revenues as their major source of funding. Many states also finance a significant share of their other programs through gas taxes. In 1973, gasoline taxes accounted for 12% of all revenues received by state governments. A provision in any Federal legislation increasing gasoline taxes that would allow states the option to collect sufficient energy conservation taxes to make up for losses from reduced fuel consumption is recommended. For example, if a Federal energy conservation tax of 37¢ a gallon on gasoline were enacted, the states should have the option of imposing 5¢ of the 37¢ themselves in order to off-set the anticipated reduction in state revenues that the Federal tax could be expected to cause. If the States did not collect the 5¢ then the Federal government would collect the entire 37¢ and deposit the revenues that the States would have collected in the General Fund of the U.S. Treasury.

STATEMENT OF ILLINOIS DEPARTMENT OF TRANSPORTATION

Federal action since the Arab oil embargo last year and current energy proposals by the Ford Administration and the Congress have concentrated on reducing gasoline consumption as a primary means of conserving energy. Regardless of the relative merit of this from the standpoint of energy and economic policy, this approach would have a devastating effect on future State gas tax revenues unless corrective action is taken.

The cumulative effect of previous Federal action plus the prospective Federal legislation now before the Ways and Means Committee would reduce gasoline consumption from what would have otherwise been anticipated by 17.8 percent in 1976, 29.7 percent in 1980, and 39.3 percent in 1985. Continued fixed gallonage taxes at 1973 rates would lead to State revenue losses of \$1.5 billion in 1976, \$3.8 billion in 1980, and \$5.3 billion in 1985. In Illinois, losses would be \$49 million in 1976, \$124 million in 1980, and \$232 million in 1985.

Neither the Ways and Means Committee legislation, H.R. 5005 sponsored by Chairman Al Ullman, nor any of the other proposals currently before the Congress, addresses the issue of loss gas tax revenues to State governments. Furthermore, each new measure to conserve energy in the transportation sector creates additional pressure to provide a more energy efficient transportation system.

We recommend that the Federal government share with the states a sufficient amount of Federal energy conservation revenues to offset State losses. While we are not recommending an increased Federal gas tax, we do support those provisions in H.R. 5005 which fund investments in transportation projects that would increase the overall efficiency of the Nation's transportation system—in particular mass transportation and rail freight service.

THE IMPACT OF FEDERAL ENERGY CONSERVATION ON STATE REVENUES AND STATE TRANSPORTATION PROGRAMS

This paper discusses the importance of gas taxes as a source of revenue for State governments, describes the dramatic impact of Federal action on gasoline consumption, relates reduced consumption to the severe decreases in State gas tax revenues, discusses the benefits of investing a substantial portion of Federal energy conservation revenues toward a more energy efficient transportation system, and recommends Federal action to offset State revenue losses and to increase the energy efficiency of the Nation's transportation system.

Gas tax as a source of State revenue

For decades gas taxes have provided a stable source of revenue for Federal, State, and local governments. While the Federal government reserves gas tax revenues exclusively for highway and related transportation programs, many

States use gas tax receipts not only to finance transportation development but many other programs as well. One measure of the importance of these revenues to the States can be seen from the fact that State gas taxes accounted for over 12 percent of all State tax revenues in 1973.

During the decade from 1963 to 1973, the annual increase in gasoline consumption ranged between five and six percent Nationwide. In 1973, all States combined collected a total of \$7.6 billion in gasoline taxes. If tax rates existing in 1973 were extended to 1985 and if the historical growth rate of five percent per year were to continue, the States would realize \$13.6 billion from gas tax receipts in 1985.

Statistics for individual States vary considerably. Table 1 shows that in four States 1973 gas tax revenues accounted for more than 20 percent of total State tax revenues. The highest was South Dakota with 23.6 percent. Only two States, New York and Hawaii, collected less than eight percent of their total tax revenue in gas taxes.

Factors leading to reduced gas consumption

Recent and proposed actions at the Federal level have and will dramatically affect gas consumption in the United States. In essence, three things happened in 1974 which affected gas consumption: supplies were reduced, prices went up, and the 55 mph speed limit was enacted. According to the Federal Energy Administration (FEA), the combined result of these actions, alone, would be to reduce growth in gas consumption in future years from the 5 to 6 percent annual growth rate experienced over the past decade to a 2 to 3 percent growth rate over the next decade.

The combined impact of all the various Federal actions following the embargo plus the measures proposed in H.R. 5005, would result in a reduction of total gasoline consumption of 17.8 percent in 1976, 29.7 percent in 1980, and 39.3 percent in 1985. Translated into gallons of gasoline consumed per year, the reductions from what would have otherwise been anticipated amount to 20.8 billion gallons in 1976, 42.1 billion gallons in 1980, and 71.2 billion gallons in 1985.

Impact on State revenues

Since State gas tax revenues are typically based on a fixed gallonage tax, the impact of reduced consumption on State revenues would be substantial. In 1973, the states collected \$7.6 billion in gas taxes—which, in turn, amounted to approximately 12 percent of all State tax revenues. By 1985, collections would have grown to \$13.6 billion assuming 1973 tax rates and a continued five percent per year growth in gasoline consumption. The combined impact of present and proposed energy conservation programs, however, would be to reduce 1985 State gas tax receipts to \$8.3 billion—\$5.3 billion less than the States could have otherwise anticipated. Refer to Figure 1.

Table 2 shows the impact on individual states. Projected losses are given for various years in the future. Losses shown assume that growth rates experienced during the previous decade would continue unabated during the next decade. A state like Florida which has a high rate of growth and already collects a large amount of gas taxes would be losing \$426 million a year by 1985. A state like South Dakota which has a lower growth rate and collects a smaller amount would experience annual losses of \$12 million by 1985 although the impact on State programs would presumably be larger inasmuch as South Dakota depended upon gas tax receipts for 23 percent of the State's total tax revenues.

In Illinois, the impact on the highway program will be crippling if counteractions are not taken. In 1974, Illinois collected roughly \$14.0 million less in gas taxes than in 1973. Compared with a normal growth year, the revenue loss in 1974 came to almost \$32 million. In 1976, losses from the Ullman legislation will amount to \$49 million. By 1980, however, expected annual losses would grow to \$124 million and by 1985 to \$232 million.

The impact of severe reductions in gas tax revenue would, of course, be compounded even further by the recent increases in highway construction costs. These too are more than partially attributable to the energy crisis. In 1974 highway construction costs increased by 30 percent—driven largely by a 100 percent increase in the price of petroleum based asphalt.

In sum, the result of present and proposed Federal actions would be to force the States either to cut back substantially on those programs which are financed with gas tax revenues or to enact a major tax increase themselves to cover the difference.

Benefits from energy efficient transportation investments

A more energy efficient transportation system can be achieved by undertaking investments which lead to substitution of more energy efficient modes for personal travel and goods movement.

Transportation consumes almost a quarter of all energy used in the United States. Furthermore, over half of all petroleum products are consumed for transportation. It follows that substantial savings in energy consumed for transportation will contribute significantly toward our National goal of energy independence.

Increased urban congestion, deteriorating air quality, and rising fuel prices have combined to increase the overall demand for public transportation, intercity rail passenger travel and rail freight movement. The latter is complicated by the malignant financial crisis of the bankrupt Northeastern and Midwestern railways which threatens the integrity of an extremely energy efficient segment of the Nation's transportation system. It appears that a substantial government investment is necessary to regain the viability of the rail freight system.

Recommendation for offsetting State losses

The Federal government should return an amount to the States to offset their revenue losses. The respective Governors should be designated as the recipients of these funds and there should be no Federal program restrictions on their use. A rule of thumb given today's consumption is that 1¢ per gallon brings in roughly \$1 billion in revenues Nationwide. Approximately 5.5¢ per gallon would be required to offset State revenue losses in 1985 assuming FEA projections for gas consumption prove accurate. Regardless of the method ultimately used by the Federal Government to reduce petroleum consumption, legislation needs to be enacted to provide that a share of energy conservation revenue be distributed to the States to offset their losses from Federal action.

Furthermore, in light of the increasing demand for more energy efficient transportation, a portion of any revenues generated by energy conservation taxes should be earmarked for energy efficient transportation projects. Since transportation consumes approximately a quarter of all energy used in the United States it would seem appropriate that a minimum of 25% of all energy conservation revenues remaining after losses from undesirable side effects have been offset be devoted to energy efficient transportation projects. These projects should be developed through existing programs using the normal authorization and appropriation process. Emphasis should be given to compensating those Federal programs presently financed from existing Federal gas taxes. These too will suffer adverse consequences from reduced gas consumption.

TABLE 1.—GAS TAXES AS SOURCE OF STATE REVENUE

State	1973 tax per gallon of gas (cents)	1973 gas tax revenues (millions)	1973 total tax revenues (millions)	Gas tax revenues a percentage of total tax revenues
Alabama.....	7.0	\$130	\$828	15.7
Alaska.....	8.0	9	79	11.4
Arizona.....	7.0	81	628	12.9
Arkansas.....	8.5	97	536	18.1
California.....	7.0	715	7,010	10.2
Colorado.....	7.0	89	636	14.0
Connecticut.....	10.0	131	1,065	12.3
Delaware.....	9.0	27	306	8.8
Florida.....	8.0	336	2,400	14.0
Georgia.....	7.5	211	1,263	16.7
Hawaii.....	5.0	14	304	4.6
Idaho.....	8.5	37	234	15.8
Illinois.....	7.5	354	3,471	10.2
Indiana.....	8.0	220	1,419	15.5
Iowa.....	7.0	110	821	13.4
Kansas.....	7.0	85	491	17.3
Kentucky.....	9.0	150	898	16.7
Louisiana.....	8.0	138	1,095	12.6
Maine.....	9.0	47	281	16.7
Maryland.....	9.0	163	1,381	11.8
Massachusetts.....	7.5	177	1,967	9.0
Michigan.....	9.0	402	4,061	9.9
Minnesota.....	7.0	137	1,557	8.8
Mississippi.....	9.0	108	624	17.3
Missouri.....	7.0	177	1,073	16.5

TABLE 1.—GAS TAXES AS SOURCE OF STATE REVENUE—Continued

State	1973 tax per gallon of gas (cents)	1973 gas tax revenues (millions)	1973 total tax revenues (millions)	Gas tax revenues a percentage of total tax revenues
Montana.....	7.0	31	162	19.1
Nebraska.....	8.5	74	351	21.1
Nevada.....	6.0	23	146	15.8
New Hampshire.....	9.0	35	150	23.4
New Jersey.....	8.0	252	1,775	14.2
New Mexico.....	7.0	47	351	13.4
New York.....	8.0	466	8,034	5.8
North Carolina.....	9.0	244	1,525	16.0
North Dakota.....	7.0	23	164	14.0
Ohio.....	7.0	348	2,522	13.8
Oklahoma.....	6.6	103	656	15.7
Oregon.....	7.0	84	592	14.2
Pennsylvania.....	8.0	383	3,755	10.2
Rhode Island.....	8.0	30	297	10.1
South Carolina.....	8.0	116	789	14.7
South Dakota.....	7.0	26	110	23.6
Tennessee.....	7.0	156	918	17.0
Texas.....	5.0	358	2,613	13.7
Utah.....	7.0	42	313	13.4
Vermont.....	9.0	22	179	12.3
Virginia.....	9.0	217	1,315	16.5
Washington.....	9.0	151	1,218	12.4
West Virginia.....	8.5	65	533	12.2
Wisconsin.....	7.0	146	1,759	8.3
Wyoming.....	7.0	19	85	22.3

TABLE 2.—IMPACT OF REDUCED GAS CONSUMPTION ON STATE REVENUES

State	Projected loss in gas tax revenues			State	Projected loss in gas tax revenues		
	1976	1980	1985		1976	1980	1985
Alabama.....	31	63	115	Montana.....	5	11	18
Alaska.....	2	3	6	Nebraska.....	13	26	42
Arizona.....	22	48	93	Nevada.....	8	16	31
Arkansas.....	23	49	94	New Hampshire.....	9	18	33
California.....	147	312	562	New Jersey.....	42	89	156
Colorado.....	19	41	77	New Mexico.....	10	21	38
Connecticut.....	26	54	93	New York.....	65	140	230
Delaware.....	4	10	17	North Carolina.....	54	116	212
Florida.....	98	212	426	North Dakota.....	5	8	15
Georgia.....	58	124	245	Ohio.....	71	174	274
Hawaii.....	1	4	5	Oklahoma.....	20	41	72
Idaho.....	7	15	26	Oregon.....	19	42	80
Illinois.....	49	124	232	Pennsylvania.....	67	140	242
Indiana.....	42	89	157	Rhode Island.....	6	10	19
Iowa.....	18	40	70	South Carolina.....	28	58	110
Kansas.....	10	23	37	South Dakota.....	2	7	12
Kentucky.....	34	71	131	Tennessee.....	38	80	151
Louisiana.....	31	65	120	Texas.....	68	143	253
Maine.....	8	18	31	Utah.....	9	19	33
Maryland.....	39	83	156	Vermont.....	4	10	18
Massachusetts.....	32	65	113	Virginia.....	52	110	209
Michigan.....	83	175	316	Washington.....	29	61	107
Minnesota.....	24	50	87	West Virginia.....	2	26	46
Mississippi.....	23	51	95	Wisconsin.....	3	58	103
Missouri.....	34	71	126	Wyoming.....	5	8	13

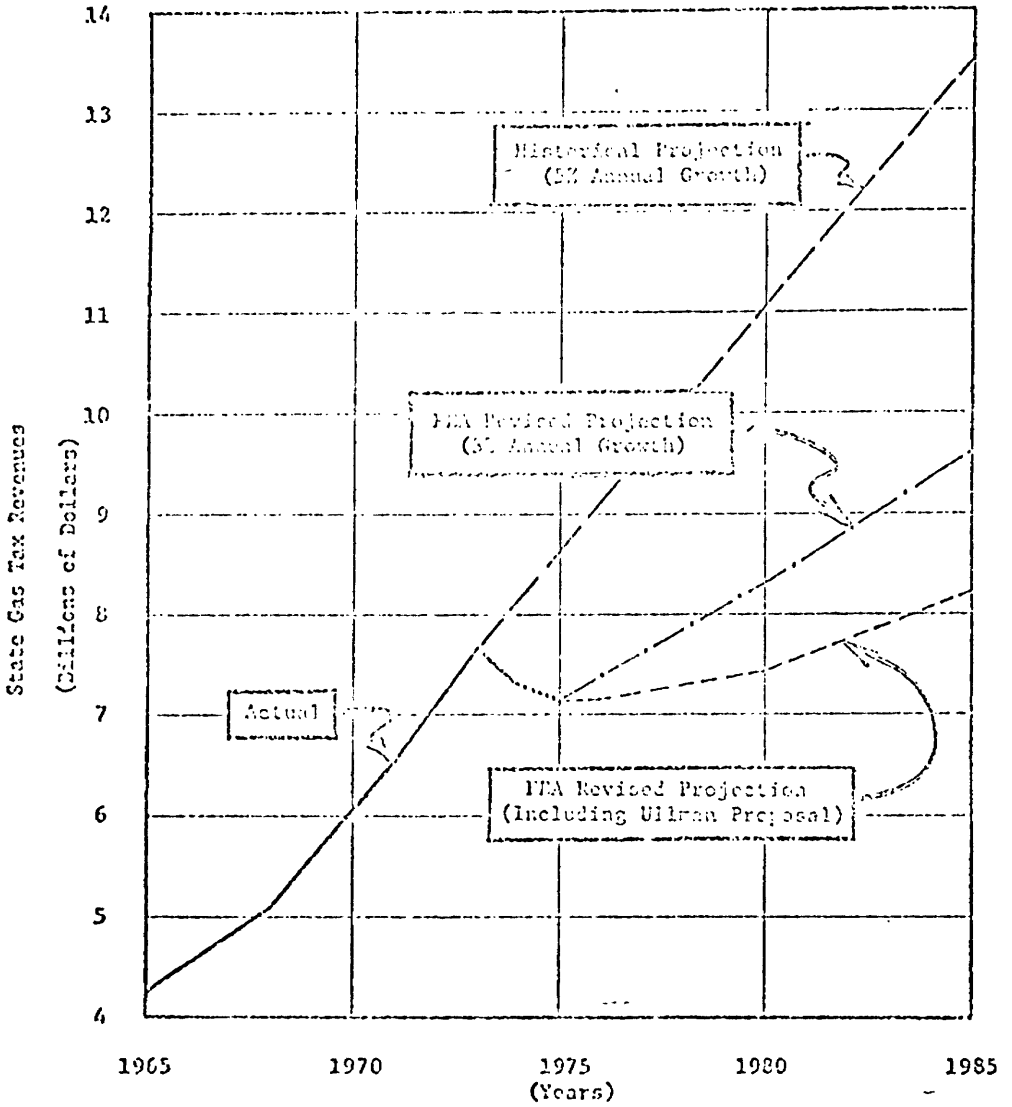


FIGURE 1.—Historical and Revised Projections of State Gas Tax Revenues

Appendix B

Responses for the Record

10/10/10

10/10/10

10/10/10

Material requested at page 157 of these hearings

CHRYSLER CORP.,
 Detroit, Mich., August 25, 1975.

SENATE FINANCE COMMITTEE,
 Dirksen Senate Office Building,
 Washington, D.C.

GENTLEMEN: This has reference to your consideration of automobile fuel economy generally and HR 6800 specifically.

Following my testimony at the hearings on July 10, 1975, Senator Brock requested an answer to the following question:

"Would you give me a breakdown, by company, listing the mandated costs current and already enacted but not being applied yet and those which are proposed by type? How much does the five mile per hour bumper cost, not just in terms of the consumer, gentlemen, if you could give me a little clearer estimate of what it costs in increased repair bills. . . . I would like to be able to spell out the exact cost by item, not individual part by part, but by the major system item."

As I understand the question, Senator Brock would like to know the costs of regulations already enacted but not yet in effect. More specifically he would like to know the cost of 5 mph bumpers and if the cost of repair bills following an accident have increased as a result of these more elaborate bumpers, particularly in higher speed impact accidents where little if any additional benefit can be provided.

The average cost of a 1975 model vehicle has increased over a 1966 model car by \$746.00 as a result of emissions and safety equipment (see Table I) and over 250 pounds have been added during this period of regulation.

As indicated in Table II, the cumulative average cost to the public for application of future standards and proposed standards in passenger vehicles could be as much as \$837 above the price of a 1975 model if all of these requirements are enacted and average car weight could increase as much as another 248 pounds.

"Existing Federal Regulations" are those enacted and scheduled for the model year effectivity shown. The development and tooling costs for requirements specified for 1976 models have been expended, but piece cost saving on brakes could be recovered if this requirement were rescinded.

There are a number of "Proposed Federal Regulations," the most costly of which is the air bag passive restraint and a proposed requirement to strengthen the backs of front seats to limit the amount they bend rearward in a rear end impact accident. The Benefit/Cost Effectiveness has not been established on these standards to the satisfaction of the automobile industry.

Standards on Exterior Noise are still under consideration for Federal Action but Oregon and Florida have a 75 decibel requirement on the books for 1979.

Bumper regulations have been introduced in a series of annual steps as shown in Table III. Their total effect is to increase weight by 128 pounds for the average car and increase average car cost by over \$125.

We are dependent upon insurance company records to determine whether this action has had an influence on cost of vehicle repair after an accident. The data in Tables IV and V were taken from reports issued by the Highway Loss Data Institute of Washington, D.C., using collision repair costs supplied to the Institute by eight insurance companies.

Table IV compares six representative cars in the Chrysler line in terms of claim frequency, the number of claims per 100 insured vehicle years, the average loss per claim standardized for differences between 50 and 100 dollar deductible policies and standardized operator age, and the average loss per insured vehicle year. The data shows no clear trend and shows the scatter in the averages of the costs of claims.

A reduction in average loss per insured vehicle year multiplied by average car lifetime should be a benefit accruing to a car owner. The benefit should be compared to the increase in new car cost and increase in cost of fuel consumption that must be absorbed by the purchaser because of the increase in weight. The six Chrysler cars selected show a change in Loss per Insurance Vehicle Year as declining from an average of about \$44 in 1972 to about \$41 in 1974. An incremental decrease of \$3 between 1972 and 1974, the latest year for which we have

data available, would indicate a saving at best of \$30 during a 10 year car life. The average car would have cost its purchaser \$123 more at time of purchase resulting in a net loss of about \$100.

The loss data for all domestic built 1972, 1973 and 1974 cars in the HLDI files is shown in Table V by car size. The decrease in average Loss per Insurance Vehicle Year between 1972 (\$53) and 1974 (\$49) is \$4, comparable to the average cost reduction of the six representative cars by Chrysler.

The initial HLDI data on damage repair costs of 1975 automobiles has just become available. It shows a surprising 30% average increase over the corresponding data for 1974 autos. A breakdown of this information by vehicle make which would spotlight specific cost changes is as yet unavailable.

If the insurance industry anticipates that further benefits will accrue when more cars on the road have bumper heights controlled within specified limits to meet Federal requirements they could be misled. While bumper matching will be effective in low speed or parking lot impacts, it may not offer much benefit in the higher speed collisions of the type for which these repair costs were incurred. Also, the greater cost of replacing the more elaborate bumper systems on 1974 models and later will continue to wipe out their potential benefit if they have to be replaced following an accident.

For purposes of protection against property damage, it is not yet fully appreciated that standardized or controlled bumper height is the most important criterion for an effective low speed bumper standard. By having a uniform height and a wide bumper to meet the pendulum test, impact speeds could be lowered to 2½ mph and comparable effectiveness could be obtained at lower cost and lower weight.

I believe these bumper data show that rule making based on inadequate information does not prove to be economically beneficial to the consumer.

Very truly yours,

ALAN LOOFBOURROW, *Vice President (Engineering)*.

RESPONSES OF THE CHRYSLER CORP.

August 18, 1975.

SENATE FINANCE COMMITTEE,
Dirksen Senate Office Building,
Washington, D.C.

GENTLEMEN: This has reference to hearings of the Committee on H.R. 6860, the Energy Conservation and Conversion Act of 1975 at which Mr. A. G. Loofbourrow, Vice President—Engineering, testified. After the hearings, certain questions were submitted to Chrysler by Senator Curtis. Our answers to these questions are attached.

We regret the delay in the submission and hope it is still timely to your consideration of the hearings held on July 10, 1975 regarding automobile fuel economy generally and H.R. 6860 specifically.

Very truly yours,

VICTOR C. TOMLINSON.

Attachments.

CHRYSLER RESPONSE TO QUESTIONS FROM SENATE FINANCE COMMITTEE HEARING
JULY 10, 1975 REGARDING AUTOMOBILE FUEL ECONOMY

1. *Question.* What percentage of manhours does it take to build a small car as compared to one weighing about 5,000 lbs.?

Answer. The amount of labor involved in the final assembly of any car depends on the number of options/features involved (e.g., power steering, radio, autopilot, etc.) and the general level of appointments (e.g., vinyl roof, carpets, door panel and seat trim, sound deadening, etc.). It is possible to have a "loaded" high-priced small car involving more assembly labor than a stripped, low line larger vehicle. Likewise, the amount of assembly labor in any vehicle is dependent on the amount of product integration in that particular plant—seats, instrument panels, etc., may be built up either in the assembly plant or in separate plants. If total labor all the way back to the raw material is considered, it is obvious that the amount of, say, steel, iron ore, limestone, rubber, seat fabric, etc., is almost directly proportionate to the weight of the vehicle. And, finally, the question itself refers to a small car which could be defined as a vehicle anywhere from a 2,000 lb. "mini" all the way up through a 4,000 lb. luxury compact.

Recognizing these factors, we can indicate that with Chrysler's present degree of integration, our average assembly labor for a typical present compact (Vallant or Dart) involves roughly eighteen percent less manhours than a typical present full size vehicle (Plymouth Gran Fury, or Dodge Monaco).

2. *Question.* If the House Bill becomes law, what effect would it have on employment in the auto industry?

Answer. The overall question of how fuel economy requirements affect production volumes, sales dollars, and employment depends on the degree of fuel economy improvement required, and the time available to achieve the improvement. (These overall points also would include the ability of a manufacturer to have both the time and the capital resources necessary to engineer the products and provide the manufacturing facilities.) In addition, sales of any particular product would be heavily influenced by the national economic picture, gasoline price/availability, competitive considerations and the type of product shift the market would accept. For example, the present gasoline price may well cause a shift of two to three percent a year from larger cars into smaller vehicles. At the same time, however, the vehicle value may reduce none or only slightly if this trend is to vehicles with a higher degree of appointments and options/features.

Chrysler Corporation and, indeed, each of the major U.S. automotive companies, have agreed to the goals set forth in President Ford's plan to improve fuel economy 40% by 1980. Despite the magnitude of improvements required and the time frame involved, Chrysler believes that if emissions standards remain at present levels, we can achieve these goals at reasonable cost and without hurting employment.

However, a number of the proposed fuel economy laws require such a large increase in fuel economy in such a short period of time that the only way the proposed law could be met would be to literally curtail production of most, if not all, of the larger cars. Some of these proposals would result in very substantial reductions in production volumes and obviously reductions in the employment required to meet these levels. MVMA President Wm. D. Eberle, in a May 12 announcement, noted that "The ever increasing standards that require extreme production shifts, along with a tax that would raise prices and therefore reduce car sales, could result in a loss of as many as 150,000 jobs by domestic auto makers by 1980, and a total of nearly 500,000 jobs throughout the entire economy."

Some of the House Ways and Means Committee versions of H.R. 6860 also had such major implications and several were evaluated by Chrysler in a program involving the analysis and computer modeling performed jointly by our sales, engineering, and manufacturing areas. The most complete analysis was done on the Excise Tax Schedule shown in Table 1 (attached) that was proposed by the House Ways and Means Committee on or about April 24, 1975.

Table 2 provides the main product projection effects of such a tax schedule—volumes, fuel economy (EPA 55/45 city/highway harmonic), average excise tax, etc. For each year, two entries are shown: the base projection (i.e., no excise tax), and with the proposed excise tax schedule. Other main inputs (i.e. emission standards, product plan, etc.) were identical. Note in particular that in 1980, it was projected that this proposed tax schedule resulted in sales reductions of: 1 million cars for the industry, 2.49 million for the domestic companies; and .450 million for Chrysler Corporation.

Table 3 shows the effect of these sales reductions on Chrysler Corporation production facilities and the resulting employment reductions. It can be noted that the total Chrysler Corporation employment would be reduced by 25,715 people. If other automobile manufacturers were affected to the same degree, the total for all automobile manufacturers would be a total of 160,700 people on layoffs. Using normal ratios between the auto industry and related support groups, it was projected that between 242,000 and 450,000 additional people were idled in the ranks of suppliers, dealers and other related areas. Thus, under this proposal, total industry layoffs would approach 402,700 to 610,700 employees.

Bill H.R. 6860 as approved by the House is not as severe as the above proposal. However, it does have very severe penalties which allow very little flexibility, as an example will demonstrate. Section 212(a)(1) requires that our 1978 fleet achieve 18.5 mpg, but no penalties are required until the fleet average drops to 18.0 (see Section 212(d)(2)). Civil penalties are \$5 for each tenth of an mpg times the entire production (see Section 216(b)(1)(A)). Thus, if we build one million cars and the fleet averages 18.0 mpg, there is no civil penalty. However, if the average of the same production fleet drops only 0.1 mpg, the civil penalty

suddenly becomes \$5 million. With such a small degree of latitude and such severe penalties, a manufacturer obviously must have a high degree of certainty that this requirement will be met.

Finally, we can note that since the present House Bill falls between the proposal noted above, and the voluntary forty percent improvement program, it would appear the sales, volume production, and employment also would fall between these two. All these comments apply only to 1980 goals. The more stringent goal of 28 miles per gallon by 1985 would have even more drastic effects on the automobile industry and the economy.

3. *Question.* What impact will current emission standards have on your ability to meet the fuel economy standards in the House Bill?

Answer. H.R. 6860 as proposed includes a provision to adjust fuel economy requirements based on altered emission standards. Specifically, Section 212(c) (1), "If the Secretary (after consultation with the EPA Administrator) determines under paragraph (3) that in any model year there will be an emission standard penalty, he shall adjust the fuel economy rate applicable to such year by subtracting a number of miles per gallon (rounded off to the nearest tenth of a mile per gallon) equal to the amount of such penalty." Section 212(c) (1) goes on to explain the terms.

From the above, one could well presume that the fuel economy "task" before and after the adjustment will be identical because the objective is to make the adjustment in direct relation to the emission standards penalty. Certainly, we feel this type of adjustment is required. However, three aspects of this are of major concern to Chrysler. First, it will be extremely difficult to engineer a product which simultaneously must achieve both reduced emissions and improved fuel economy. Second, although the law requires the fuel economy rate to be adjusted for the emission standard penalty, the adjustment cannot be estimated for the full range of vehicles and the groups involved (EPA, DOT, etc.) will have a natural tendency to at least understate this effect. Third, regardless of whether adjustments are made, the facts are that tighter emission standards will result in fuel economy losses to customers and increased importation of crude oil. For example, as shown in the table below, Chrysler vehicles meeting today's California standards incur a 12 percent penalty compared with comparable vehicles meeting federal standards.

EFFECT OF EMISSION STANDARDS ON FUEL ECONOMY

	Fuel economy penalty	Standards		
		HC	CO	NOx
1975 Federal standards.....	No loss.....	1.5	15.0	3.1
Proposed by President Ford.....	5 percent loss.....	.9	9.0	3.1
Proposed by EPA.....	7 percent loss.....	1.5	15.0	2.0
1975 California standards.....	12 percent loss.....	.9	9.0	2.0
HC and CO standards set by Clean Air Act	12 to 16 percent loss.....	.41	3.4	2.0
1977: NOx standards.....				
1977 California standards.....	16 to 18 percent loss.....	.41	9.0	1.5
Standards set by Clean Air Act.....	25 to 30 percent loss.....	.41	3.4	.4

4. *Question.* If Congress does impose standards on fuel economy, what standards are realistic and how should they be enforced?

Answer. We believe that the most realistic objective (for the nation, the industry, our dealers, our customers and our employees) is the Administration's program of obtaining a forty percent fuel economy improvement by 1980. In terms of enforcement mechanisms, the basic framework now exists. EPA presently measures the fuel economy of our various models as part of the emissions certification program. In addition, each quarter we must provide EPA with production volume data on the various models. EPA thus already can establish the average of our production fleets annually, semiannually, or even quarterly. The publicity value of these results are a high incentive not only to achieve objectives, but to "out-do" competitors. Beyond this, it obviously would be possible to establish penalty schedules and have EPA verify production data—although neither really seems necessary.

5. *Question.* Do you believe that with decontrol of oil prices, the cost of gasoline will be such that any needed conservation will result from market forces without gas taxes or fuel economy standards?

Answer. Yes. It is agreed generally that decontrol of oil will raise the price of gasoline and cause it to seek a level consistent with the laws of supply and demand. During a time of scarcity in relation to the demand, higher prices will do two things: 1) discourage demand, and 2) promote exploration for more supply. Controls interfere with these forces and foster the scarcity in relation to demand that we are currently experiencing. Further, we do not believe we should abandon to other nations the competition of the U.S. market for the world supply of the available oil supply.

Based on Federal Energy Administration information, the Administrator's program of improving fuel economy 40% by 1980 will result in a savings of 490 million barrels of crude oil per year for motor vehicles. Both the decontrol of oil prices and the Administrator's program of improving fuel economy 40% by 1980 would result in substantial further savings of crude oil each year. Chrysler certainly believes that for the five year period ahead these measures provide the necessary conservation without further jeopardizing the U.S. automotive industry, the national balance of trade, the transportation needs of the public, the employment and the well being of the automobile dealers and employees.

6. Question. If there are fuel economy standards, should they be applied to an entire car fleet, or should penalties be applied only to the low mileage cars?

Answer. The present House Bill is aimed at an entire car fleet offering of each manufacturer. It will principally impact the domestic manufacturers. Further, it will impose serious restrictions on the product offerings of our industry and curtail the freedom of choice which has been a major force in our free market system. This legislation, which is intended to discriminate against and eventually outlaw larger cars, would penalize individuals and families who require these vehicles because of their family size or vehicle needs. It would seem more consistent with the objectives of the Act to relate civil penalties only to those vehicles that fail to meet the fuel economy standards. Unless such a relationship is drawn, consumer preferences for larger cars will not be discouraged. Further, a total fleet approach forces the manufacturer to make decisions several years in advance that will seriously limit the options available to consumers willing to incur the penalties because of a particular family or business need. This will become extremely aggravating if the goal of 28 miles per gallon by 1985 is retained and the offering of utility vehicles are limited or eliminated due to inability of the manufacturer to maintain volume production of such models.

7. Question. Is it "too early" to tell what fuel economy standard can be met in 1985 and whether any standard will, in fact, be needed?

Answer. Definitely yes. Chrysler has supported the Administrator's program to improve the fleet fuel economy 40% by 1980. This involves carryover emission standards, very significant technology improvements and rather large shifts in product offering, (and hopefully, customer demand). Assuming that we (i.e. industry, government and the public) are able to meet this very major undertaking; we can be certain that any further steps would be manifold more difficult and could only be achieved through a factual analysis of the many aspects involved and experience gained in reaching the first step. Thus, it indeed is too early to realistically establish any 1985 goal beyond that already established for 1980. As suggested in the answer to question 6, it is entirely possible that a goal of 28 miles per gallon would force manufacturers to eliminate vehicles having needed and desirable utility. This could seriously impair the transportation capability of this country.

8. Question. If we mandate fuel economy standards requiring small cars, will people who need larger cars retain their cars longer and further reduce auto sales?

Answer. Yes. In our judgment, many people who need and/or want larger cars will tend to retain their present larger cars. This leads to one of the main points we have tried to emphasize. None of us should try to force the public to buy any particular vehicle—it will only reduce sales and alienate the public against dealers, automobile firms and the government. However, with present energy needs and prices of gasoline, fuel economy is a very marketable item and if allowed to work freely and competitively, will result in substantial reductions in gasoline usage without the problems associated with regulations. We should rely on our free market system to reach national goals, instead of resorting to unnecessary regulations.

9. Questions. Do you believe that the fuel economy standards in the House could preclude a balanced mix of cars without regard to the needs of some American families for larger cars?

Answer. Yes, very definitely. See answer to question 6 above.

10. *Question.* What assurance is there that the technology exists to meet the proposed 1985 standard of 28 miles per gallon? Are we risking further unemployment in the auto industry with such standards?

Answer. Achieving the 40% improvement in 1980 involves a combination of a shift to smaller cars, weight reductions and an improved technology. Achieving this 1980 goal also will be affected by the economy, the market, emission standards, available capital and competitive considerations. Any of these factors could deter meeting these goals. At the present time, and based on the various known approaches to improve fuel economy, it is our judgment that going beyond the 1980 goal to obtain a fleet requirement of 28 mpg in essence will only be possible by a further shift in car size—essentially *all* cars would have to be in the sub-compact size (2500 lbs. or under). This would be, in a period of ten years, an overwhelming shift for the present large segment of car owners of the traditional vehicle. With our nation's present family sizes, driving needs and use patterns this shift would cause major upheavals in the market, sales, production, employment and attitudes. In short, such requirements in this time frame would be ill advised.

11. *Question.* Is there any reason to believe that the boat, trailer and other industries might be adversely affected due to the inability of small cars (mandated by Congress) to tow such items?

Answer. Yes, very definitely. For our present vehicles, a full size car with an optional V-8 (e.g., Gran Fury with 440 engine) can be equipped to pull up to a 7000 lb. trailer. A compact with an optional V-8 (e.g., Valiant with 318 CID) can be equipped to pull up to a 2000 lb. trailer. As noted previously, fuel economy standards in the range included in the House Bill will eliminate all full size cars (5000-5500 lbs.) and all larger engines. In addition, the need to maximize fuel economy will require resizing to smaller engines and reducing weight of components. In total, cars in the 3500 to 4500 lb. class will have smaller engines, less weight and reduced load carrying capacity, but we would expect there should be some vehicles capable of 2000 lb. trailer loads. (Even then, sales probably would need to be restricted in order for the manufacturer not to jeopardize meeting the total fleet fuel economy requirement.) These vehicles simply would not have the performance, gradability, strength and durability to handle larger loads. Since vehicles are now widely used to tow campers, trailers, boats, snowmobiles, motorcycles, etc., these individuals would appear to have only the following choices: scale down their needs (smaller boat, trailer, etc.), hire or rent trucks for the hauling occasions, keep their old car, resort to permanent or semi-permanent usage (e.g., leave boat at one location), try to pull the trailer anyway (creating a hazard to the trailer, car, themselves and others on the highway) or simply abandon the need for the trailer. Although we have no way to forecast the exact effect, we are certain that over a period of time (5 to 10 years) this would have a very significant negative effect on the use, sales and production of all of the products but, in particular, greater effects on the heavier products—boats, campers and trailers.

TABLE 1.—HOUSE WAYS AND MEANS COMMITTEE, EXCISE TAX SCHEDULE PROPOSED APRIL 24, 1975 (NOTE EXCISE TAX IS PERCENT OF WHOLESALE PRICE)

MPG	1977	1978	1979	1980
24 plus.....				2
23 to 24.....				4
22 to 23.....			2	6
21 to 22.....			4	8
20 to 21.....		2	6	10
19 to 20.....		4	8	12
18 to 19.....		6	10	14
17 to 18.....	2	8	12	16
16 to 17.....	4	10	14	
15 to 16.....	6	12		
14 to 15.....	8			
14 and below.....	10			

TABLE 2.—PROJECTED SALES, FUEL ECONOMY, AND TAX EFFECTS OF HOUSE WAYS AND MEANS COMMITTEE, EXCISE TAX SCHEDULE PROPOSED APR. 24, 1975

	Model year							
	1977		1978		1979		1980	
	Base	With excise tax	Base	With excise tax	Base	With excise tax	Base	With excise tax
Volume (millions):								
Industry.....	11.3	11.0	11.6	11.0	11.8	11.0	12.0	11.0
Domestic.....	9.73	8.69	9.94	8.36	9.995	7.975	10.08	7.59
Corporate.....	1.47	1.325	1.57	1.36	1.675	1.360	1.745	1.295
Percent industry—Small:								
Compact and subcompact.....	55.5	64	57.5	70	60	76	62	82
Import.....	15.0	21	15	24	15.5	27.5	16	31
Corporation fleet average (miles per gallon).....	16.5	16.7	17.8	18.4	18.8	19.9	18.8	20.2
Average car excise tax—								
Percent.....		3.4		3.7		4.9		7.6

Note: Includes—LRP 5009, carryover emission standards 42.2 Pot. Tech.

TABLE 3.—1980 CHRYSLER CORP., PROJECTED PRODUCTION FACILITY AND EMPLOYMENT EFFECTS OF HOUSE WAYS AND MEANS COMMITTEE, EXCISE TAX SCHEDULE PROPOSAL, APR. 24, 1975

Major facility	Affect of facility	Employment reductions
Car assembly.....	Close 2 plants.....	11,500
Stamping.....	Close 1 plant.....	3,900
Engines.....	Cancel 400/440 engines.....	2,000
Transmissions.....	Convert A727 transmission to A904 transmission.....	800
Air-conditioners and heaters.....	Close plant and consolidate.....	800
Front suspension.....		600
Glass.....		150
Propshafts/Strg.....		200
Rear axles.....	Stop production at 1 plant.....	800
Soft trim/plastics.....		265
Electronics/elect.....		400
Power and man. strg.....		600
Forge/Fdry/D/C.....		900
Brakes/Misc. Mach.....		300
Total production activities.....		23,215
Staff (engineering, financial, other).....		2,500
Total Chrysler Corp.....		25,715

TABLE 1.—CHRYSLER CORP., CONSUMER RETAIL PRICE BY FEDERAL STANDARD

Model year	Emissions	Safety	Total
SUMMARY			
Safety equipment required by standards but incorporated in Chrysler Corp., cars prior to the initial Federal motor vehicle safety or emission standards.....	\$4	\$136	\$140
1968.....	11	34	45
1969.....		21	21
1970.....	10	14	24
1971.....	13		13
1972.....	13	20	33
1973.....	30	52	82
1974.....	17	76	93
1975.....	110	45	155
Total.....	208	398	606
Adjusted for 1975 economics.....	233	513	746

TABLE I.—CHRYSLER CORP., CONSUMER RETAIL PRICE BY FEDERAL STANDARD—Continued

Model year	Unit retail price	Total model year
EMISSION ITEMS		
1963—Closed crankcase vent.....	\$4	\$4
1968—Clean air package.....	11	11
1970—Improved emission controls.....	10	10
1971—Improved emission controls.....	13	13
1972—Improved emission control system including charcoal canister.....	13	13
1973—1973 model emission control system including electric assist choke, exhaust gas recirculating system, orifice spark advance control and increased engine cooling.....	30	30
1974—Emission control system improvements.....	17	17
1975—1975 model emission control system:		
Catalyst system.....	79	
EGR improvements.....	14	
Carburetion, bowl vent and vapor separator.....	2	
Idle enrichment and manifold heat valve.....	5	
Thermal protection and cooling system.....	10	110
Total.....		208
SAFETY ITEMS		
Safety equipment required by standards but incorporated in Chrysler Corp. cars prior to initial Federal motor vehicle safety standards, including:		
Front seat belts.....	12	
Rear seat belts.....	14	
Windshield washer and wiper.....	16	
Outside mirror.....	6	
Padded instrument panel.....	16	
Laminated glass, thicker.....	7	
Back-up lights.....	9	
Dual master cylinder.....	11	
Brake warning light.....	4	
Hazard warning light.....	11	
Padded sun visor.....	6	
Energy absorbing steering column.....	25	136
1968—Shoulder and center lap belts.....	24	
Side marker lights.....	10	34
1969—Head restraints.....	15	
Door locks and hinges.....	6	21
1970—Class A lamps.....	3	
Steering column lock.....	11	14
1972—Seat belt warning system.....	20	20
1973—Bumper impact protection.....	35	
Illuminated switches and controls.....	1	
Fire retardant materials.....	3	
Tire size changes.....	1	
Engine mounts.....	1	
Body side impact.....	11	52
1974—Bumper impact.....	43	
Starter interlock.....	15	
Roof intrusion.....	3	
3-point belt system.....	12	
Accelerator control.....	1	
Windshield intrusion—C body.....	1	
Larger tires.....	1	76
1975—Bumper impact and bumper guards.....	38	
Windshield intrusion—B body.....	6	
Noise reduction.....	1	45
Total.....		398

TABLE II.—THE EFFECT OF EXISTING OR PROPOSED FEDERAL REGULATIONS, EFFECTIVE 1976 MODEL YEAR AND BEYOND (COST ESTIMATE FOR CARS BUILT IN THE UNITED STATES AND CANADA)

Reference	Model year effectivity	Retail price (dollars)	Average car weight (pounds)	Remarks	
Existing Federal regulations:					
Bumpers.....	MVSS 215.....	1976	3.00	4.0	Low corner hits.
Bumpers.....	MVSS 215.....	1977	2.00	.....	Low corner hit-C-body.
Brakes.....	MVSS 105a.....	1976	19.00	24.0	
Brakes.....	MVSS 105a.....	1977	6.00	.....	Low fluid level warning added.
Fuel system integrity.....	MVSS 301.....	1976	3.00	0	Frontal impact and static rollover.
Fuel system integrity.....	MVSS 301.....	1977	14.00	17.5	Rear, side and angular impacts.
W/S zone intrusion.....	MVSS 219.....	1977	11.00	8.0	Necessary modifications made in 1975 models.
Emissions systems.....	EPA.....	1976	(34.00).....	.....	HC, CO, NOx at 1.5/15/3.1, recertify required.
Emissions systems.....	EPA.....	1977	13.00	.5	HC, CO, NOx at 1.5/15/2.0 Fed.
Emissions systems.....	EPA.....	1978	279.00	30.0	.41/3.4/4 noble metal NOx.
Total existing regulations.....			316.00	84.0	Catalyst System (includes air pump, etc.).
Existing State and local regulations:					
Exterior noise.....		1979	36.00	21.0	75 dBA (further postponment anticipated).
Proposed Federal regulations:					
Bumpers.....	Part 581.....	1976	59.00	47.0	No damage in 5 mi/h pendulum impact.
Seating systems.....	MVSS 207.....	1978	64.00	40.0	Limits bending of seat back.
Occupant crash protection.....	MVSS 208.....	1978	300.00	50.0	Air bag restraints.
Exterior lighting.....	MVSS 108.....	1978	30.00	4.0	
Visibility.....	MVSS 111.....	1979	32.00	2.0	
Windshield retention.....	MVSS 212.....	1977	.....	NA	"A" body only.
Total proposed regulations.....			485.00	143.0	
Total all regulations.....			837.00	248.0	

¹ Proposed effectivity.

Note: These costs are our best estimates based on current knowledge of possible systems that might be used.

TABLE III.—BUMPER TEST REQUIREMENT SUMMARY

Model year effectivity	Barrier	Longitudinal pendulum impact	Corner pendulum impact	Damage criteria
1973—effective: Sept. 1, 1972.	1 to 5 mi/h front hit, 1 to 2½ mi/h rear hit.	Not required.....	Not required.....	No damage to safety components. Do.
1974—effective: Sept. 1, 1973.	5 mi/h—1 front hit, 1 rear hit.	3 front and 3 rear hits at 20 in height, 3 front and 3 rear hits at heights between 16 in to 20 in. Separate hits at least 12 in laterally or 2 in vertically, exempt 115 in wheelbase or less.	3 mi/h—impact 1 front corner and 1 rear corner at 20 in height at 30° to car centerline.	
1975.....	.....do.....	5 mi/h—3 front and 3 rear hits at 20 in height, 3 front and 3 rear hits at heights between 16 in to 20 in. Separate hits at least 12 in laterally or 2 in vertically—all cars.	3 mi/h—impact 1 front corner and 1 rear corner at 20 in height at 30° to car centerline.	Do.
1976—effective: Sept. 1, 1975.	.....do.....	5 mi/h—2 front and 2 rear hits at 16 in to 20 in height. Separate hits at least 12 in laterally or 2 in vertically.	3 mi/h—impact 1 front and 1 rear corner at 20 in height. Impact 1 front and 1 rear corner between 16 in and 20 in for cars with wheelbase of 120 in or less.	Do.
1977—effective: Sept. 1, 1976.	.....do.....	.....do.....	3 mi/h—impact 1 front and 1 diametrically opposite rear corner at 20 in height. Impact opposite 2 corners between 16 in and 20 in.	Do.

TABLE IV.—INSURANCE LOSS DATA FOR REPRESENTATIVE 1972-74 CHRYSLER BUILT CARS DURING THEIR 1ST YEAR OF SERVICE

Car model and year	Claim frequencies per 100 insured vehicle years	Average loss	Average loss per insured vehicle year
Dodge Dart (compact):			
1972.....	8.8	\$391	\$34.00
1973.....	8.1	408	33.00
1974.....	6.8	382	26.00
Plymouth Duster (compact):			
1972.....	12.5	513	64.00
1973.....	10.5	448	47.00
1974.....	9.6	478	46.00
Plymouth Satellite 4 door (intermediate):			
1972.....	8.8	439	39.00
1973.....	10.3	443	46.00
1974.....	8.1	435	35.00
Dodge Coronet (intermediate):			
1972.....	8.8	484	43.00
1973.....	7.7	455	35.00
1974.....	7.4	510	38.00
Satellite 2 door (intermediate):			
1972.....	11.2	496	56.00
1973.....	10.3	476	49.00
1974.....	10.6	548	58.00
Plymouth Fury III (standard or full size):			
1972.....	8.3	387	32.00
1973.....	8.9	455	40.00
1974.....	8.3	401	33.00
Average:			
1972.....	9.7	451	43.80
1973.....	9.3	447	41.60
1974.....	8.5	488	41.50

Source: From Automobile Insurance Losses Collision Coverage by Highway Loss Data Institute May and September 1974.

TABLE V.—INSURANCE LOSS DATA FOR 1972-74 MODEL U.S. CARS DURING THEIR 1ST YEAR OF SERVICE

	1972	1973	1974
A. Average loss payment in dollars per claim:			
Subcompact.....	\$471	\$492	\$478
Compact.....	468	482	506
Intermediate.....	470	496	455
Full size.....	453	482	433
All.....	485	502	522
B. Claim frequency per 100 insured vehicle years:			
Subcompact.....	11.7	11.4	9.8
Compact.....	10.3	9.7	8.6
Intermediate.....	10.7	10.0	9.4
Full size.....	9.2	8.6	8.4
All.....	10.9	10.3	9.4
C. Average loss per insurance vehicle year.....			
	\$53	\$52	\$49

Source: From automobile insurance losses collision coverage by Highway Loss Data Institute May and September 1974.

RESPONSES OF THE FORD MOTOR COMPANY

Question 1. What are consumer costs of present and proposed standards for safety, damageability and emissions?

Answer. The following is a breakdown of costs for each of these three categories of standards based on existing standards as well as those now proposed through 1980. In the case of emissions, these are the statutory requirements only and do not include currently proposed or future EPA actions such as Selective Enforcement Auditing.

AVERAGE CAR RETAIL COST TO CONSUMER

	Model year increase/(decrease) from prior period			
	1966-74	1975	1976	1977-80
Safety.....	\$218	(\$1)	\$9	\$328
Damageability.....	101	.....	1	.....
Emissions.....	59	118	.....	400
Total retail price equivalent to the customer per car.....	378	117	10	728

Question 2. What are the safety implications in going to all six-passenger, 2,500 pound, 28 mpg vehicles?

Answer. In the vehicle mix anticipated for 1985, our studies indicate that the expected number of serious (or worse) injuries would become 12 percent greater than currently, if vehicle designs, consumer usage patterns and highway designs remain similar to those found today.

Numerous analysis of accident data have confirmed that, in today's driving environment, the overall risk of serious or fatal injury is higher for occupants of light cars than for occupants of heavy cars. The particular hazard is for occupants of light cars in crashes with larger ones—the light cars occupants are more than twice as likely to sustain serious injuries in such crashes as the occupants of the heavier colliding car.

Currently, about one-third of the cars on the road are light cars (less than 3,250 pounds), with about 15 percent of cars weighing 2,500 pounds or less. Even if the market share of 2,500 pound cars were suddenly increased to 100 percent, it would take years before an appreciable change would be observed in the weight distribution of all cars on the road, since only about 10 percent of the cars in service in any year are new vehicles.

The most significant influence on the safety of these light car occupants, however, relates to restraint protection. If occupants were to wear the lap and shoulder belts available in today's cars, the increased light car hazard would be minimized. With enactment of mandatory usage legislation, for example, our calculations indicate that car occupant fatalities would be cut almost in half, with substantial savings for occupants of all sizes of cars.

Question 3. How much fuel could you save by total conversion to diesel?

Answer. If there is a fuel economy benefit, it is no better than 5% and depends heavily on refinery breakthroughs.

Question 4. How much fuel can be saved by vigorous enforcement of the 55-mph speed limit?

Answer. Average passenger car speed on main rural roads in 1974 was 55.2 mph, a decrease of 6.4 mph below 1973. We estimate that 52 mm bbl of petroleum were saved in 1974 due to this reduction in speed plus an additional 20 mm bbl due to trips foregone or shortened because of increased travel times. We estimate that vigorous enforcement of the 55 mph limit would produce a further speed reduction of 1.4 mph, yielding an additional 9 mm bbl/yr of fuel saving due to the reduced speed plus an additional 5 mm bbl/year due to trips not taken.

Question 5. How much fuel can be saved by Sunday gasoline station closing?

Answer. The Federal Energy Administration has estimated that during the Arab oil embargo U.S. demand for petroleum products declined about 14% from prior expectations. The decline was caused by a 230% increase in the price of imported crude oil, voluntary conservation in response to the national emergency, spot shortages of gasoline, and Sunday gasoline station closings. It is impossible to calculate the separate effect of gasoline station closings, although it is probably quite small.

We believe that Sunday gasoline station closings are an ineffective and undesirable technique for long term petroleum conservation. Closing would impede the movement of essential truck freight and would lead to hazardous storage of gasoline by consumers.

Question 6. If the House bill becomes law, what effect would it have on employment in the auto industry? Another question was asked that can be answered with a similar response. That question was what assurance is there that the technology exists to meet the proposed 1985 standard of 28 miles per gallon? Are we risking further unemployment in the auto industry with such standards?

Answer. Through 1980, the fuel economy standards proposed in the House bill are close to those we believe that could be met with expected improvements, albeit, at a higher cost than under a voluntary program. These higher costs are impossible to estimate. If, however, they amounted to 5% on the average car we would expect a net increase in the cost of ownership of about 2½% and a reduction in total volume of about 100,000 units. There would be a moderate increase in import share and a reduction in U.S. production of about 1½%.

The effect of the bill becomes extremely harsh after 1980 as the 28 mpg requirement is approached. To achieve this standard would require a gross shift in the character of U.S. automotive production, primarily in terms of a sharp reduction in the weight of all cars. We have no clear idea of the extent to which this would reduce total U.S. auto volume. We are certain, however, that the reduction would be very substantial. A change of this kind is outside historical experience and we therefore have no statistical estimates that would gauge the volume reduction. On a judgment basis, however, we would suppose that this

reduction would be at least 10% and could be as much as 25% of the volumes that would be sold in the absence of mandatory fuel economy legislation. Much will depend, of course, on the price of gasoline and other costs associated with car ownership. (If gasoline, for example, were to be priced at \$2.00 a gallon in 1975 dollars the effect of this legislation would be much less because fuel economy alone would be forcing car owners into small, highly fuel efficient cars. We believe such gasoline price projections are unrealistically high.) We can only conclude that both the volume and the employment effect of the House bill, as it affects the years after 1980, would be severe. The cost would be extremely high because of the need to shift production, initially, to the very small vehicles.

Question 7. What impact will current emission standards have on your ability to meet the fuel economy standards in the House bill?

Answer. We anticipate that based on present product plans and estimate of market demand our 1980 production weighted fuel economy with 1976 emission standards (1.5 gpm HC, 15 gpm CO, and 3.1 gpm NOx) would be approximately 20 miles per gallon. If those emission standards were reduced to .41 gpm HC, 3.4 gpm CO and 1.0 gpm NOx (as recommended by the Environmental Pollution Subcommittee of the U.S. Senate Public Works Committee) then our production weighted fuel economy for the 1980 model year would be approximately 13.1 mpg. If Ford's production in 1980 amounted to 2¼ million units, this could result in a total fine of \$832,500,000 (without making any adjustment pursuant to the emissions penalty clause).

Question 8. If Congress does impose standards on fuel economy, what standards are realistic and how should they be enforced?

Answer. Our testimony before the Senate Commerce Committee on March 12, 1975 indicated that the Congress should take action only if it appeared that the forces of the marketplace and the voluntary commitments made by the companies were not going to do the job. If Congress does impose standards, they should be realistic in terms of an appropriate time frame to permit the American automobile industry to make an orderly conversion of facilities in order to comply. Some proposals have called for stringent standards for fuel economy starting in 1977 or 1978. These would only benefit foreign automobile manufacturers who already have facilities in place to make small automobiles. There is no specific answer. We would suggest that Congress first establish the energy conservation goals it seeks to achieve by a given future date. Then the task of meeting that goal could be allocated among the many users of energy including the automobile. At that point analysis of reasonable facility conversion time could be factored into progressively more stringent fuel economy standards so as to avoid unemployment and other problems.

The 40% improvement goal proposed by the President and agreed to by the auto industry constitutes, in our judgment, realistic levels.

Enforcement of standards could be achieved through modest penalties made applicable to vehicles which are not fuel efficient based on standards established through the above mechanism.

Question 9. Do you believe that with decontrol of oil prices, the cost of gasoline will be such that any needed conservation will result from market forces without gas taxes or fuel economy standards?

Answer. The question implies that the principal purpose of decontrolling the price of oil is to stimulate conservation.

In fact, decontrol has two other far more important purposes:

1. To allow the free economy to make its own adjustments through a market clearing price without which arbitrary allocations, rationing and black markets will become inevitable and chronic.

2. To encourage increased exploration and production not only of petroleum but also of all other energy supplies with which oil competes, including solar, geothermal, coal, and synthetics.

A close correlation has long existed between energy consumption on the one hand and such critically important measures as GNP, employment and living standards. Energy conservation has never been—and should not now become—an end in itself. Capital and labor, with which to produce energy, can be in short supply. But energy itself cannot be in short supply (even in the United States where the depletion of geologic resources has progressed further than in other parts of the world) so long as the sun shines and the atom splits.

A wise energy policy, therefore, need not move in the direction of returning our people to a pre-industrial condition. It does need to maintain incentives to produce energy and to assure an efficient choice of energy forms, in order to conserve capital and labor.

If petroleum supplies are indeed scarce, the price of oil must rise to cause other energy sources to be used.

If petroleum reserves yet to be discovered prove to be large, the price could actually decline.

The impact of decontrol on energy consumption rates is likely to be very modest. A much greater impact on energy production and on the mix of fuels used is probable.

It is because decontrol would not seriously reduce energy consumption that it is so completely desirable. A large reduction in energy consumption would most likely mean higher unemployment and a lower standard of living. It would do more damage to the United States than to the OPEC producers.

We believe that decontrol of both oil and gas prices will yield precisely the "needed" amount of conservation, without taxes or standards, and with more freedom and prosperity than would be the case otherwise.

The real price of gasoline at the present time is about that which prevailed in 1950. It could rise to about 75 cents per gallon by 1977 and might stabilize thereafter in real terms (adjusted for general inflation). Unless the real price were to drop back to the low level of 1970-1973, gasoline consumption will remain constant or grow only very slowly.

Question 10. If there are fuel economy standards, should they be applied to an entire car fleet, or should penalties be applied only to the low mileage cars?

Answer. In order not to penalize the buyer meeting the fuel economy standard, it would appear that the penalty should apply only to the low mileage cars. Any penalty, however, should not be so severe as to unduly restrict the ability of customers to purchase the type of vehicle which meets their transportation need.

Question 11. It is "too early" to tell what fuel economy standard can be met in 1985 and whether any standard will in fact be needed?

Answer. Our testimony indicated that we believe the post-1980 standards should be set only after (1) careful assessment of technological feasibility; (2) a thorough analysis of consumer needs; (3) analysis of the impact on safety; and (4) reassessment of a nation's energy requirements and supplies. Additionally, we have argued that no good estimate of the potential for fuel economy improvement can be made until after the emissions questions is resolved.

Question 12. If we mandate fuel economy standards requiring small cars, will people who need large cars retain their cars longer and further reduce auto sales?

Answer. If the production of new large capacity cars such as station wagons is prohibited, it is likely that the present fleet of these cars will last substantially longer than the present average lifetime of about 10 years. This would have a depressing effect on new car sales and a deleterious effect on air quality.

Question 13. Do you believe that the fuel economy standards in the House could preclude a balanced mix of cars without regard to the needs of some American families for larger cars?

Answer. Our testimony indicates that it is probable that a 28 mpg average cannot be achieved by 1985 across the range of vehicles presently demanded and needed by a large segment of the U.S. market. A manufacturer could hardly make long term investments in improved engines or substantial weight reductions for full sized vehicles because of the risk that, even with improvements of 50% or more, the vehicle would not come close to the 1985 standard. The six passenger family sedan and the station wagon would probably disappear from the new car market. (These cars now make up about half of the vehicle population.)

RESPONSES OF GENERAL MOTORS

Senator Nelson requested information on GM's experience with the Questor emission control system.

Answer. General Motors has worked very closely with Questor since 1971 to provide engineering support for experimental hardware development.

Our analysis indicates the Questor system has the potential for low emission levels and can meet the 1978 federal standards at low mileage on some vehicles. But the ability of this system to meet EPA certification durability requirements is questionable, and problems of fuel economy, high operating temperatures and structural durability militate against its acceptability. Questor is aware of these problems and their recent work on a small car has been directed at resolving them.

The high operating temperatures are a major deterrent to pursuing development of the Questor system, with temperatures in the range of 1900F to 2000F in normal operation. Even higher operating temperatures are experienced in abnormal modes, such as misfiring spark plugs. The material problems with these temperature levels are formidable, if not beyond existing technology.

Our tests have indicated fuel economy associated with the Questor system also to be poor. Preliminary tests conducted by the Pontiac Motor Division on a 5000 pound vehicle indicate fuel economy penalties of about 30%, compared to our current system meeting 1975 interim federal standards. More recent data from Questor on a 3000 pound Pinto indicate that they have made significant progress in this area, however. It is difficult to assess this fuel economy penalty since neither the Questor nor any other system has demonstrated the capability of meeting the 1978 standards including the certification-durability requirements. Dual-catalyst systems with feedback controls and three-way catalyst systems have met the standards at low mileage with more acceptable fuel economy and operating temperatures. Three-way converted systems, however, have unacceptable catalyst durability.

In addition, the ability of the Questor system—or, for that matter, any rich reactor system—to achieve the CO levels required to meet a 3.4 gpm standard has not been reliably demonstrated.

In summary, GM's experience with the Questor reactor system had lead to the conclusion that the probability of successfully developing it to meet 1978 standards is very low, certainly in the time frame between now and the beginning of certification testing for 1978 models (about one year from now). Despite this, we are continuing an aggressive program to investigate all approaches that show a possibility of meeting the 1978 requirements. It is possible that our efforts on closed loop air/fuel control and advanced material development will open the way to further effort on this system. We have continued to maintain contact with Questor representatives, the most recent being a meeting on June 12, 1975, to review development progress.

Question by Senator Talmadge. Suppose Congress passed a law and said, give you enough lead time to do it and gear up for it, that all automobiles had to be powered by diesel engines. How much petroleum could be saved?

Answer. There are several factors involved in determining the petroleum that could be saved by converting automobiles to diesel engines.

1. The fuel economy improvements achievable with diesel-compared with gasoline-fueled engines.

2. The energy content of diesel and gasoline fuels.

3. The refinery energy consumption changes when switching from gasoline to diesel as an automotive fuel.

Our most recent estimates indicate that on a comparable performance basis, diesel-powered automobiles would get about 30% better miles per gallon in integrated customer service compared with gasoline-powered automobiles. This translates into a fuel savings of about 23% in terms of gallons per mile. However, since diesel fuel contains about 11% more energy per gallon than gasoline, almost half of the diesel's fuel savings can be attributed to its higher energy content. On an energy consumed basis, diesels would use about 12% less energy than gasoline-powered vehicles.

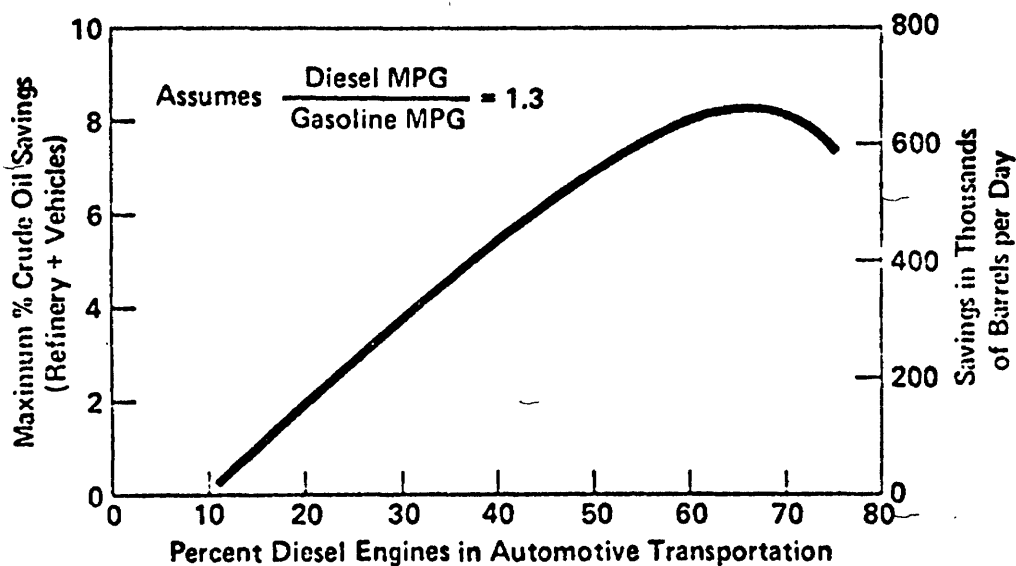
Since the capability of the crude oil to do useful work is limited by the total energy available in it, this 12% figure is appropriate for assessing the effect of 100% conversion to diesel engines on a total petroleum consumption.

However, not all of this improvement can be achieved because refinery energy consumption will go up if all of the gasoline now produced must be converted to diesel fuel. Recent estimates from several petroleum companies indicate that refinery energy losses may go up 2 or 3%. In addition, the refinery energy losses are minimized when providing diesel fuel in sufficient quantity to satisfy the automobile population mix of about 65% diesel- and 35% gasoline-powered vehicles. This is shown by the attached figure. Thus going to 100% diesel-powered vehicles would not be in the best interests of energy conservation.

Also shown on the figure is estimated crude oil savings in thousands of barrels per day associated with a shift to diesel vehicles. The maximum savings is about 650,000 barrels per day.

The above discussion ignores some of the problem areas associated with a significant changeover to diesel-powered vehicles. These include increased engine cost, difficulty of cold starting, noise, smoke, particulate emissions and odor. These problems are not generally associated with gasoline-powered vehicles.

CRUDE OIL SAVINGS WITH DIESEL VEHICLES



Question by Senator Talmadge. Do any of you gentlemen have any idea how much petroleum and gasoline we could save if we vigorously enforced the 55 mph speed limit?

Answer. Prior to the institution of 55 mph speed limits, we estimated that a maximum of 3% savings in gasoline consumption would be achieved if all automobile operation at speeds above 55 mph was lowered to 55 mph. Since that time, 55 mph speed limits have been enacted and some of the potential savings have been achieved. It is difficult to assess how much more remains to be achieved by vigorously enforcing the 55 mph limits. We have no measure of the percent of total mileage still occurring above 55 mph, and the speed range on this mileage. In addition, vigorous enforcement of the 55 mph speed limit would probably require additional police patrols, and this would increase gasoline consumption.

Question by Senator Brock. Would you give me a breakdown by company, each of you, a listing of the mandated costs current and already enacted but not being applied yet and those which are proposed by type? How much does the 5 mph bumper cost, not just in terms of the consumer, gentlemen, if you could give me a little clearer estimate of what it costs in increased repair bills . . . I would like to be able to spell out the exact cost by item, not individual, part by part, but the major system item.

Answer. Attached are two documents relating to this question.

1. A document titled: *Cost to Consumer for Federal Passenger Car Standards* which summarizes present and projected future consumer costs.

2. A document titled: *General Motors Presentation on Proposed Bumper Standards* dated February 18, 1975.

COST TO CONSUMER FOR FEDERAL PASSENGER CAR STANDARDS

Safety and damageability

The average cost to the consumer on a cumulative basis since 1966 just to meet the presently applicable safety standards is approximately \$385 per car. This includes approximately \$155 for added bumper protection for the car's safety systems.

Looking ahead to the 1976 models, brake and bumper performance will have to be increased to meet existing standards. It is estimated that brakes designed to meet the new, more severe braking tests will cost consumers another \$10 per car, while the additional low corner pendulum tests on the bumpers will approximately add another \$10 in cost to the consumer per car.

For the 1977 model year, it has been proposed that seats be strengthened. If this standard is implemented as proposed, it is estimated that the consumer cost will be about \$35 per car.

In addition, bumpers may have to be further strengthened to meet damageability requirements, and passive restraints, such as air cushions, may be required in the near future. While the timing for these potential standards is presently unresolved, a passive restraint standard for the 1978 model year has been mentioned. While this would not provide sufficient lead time, we estimate that the current air cushion system, in full production, would cost the consumer about \$220 per car over the present belt system.

We estimate that the safety standards that have been proposed, or are scheduled to go into effect during the next three model years, including the possibility that air cushions may be required by 1978, could result in an additional cost to the consumer of approximately \$275 at current economic levels. This would bring the total consumer cost for these standards alone to approximately \$660 by 1978—and does not include the possible additional cost to meet whatever damageability standard may be proposed.

Emissions

The 1975 emission levels have resulted in equipment on the vehicle costing the consumer an estimated \$215 on a cumulative basis.

Assuming a way can be found to meet the durability requirements, the stringent 1978 emission standards will add \$150 or \$340 in cost to the consumer for equipment if, in fact, one of these experimental systems is used. Additionally, maintenance costs for either system are expected to run substantially more than the \$60-\$70 to replace beads in the current catalytic converter.

The additional equipment costs would bring the total cost to the consumer for emissions equipment to as high as \$555 per car by 1978.

To summarize, the cost on a cumulative basis to consumers for safety and emission control equipment on our cars through the current 1975 models totals approximately \$600 per car.

Looking to 1978, and the prospect of more stringent safety and emissions standards, consumer costs could possibly increase by as much as another \$625.

SAFETY AND EMISSION STANDARDS 1966 THROUGH 1978 COST TO CONSUMER

	1966-75	1976	1977	1978	Total
Safety.....	\$385				\$385
Bumpers.....		\$10			10
Brakes.....		10			10
Passive restraints.....				¹ \$220	220
Seat strength.....			² \$35		35
Total.....					660
Emissions.....	215		³ 10	⁴ 150-340	365-555

¹ Has been discussed as possible standard for as early as 1978 on some models.

² Proposed standard.

³ This includes the addition of proportional EGR. A fuel economy loss in the area of 5 percent is anticipated.

⁴ This encompasses either the 3-way catalyst (\$150) or dual catalyst (\$340) system. These systems do not currently meet durability requirements. They are effective only at very low mileage. Significant fuel economy losses are anticipated with these systems.

Note: The above consumer cost data for 1966-75 model years reflect the total accounted cost in accordance with our standard practice plus a factor for dealer markup, but no profit to GM. These data reflect a sales-weighted average for equipment in the model in which the various items were incorporated in our vehicles.

GENERAL MOTORS PRESENTATION ON PROPOSED BUMPER STANDARDS FEBRUARY 18, 1975

Thank you, Dr. Gregory, and Good Morning ladies and gentlemen. On behalf of General Motors I would like to thank you for this opportunity to present our views on the proposed Bumper Standards. My remarks this morning will amplify these key points: First, we believe the proposed interim standard for model years 1976 to 1978 is a good standard. It will provide a definite *improvement* for the consumer—not a step backwards. Second, we have the field data to support this conclusion. Finally, looking down the road, we have serious reservations about the standard proposed for the long term.

The federal bumper standard has had a short but active history. Let me just briefly recap it for you. Four years ago—in 1971—there was no bumper standard. In fact, there was no bumper standard for 1972 either. However, for 1972, we imposed our own GM goal for damage resistance on full size cars in 2½ mph barrier impacts.

The first federal bumper standard affected 1973 models, and required only that the car's safety systems be protected in barrier impacts of 5 mph front and 2½ mph rear. There were no requirements for bumper match.

The bumper standard for 1974 and 1975 models increased the rear barrier test speed to 5 mph. Even more significantly, a series of 14 pendulum tests was added to establish, for the first time, uniformity in bumper height. As in 1973, the standard retained the requirement that only safety systems be protected.

At the present time, the standard requires that 1976 models withstand two additional pendulum tests, low on the bumper corners. During this brief period—in 1972 to be exact—the Motor Vehicle Information and Cost Savings Act was enacted which extended the authority of the Department of Transportation to impose bumper regulations to minimize economic loss. It is a possible standard under this broader mandate that we are here to discuss today.

I believe we would all acknowledge that the NHTSA has a particularly complex job. Not only is the agency faced with responsibilities imposed by the Cost Savings Act, but it also must take into account the national goals to curtail inflation, reduce recessionary forces and conserve energy. These are major national objectives that did not exist at the time the Act was passed.

A Need for Re-Evaluation.—Today, a number of factors that can affect a bumper standard—or any standard, for that matter—are undergoing significant change. Inflation, which affects the cost of automotive parts and repairs, unfortunately, is still trending upward. Recessionary factors have altered consumer buying patterns and focused attention on the need for more economical cars having improved fuel economy. Lower speed limits and the higher cost of fuel have combined to reduce the number of miles driven, as well as the number and severity of accidents.

As the nation works to reduce its dependence on foreign petroleum, those factors affecting the weight and cost of automotive designs must be taken more into account in the development of new standards and the re-evaluation of existing ones. For some standards—and the bumper standard appears to be one—the course of action taken at one time under one set of economic circumstances can become a wrong direction when the conditions change. Total benefit analyses now must consider costs and energy in addition to damage resistance and cost of repair. This is a paramount issue, today, particularly in this area of bumper standards where costs and benefits are in terms of dollars and do not get into the very difficult decisions concerning human injury.

While the challenges are formidable, we believe the proposed 2½ mph bumper standard for the 1976 to 1978 models—what we will refer to as the interim standard—is a step in the right direction. Reduced test severity will permit the industry to install lighter, less expensive bumper systems. However, this is *not* a return to bumpers built prior to federal regulation since the proposed interim standard *still* imposes bumper match by means of the pendulum test; the pendulum requirements *still* promote clearance between the bumper and the sheet metal; and test damage will *not* be allowed beyond the bumper system itself. As a result, consumers will derive a more favorable balance between benefits and costs; there will be a reduction in the cost of bumpers which will have a stabilizing effect on car prices; and energy can be saved both in the production and operation of cars. Few improvements having such significance can be made through the rational modifications of just *one* federal standard.

As a casual observation, reducing bumper test severity requirements may give the appearance of being counterproductive to the intent of the Cost Savings Act. However, actual field data, as you will see in a moment, shows the opposite to be true. Certainly, 5 mph bumpers *will* perform better than 2½ mph bumpers under *arbitrary test* conditions, but an examination of the complete range of collision damage that occurs *in the field*, in real world accidents, shows that 5 mph bumpers offer the average consumer a poor return in benefits compared to his costs.

The Long-Term Requirements.—Before presenting the information and facts which support the interim proposal, we would like to address the requirements proposed for the long term. (Slide 1) Title I of the Cost Savings Act requires that any Bumper Standard:

Shall seek to obtain the maximum feasible reduction of costs to the public and to the consumer, taking into account:

A. The cost of implementing the standard and the benefits attainable as a result of implementation of the standard;

B. The effect of implementation of the standard on the cost of insurance and prospective legal fees and costs;

C. Savings in terms of consumers' time and inconvenience; and

D. Considerations of health and safety, including emissions standards.

Unfortunately, long-term standards conforming to this mandate cannot be written today. Available information simply does not allow the setting of requirements that will, in fact, provide for maximizing the *overall* benefit to the consumer. This overall benefit must balance many factors: not only the frequency of damage, but also the average cost to repair a car once it is damaged; not only the advantage to the individual who *does* have an accident, but also the extra cost burden to all those consumers who *don't* damage their car; *not* the performance of bumpers in simplified *tests*, but their performance in the wide spectrum of field impacts.

(Slide 2). A fundamental and critical need for setting standards that *will* provide a maximum overall benefit to consumers in the long-term is that the specified tests must be field relevant. Real-life damage situations *must* be represented by the standard tests if vehicle designs promoted by the *tests* are to realize their full potential for performing well in the field. We are becoming more and more convinced that barrier and pendulum tests, while they're all we have for now, are *not* the ultimate set of evaluation tools. The pendulum test probably is *more* representative of field conditions than the barrier test in that it promotes bumper match between cars. A comprehensive study is needed of how damage really occurs. Better information on the type, frequency, and severity of collision loss will provide guidance in the development of more representative tests.

(Slide 3). Better test procedures will only partially lead to a proper long-term standard. Damage criteria must be customer-relevant. We must gain a better understanding of what constitutes a realistic limit on the extent of test damage. We do not believe an appropriate limit is a ten thousandth of an inch dent within one half inch of the impact point. This unrealistic damage criterion proposed for the long-term has no support from field or customer studies. Such studies are necessary to establish: How much damage is tolerable? How much are car values decreased by what kind of damage? Unless we have better information on such matters, arbitrary criteria will continue to be imposed which lead to designs that meet the tests, but which may not address the public needs, thus adding cost without accompanying value.

(Slide 4). And finally, the test severity level must be cost-beneficial. There is an urgent need to determine from actual field data what the test speeds or severity levels should be for the long-term. The field data required to make this determination is very limited. It certainly is not adequate to assume, as was done by NHTSA in support of the 4 mph long-term requirements, that bumpers eliminating X dollars damage in a barrier *test* automatically will eliminate all *field* damage up to X dollars, regardless of the kind of damage and field exposure. (Slide 5 through 8). These slides were taken of 1974 GM cars in repair shop lots. They demonstrate that barrier *test* damage is not a good representation of *field* damage because many field impacts exclude the bumper system. Estimating actual field benefits using barrier test repair costs is *not* a valid procedure. (Slide 9)

In view of this overall lack of understanding, GM is convinced that it is much too early to set long-term standards. We urge the NHTSA to initiate an aggressive program to obtain comprehensive field data so that long-term rulemaking can maximize consumer benefits through representative tests, damage criteria, and test severities.

GM's Position on Soft Face.—Turning our attention for a moment to soft face bumpers, we would offer these comments. (Slide 10) In proposing the long-term requirements, NHTSA made this statement:

"This agency is currently working to develop provisions which will encourage or require them (soft face bumpers) to be used, with an expected lead time of 3-4 years." [Emphasis Added]

GM strongly opposes this or any effort to force a particular design response as the ultimate answer for all kinds of cars and for all customers, ignoring their individual needs. General Motors has been a pioneer in the development of the soft face exterior protection system. We have published information indicating this concept *can* save weight over current production bumper systems. We also have published the results of a field evaluation (Slide 11) in a non-typical environment which indicates the soft face bumper system has the *potential* to

reduce vehicle damage in low speed collisions. However, these positive indicators for soft face bumpers are accompanied by an unknown initial cost to the consumer, and potentially huge capital equipment investments. Of particular concern are the high volume manufacturing problems, such as production rate, excess scrappage, and paint match.

(Slide 12). Sufficient field performance data *must* be collected on a variety of candidate bumper systems in typical consumer usage. To obtain the widest possible evaluation of the effectiveness of different bumper systems, a standard should be written to encourage, instead of restrict, innovation. One specific system should not be favored in advance. (Slide 13) Therefore, while the standard should *allow* the use of the soft face concept, GM strongly opposes a standard aimed to cause *mandatory* use of this or any single exterior protection system.

The Near-Term Issue (Slide 14).—As important as the long-term requirements are, the proposed interim requirements must take first priority as we face the crucial need to move quickly toward the near-term issue of reduced car weight and cost and improved consumer benefit. While available data do not permit writing *optimum* bumper standards, they do indicate a *direction* to go. But, before we look at the data, let's review today's standard *and* the bumper system they have promoted. (Slide 15)

(Start Film). This is the test series for the current standard. You are seeing the fourteen pendulum impacts and the two barrier impacts required for each bumper design. The barrier and straight-ahead pendulum tests are at 5 mph; the corner pendulum tests are at 3 mph. This repeated testing with a two-ton pendulum puts *excessive* demands on the integrity of the bumper system. Even though the average customer's car is not subjected to this severe multiple abuse, the bumper system he pays for must survive these tests. (Stop Film)

1975 Bumper Designs (Slide 16).—The escalation in bumper requirements and the demand for better bumper protection *have* put weight and cost on our cars. Compared to the pre-regulation 1971 Vega, shown on the top of this slide, bumper system standards for the 1975 Vega, shown below, have added 80 lbs. to the car's weight and nearly \$140 to the consumer's cost. (Slide 17) Parallel numbers for a full-size car are 150 lbs. increased weight and \$155 increased cost to the consumer. The older car is on top, the 1975 is below. These higher cost and higher weight systems are being unfairly criticized on the basis that they are unnecessarily expensive and complex; therefore, not cost-effective. (Slide 18) Bumper design factors are complex. Some have cited the wide range of bumper weights and replacements costs as evidence that many bumpers have been overdesigned. They also use comparisons of weight and cost of bumper systems on specific vehicles. In doing so, they have overlooked vital factors affecting bumper system design.

For example, it is true that current bumper standards require only that safety systems be protected. However, more stringent standards *were* on the books for the 1976 models, and even *more* stringent standards were in the proposal stage. Certain state standards were in effect with more rigorous demands. To have ignored these real and potential requirements would have invited even higher costs to make changes in succeeding years as the model was carried over.

(Slide 19). A specific criticism has been aimed at the Nova. Yes, the Nova got heavier by virtue of a number of factors, including disc brakes, the catalytic converter, and the bumper standard. But it could have gotten a lot more *expensive*, if sophisticated, light-weight bumper systems (such as aluminum or high-strength steel) had been used. Trade-offs between bumper cost and weight can have dramatic effects, depending upon which factor (low cost or light weight) is more important at a particular time, or for a particular vehicle design. For example, the aluminum bumpers used on Opel Manta and Chevrolet Vega are lighter, but more expensive than if they had been steel bumpers. For these cars, weight reduction was very important as it affected brake capacity and suspension design.

(Slide 20). Also, different types of cars, aimed at different segments of the car-buying public, require different bumper systems. For example, the Corvette is a specialty car. It has a specialty bumper system—the soft face. The market segment to which it is aimed and the relatively low sales volume of the Corvette makes it a particularly well-suited car on which to use a premium bumper system—especially one that requires new technology and for which only limited production capacity is available.

In addition, vehicles vary in design concept (body-frame, unitized body, stub frame, etc.) and generally are in various stages of their production life cycle. All these are important inputs in selecting the appropriate bumper system for each model car. Not the least extra input was the insurance industry's move toward additional reduced premiums for those cars going *beyond* no damage to safety systems to having virtually no damage at all from the barrier tests. General Motors exceeded the minimum standards for some cars in the considered belief at that time, we were meeting competition and were serving the best interest of our customers.

(Slide 21). Bumpers *do* have a design balance. In light of all the circumstances and constraints we have touched on, our bumper systems for the past few years were *not* overdesigned. Their selection for particular cars was consistent with, and dictated by, the necessary balance of *all* the demands, constraints, and concerns of the time.

Field Performance (Slide 22).—Unfortunately, as we found out later from our field studies, current bumpers are not paying off for the consumer. Three years ago, General Motors saw a need for field damage data and decided to make a *comprehensive* field survey of collision losses. (Slide 23). Information was collected on the full spectrum of vehicle damage; whether left unrepaired, repaired and paid by the owner, or repaired and paid by insurance.

Gathering this full spectrum of data was unique. We knew of no other studies that could fill the need we saw for evaluating bumper performance throughout the range of impacts actually experienced in the field. This early study, largely carried out in the Ft. Wayne, Indiana, area, gave us a baseline of information on the overall damage spectrum of the 1971 models whose designs were not subject to bumper regulation. In 1973, we repeated the study. Remember, the 1973 bumper systems had to meet 5 mph barrier test on the front and 2½ mph barrier test on the rear without damage to safety systems and many cars exhibited virtually *no* test damage, thereby exceeding the standard. This provided a unique opportunity to compare, by direct field observation, 5 mph and 2½ mph bumpers.

(Slide 24). Our comparison was made in terms of damage frequency, average cost to repair, and the product of the two—overall collision loss. It is this product that is the key issue in field collision loss data. Reduced damage frequency, gained at the expense of increased cost to repair, is not an automatic benefit for the consumer.

(Slide 25). Here's what happens when the 1973's are compared to the 1971 base. The 1973 fronts and rears both had reduced damage frequency. However, the average cost to repair the fronts went *up* \$76 while the average repair cost for the rear went slightly *down*. When we look at the overall loss, the combination of frequency and severity, we see a \$4 per car-year worse showing for the 5 mph fronts and a \$7 per car-year better situation for the 2½ mph rears. It may seem a paradox that the weaker bumper reduced dollar losses *more* than the stronger bumper. But remember that stronger, heavier bumpers *are* more expensive to repair. So even though the 5 mph fronts did reduce damage frequency, they did not reduce overall dollar losses as much as did the 2½ mph rear bumpers. (Slide 26).

Collision performance is only part of the story concerning the total balance of benefits and costs to the consumer. Let's look at this balance on a first year's basis since that is where our data are likely to be most valid. (Slide 27). One important consumer benefit for the 1973 bumpers was the discount he received from his collision insurance premium. We have estimated that total premium discounts, averaged over all 1973 cars nationwide, came to about \$12 per car-year, or an average of \$6 for each end. (Slide 28). In addition, the reduced damage frequency for the 1973's should have reduced miscellaneous losses in time, court costs, etc. We estimate all this might be on the order of \$1 per car-year, or 50¢ each end.

(Slide 29) Going back for a moment to the collision benefits, we saw (on the right of this slide) a \$4 worse overall loss for the 5 mph fronts and a \$7 better performance for the 2½ mph rears of the 1973 cars. If we were to add these numbers *directly* to our consumer benefit tally, we would be double-counting since only about one-third of this change in overall loss is paid directly by the consumer. The other two-thirds are insurance-paid and are already reflected in the reduced premium benefit shown before. (Slide 30) This means only about one-third of the 4 and 7 dollars should be added or subtracted from the other benefits. That is, a \$1.50 loss should be subtracted from the front benefits and a \$2.50 gain should be added to the rear benefits. (Slide 31) Looking at the *total* consumer benefit, we find that the 5 mph fronts produced a \$5 gain while the 2½ rears produced a \$9 gain.

All this looks good until we look at the extra *cost* to the consumer to provide these benefits. (Slide 32) Applying typical depreciation rates to bumper cost data collected by NHTSA, the sales-weighted average cost for the first year's life of 1973 bumpers was \$11 per car on the front and \$4.50 per car on the rear. This difference is a direct reflection of the 5 mph front and the 2½ mph rear requirements. (Slide 33) Additional costs to the consumer are the extra fuel used and the increased tire costs, both caused by the higher weight of the 1973 bumpers. These amount to about \$2 on the front and \$1.50 on the rear. (Slide 34) The *totals* for both benefits and costs are shown here. (Slide 35) Simple arithmetic shows that the 2½ mph *rear* bumpers are cost-effective with a \$3 gain and the 5 mph *front* bumpers are *not* cost-effective with an \$8 loss.

For the first year alone and based on a 10 million car sales year, this translates to a 80 million dollar consumer *gain* for 2½ mph rear bumpers and an 80 million dollar consumer *loss* for 5 mph front bumpers. Initial results of our survey of 1974 models further substantiate the conclusion that bumper systems required by present standards do *not* pay their own way.

A Step Forward (Slide 36).—In light of the field evidence showing that a 5 mph requirement produced less cost-effective results for the consumer than a 2½ mph requirement, and considering the urgent need for reduced cost and weight, General Motors is convinced a move away from today's unrealistic standard is a step toward a better overall value to the consumer. The interim proposal *does* reduce the test speed from 5 to 2½ mph. This *does* compute to a 75% reduction in kinetic energy. But to say this equates to a 75% reduction in field performance is a gross oversimplification and distortion of a very complex issue.

To get an estimate of the potential of 2½ mph bumpers, let's again go to our Ft. Wayne field data (Slide 37) and extract information for GM full size cars. The 1973 rears we have already seen to be cost-beneficial. And, the 1972 fronts on GM full size cars were required by a GM goal, prior to standards, to meet a 2½ mph barrier test with minimal damage. This composite "field data car" should provide a *minimum* estimate of the predicted field performance of the 1976 cars if they can be built to the proposed interim requirements. Keep in mind, the bumper systems on our data car met *only* a 2½ mph barrier test. The proposed interim standard would have added *improved* protection because the pendulum test imposes controls on bumper match, face bar width, and bumper clearance from the sheet metal.

The following charts show the performance of our "data" car along with several other model years. (Slide 38) This first chart summarizes damage *frequency* for the various model years. The base year 1971 damage frequency is drawn as the zero reference point. The reduced damage frequency yielded by post-1971 bumpers on GM full size cars is readily apparent and turned out to be nearly the *same* reduction for 72, 73, and 74. Our data car prediction shows that the proposed 1976 interim standard cars should maintain this frequency reduction.

(Slide 39) Average loss is shown in this next chart with the 1971 model year again as the zero reference. The 1972 models, with their 2½ mph front bumpers, demonstrate a reduction in average loss of \$8/incident. The increased 1973 and 1974 average loss reflects the increased cost to repair those cars designed to meet the over-stringent bumper requirements of those years. The average loss for 1973 models increased \$14, while the increase for 1974 models was \$19. The 2½ mph data car was only \$2/incident over the 1971 baseline.

(Slide 40). The central issue is the trade-off between damage frequency and average loss. This is evaluated in terms of the product of the two, which is the *overall* loss expressed in dollars per car-year. The reduction in loss from the 1971 base year is given in this last chart. The 1972 GM full size cars, with their good frequency reduction and their lower average loss, provided a \$20 improvement in overall loss. The 1973 and 1974 cars, with their more expensive bumper systems, did not do as well. The data car prediction for 1976 is that cars built to the proposed interim standard will do at least as well as the 1972 cars. Again, the better match, wider face bars, and improved clearance—all promoted by the pendulum test in the interim standard—should make *real* 1976 cars do better than our predictions. Such performance certainly would not by itself support dropping premium discounts on collision insurance. In all three respects, frequency, average loss, and overall loss, the 2½ mph data car bumper systems did quite well—better either the pre-regulated 1971's or the over-regulated 1974's. Remember, this chart only gives information on the benefit side of the ledger. Each of the models *did* show some improvement, but at *much* different costs. (Slide 41)

(Start Film). Let's look at the tests that were required of the 1972 front/1978 rear bumper system that we are using to predict continuing benefit for the proposed interim standard. (Film Goes Blank)

That's all—one 2½ mph barrier test on each end, requiring only no damage to safety systems. (Picture Comes Back) Now let's look at the tests required by the interim proposal for the front and rear of this 1976 prototype equipped with 2½ mph front and 2½ mph rear bumper systems. The pendulum tests are still there, dictating that the zone protection for the 1970's will be maintained. Also, the proposed interim standard goes *beyond* no damage to safety systems by requiring no damage *at all* to the car other than to the bumper system. (Stop Film)

(Slides 42 to 45). The significance of maintaining the pendulum test is seen on this series of slides showing the increased protection zone required. Each comparison is between a pendulum-controlled, current model car, shown on the bottom, and the same make car prior to a pendulum requirement, shown on the top. This increased protection zone will make bumper match improvements from (Slide 46) pre-pendulum cars to (Slide 47) current models meeting pendulum requirements. (Slide 48) GM's 1976 cars, when built to the proposed interim standards should be very similar, if not identical, to 1975's in the extent of their protection zone *and* the degree of their bumper offset from the sheet metal.

Conclusion (Slide 49). Again, the proposed interim standard is a step forward. Not only will 1976 bumpers built to the proposed interim standard perform well, indicating no reason to eliminate the insurance premium discounts, but they will also weigh less, cost less, and yield a better overall economic value to the consumer. (Slide 50) Bumper weights can be reduced because less complex systems are required. (Slide 51) Assuming prompt action on the part of NHTSA, we estimate that GM bumper weight reductions in 1976 will range from 15 to 120 lbs. This produces a GM sales-weighted average reduction of approximately 60 lbs. per car. This direct weight savings can eventually allow further weight reductions of a comparable magnitude because the current engine, chassis, and brake sizes were selected to accommodate this extra bumper weight. Thus the final average weight savings could exceed 100 lbs. This is by far the single greatest standard-related weight savings potential in the vehicle. To accomplish the desired fuel economy, every effort is being made to reduce the weight of future GM cars. (Slide 52) This *single* 60 lbs. savings will provide a direct lifetime fuel savings of nearly 200 million gallons of gasoline for 1976 GM cars alone. If we consider *total* U.S. production *and* model years *beyond* 1976, this savings, of course, is many times larger.

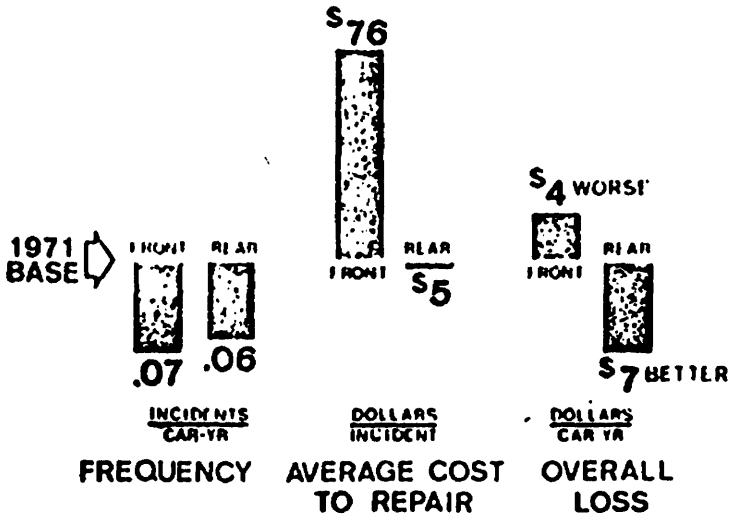
(Slide 53). In the area of dollars, adoption of the proposed interim standard will allow a reduction in consumer cost related to bumpers amounting to a GM sales-weighted average of \$30 per car. As lead time allows additional changes for 1977, the total will improve.

General Motors is willing to make this commitment to saving the consumer cost and weight in his car. But we can't do it without the the prompt help of a realistic and justified change in bumper standards. Moving to the proposed interim standard *is* a step forward as we work toward an *overall* benefit for the American public. (Slide 54).

Thank you.

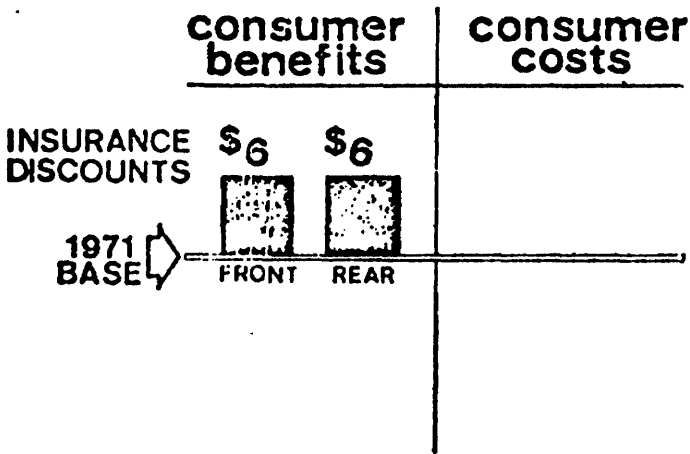
FIELD DAMAGE SURVEY

1973 MODELS



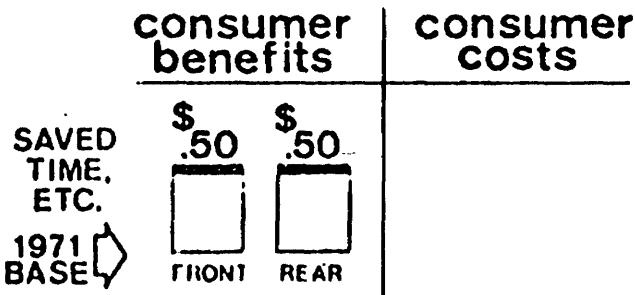
25

1973 MODELS FIRST YEAR ANALYSIS



27

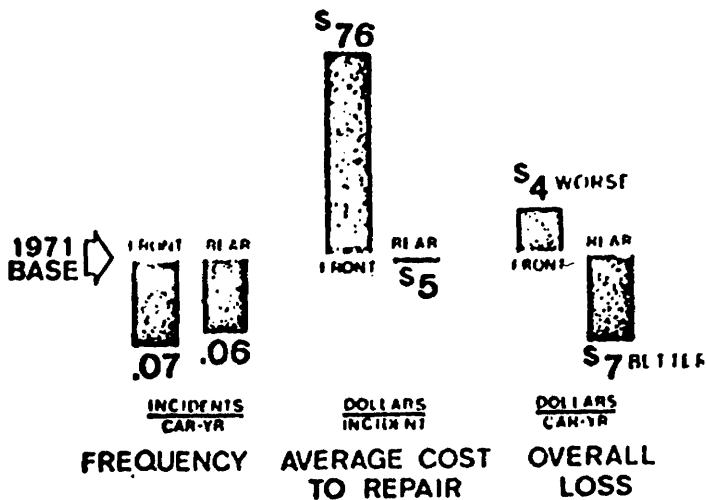
1973 MODELS FIRST YEAR ANALYSIS



28

FIELD DAMAGE SURVEY

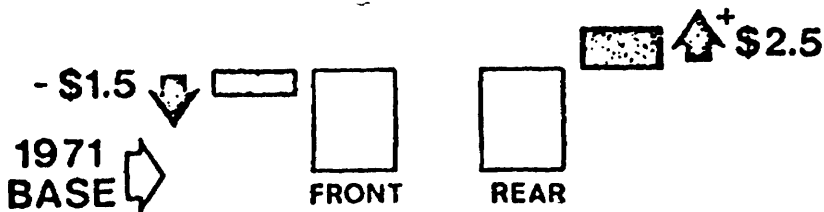
1973 MODELS



29

1973 MODELS FIRST YEAR ANALYSIS

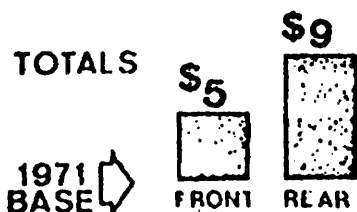
COLLISION EXPERIENCE



30

1973 MODELS FIRST YEAR ANALYSIS

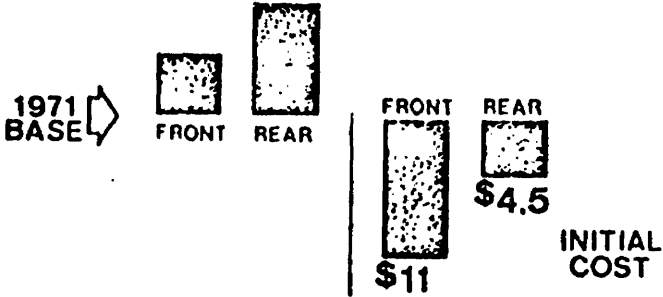
consumer benefits consumer costs



31

1973 MODELS
FIRST YEAR ANALYSIS

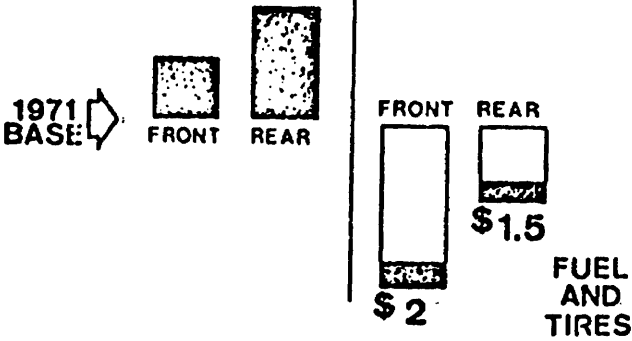
consumer benefits consumer costs



32

1973 MODELS
FIRST YEAR ANALYSIS

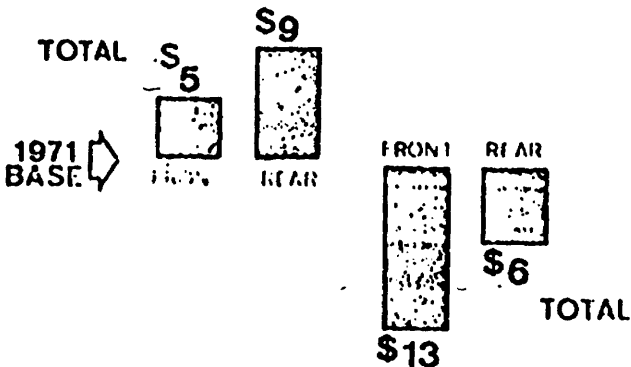
consumer benefits consumer costs



33

1973 MODELS
FIRST YEAR ANALYSIS

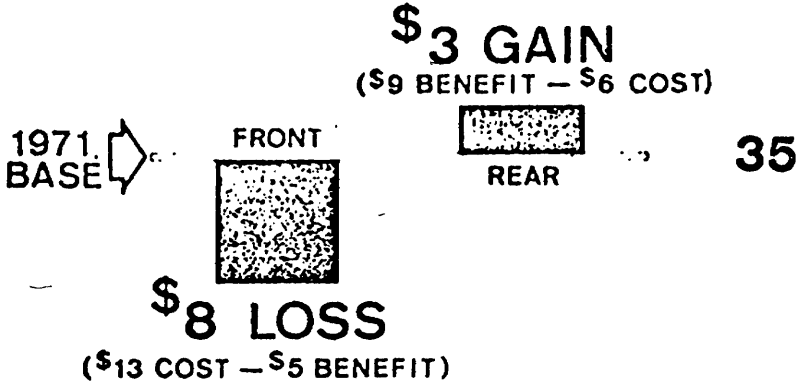
consumer benefits consumer costs



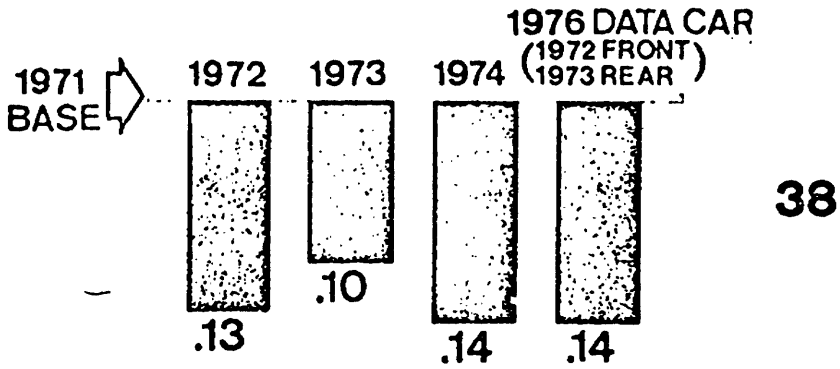
34

NET CONSUMER BENEFIT

FIRST YEAR ANALYSIS

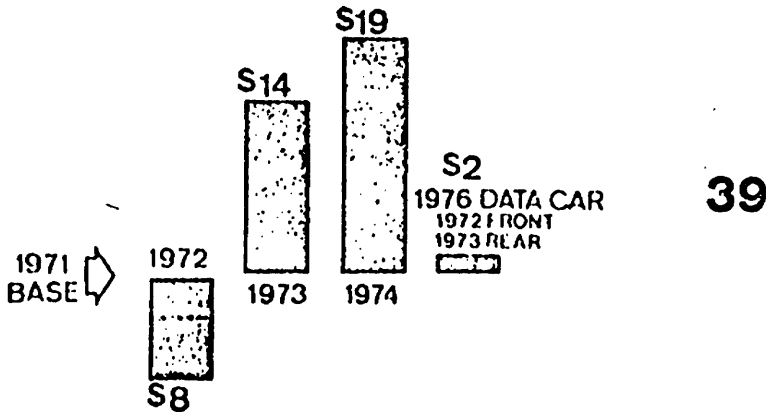


DAMAGE FREQUENCY (INCIDENTS/CAR YEAR)



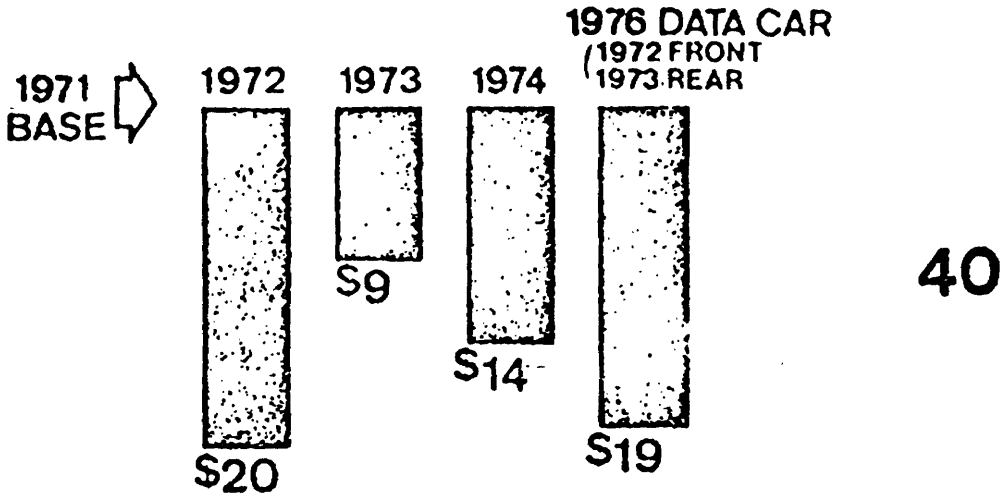
GM FULL SIZE VEHICLES (FRONT AND REAR DAMAGE ONLY)

AVERAGE LOSS DOLLARS/INCIDENT



GM FULL SIZE VEHICLES (FRONT AND REAR DAMAGE ONLY)

OVERALL COLLISION LOSS REDUCTION (DOLLARS CAR-YEAR)



GM FULL SIZE VEHICLES (FRONT AND REAR DAMAGE ONLY)

Material supplied by the Department of the Treasury in response to Senator Haskell's question at page 390 of these hearings

Our studies show that specific preferences—for example, exemptions for interest received from savings accounts or from particular kinds of debt instruments—do not result in net additional savings. Rather, they are useful only to redirect savings into preferred areas—e.g. the public utilities.

Last year, Treasury analyzed a proposal to permit each taxpayer a \$500 exemption for interest on time and savings deposits and concluded:

1. The revenue loss would be approximately \$2 billion.
2. The most favorable result would be a \$10 billion increase in such deposits, providing perhaps an additional \$3.5 billion of new mortgage financing.
3. Since the deposit increase represents a one-time reallocation, not net new savings, the federal government is in effect paying \$2 billion per year for one-time \$3.5 billion increase in available mortgage money.
4. Competitors for savings—e.g. corporate borrowers and life insurance companies—would be adversely affected.
5. The rich would receive a disproportionate benefit. Savers in the 25 percent tax bracket would in effect obtain an increase in yield from 5.25 percent to 7 percent, but savers in the 50 percent bracket would obtain the equivalent of a rise from 5.25 percent to 10.5 percent.

Lessening the federal tax burden on all savings would be a more desirable solution. Such a change could enhance the availability of funds for investment for a number of needy sectors of the economy.

Material supplied by the Department of the Treasury in response to Senator Brock's question at page 413 of these hearings

A 1970 New York Stock Exchange study states that the median household income of shareholders in 1970 was \$13,500 per year. There were 8,810,000 shareholders with household incomes under \$10,000 and 21,710,000 with household incomes in excess of \$10,000.

Statistics on the income of utility company shareholders are not available. The November 1974 Department of Commerce Survey of Current Business contained a report, "Stockownership in the United States: Characteristics and Trends," concluding on page 18:

"The lower income groups tended to hold somewhat less risky stock than did the upper income groups. Although the latter owner substantially more

stock on the average, as high a proportion of their portfolios were as poorly diversified as those of the lower income groups. Mutual funds were a much more, and NYSE stock a somewhat more, important part of lower income portfolios. Among the NYSE stock, the lower income groups were relatively more likely to hold telephone and electric and gas utility stock than the upper income groups, but the differences for telephone stock were smaller in 1971 than they had been in 1960. Electric and gas utility stock constituted a much smaller proportion of holdings of all income groups in 1971 than in 1960."

"Among employment status groups, managers tended to hold the riskier stock and retired and other not gainfully employed persons the less risky stock."

Material requested at pages 471 and 477 of these hearings

RESPONSES OF LEONARD WOODCOCK

ENERGY LEGISLATION COMMENTS TO SENATE FINANCE COMMITTEE

1. Direct grants for residential Energy conservation (insulation, solar equipment, etc.

The best example (of which I am aware) of what I have in mind is the British system of grants for renovating old houses. Eventually what happens (I may be slightly off on one detail or another) is that a person who wants to renovate his/her house goes along to the appropriate agency or his local Council (read: county or city government) and applies for a grant. (Although the Council administers the grant—the money comes from the Central government.) The Council then inspects the house and if it deems it worthy of renovation, gives the okay. The householder then gets a contractor and draws up a specific plan (together with a price) which is submitted to the Council agency. This is ruled on and it is agreed that the Council will pay X percent. The work then commences. Upon completion it is inspected by the Council and if satisfactory the bills are paid. (Each step is governed by regulation—i.e., what constitutes a "House worth saving", how much can be granted, what constitutes acceptable renovation plans etc.)

Renovation projects range all the way from major rebuilding (generally reserved for houses in areas of special historical, architectural, etc. value) to minor things such as installing an indoor flush toilet (where one has not had one before). In the smallest cases the householder may do the work him or herself without the help of a contractor.

Such a system seems appropriate for the household energy conservation projects we are considering. Not only would it get money out, it would have a much better chance of ensuring that the money gets spent on what is really intended for than is the case with tax credits (which are also "expenditures").

Such a program executed properly would build up a body of expertise in local government which would be available to help and advise householders as to what techniques and equipment are available and best suited to their situation. This tends to act as a counterbalance to the fast-buck contractors who invariably move in on situations like this, either to dupe householders into buying what they don't need or to get undeserved tax credits on their own buildings by exploiting small loopholes (or both of these).

With a pure tax rebate or credit it is much harder to police these practices or indeed the expenditures in general.

On the idea of a windfall profits tax with rebate to individual taxpayers, in the event of decontrol of oil prices:

First, of course, it is difficult to comment on an idea such as a "windfall profits tax" without seeing an actual proposal. However, according to the *Wall Street Journal* of July 24, 1975, Senator Russell Long is evidently thinking of an excise tax, not a corporate income tax. This same issue came up over two years ago when President Nixon was talking about an "excess profits tax". Then as now we strongly opposed any excise tax on domestic oil as being both grossly inequitable (and as probably adding even further to the inflation that will be caused by price decontrol on its own—depending on how the tax is specified and levied. I am sure you are acquainted with the numerous recent estimates of the decline in GNP and increase in unemployment projected to result from oil price inflation so I won't go into those here.) But even if the legislation we were considering involved some sort of surtax added onto corporate income taxes, it would be extremely difficult to devise a scheme which would in fact recapture even a significant part of the profit windfalls and certainly not enough to compensate the

overwhelming majority of Americans for the economic losses decontrol would impose. Before going into the reasons, let me say that here I assume that what is meant by "decontrol" is something closer to Ford's 36-month decontrol plan rather than the capped five-year phase out being worked on in congressional committees, and which we do not find nearly so objectionable. Indeed, it is significant that Senator Long is depicted as pushing for such a windfall-profits tax in the hopes it will spur decontrol. The windfall profits issue in fact comes up only if decontrol is fairly rapid. If it is stretched out in an orderly planned fashion then "windfall" in the commonly understood sense of the term should not occur.

One of the most important problems we anticipate in any windfall profits tax plan, aside from the excise versus corporate income tax issue, is to whom the tax would be applied. When oil is decontrolled, all sorts of corporations not necessarily engaged in crude oil production will reap enormous windfalls. Just a few that come to mind are companies in the natural gas and coal industries, oil tanker shipping lines, producers of drilling equipment, etc. Aside from some broad-based corporate income surtax which would "claw back" excess profits wherever they crop up, I cannot see how any legislation would be able to recapture for the public what otherwise will be an enormous public donation to selected groups within the private sector. Similarly, no rebate scheme no matter how well intentioned could possibly reverse the transfer of income that would accompany rapid decontrol.

I think we must remain consistent on this issue and urge Congress to veto Ford's decontrol plan (nicely designed as it is for maximum economic devastation after the 1976 election), and instead work for a well-planned orderly program that recognizes that the long-run price of oil will rise, but that this rise must be integrated with other economic objectives. A five-year program as mentioned above would also give Congress time to do a serious job towards creating a tax system that was sufficiently progressive at the upper end of the corporate income scale and the lower end of the individual income scale to automatically do the kind of redistribution job being touted in the current scheme.

Material submitted by Exxon and Gulf Oil in response to Senator Talmadge's question at page 565 of these hearings

EXXON Co., U.S.A.,
Houston, Tex., July 25, 1975.

HON. HERMAN E. TALMADGE,
U.S. Senate, Russell Senate Office Building, Washington, D.C.

DEAR SENATOR: In the course of hearings on HR 6860, conducted by the Senate Finance Committee on July 16, you asked me to submit a statement concerning oil shale. The attached summarizes Exxon's outlook for potential oil shale development and its impact upon imports.

Exxon has a number of scattered fee tracts in Colorado but no large consolidated block suitable for mining operations, and we do not have an active shale project at this time. We are, however, exploring with the Bureau of Land Management the prospects for exchanging our scattered holdings for a federal block or blocks of comparable quality from the standpoint of shale reserves. This should be advantageous to both the Government and Exxon as we now have acreage within many potential federal lease blocks.

If we can be of further assistance to you or your staff, we would be pleased to do so.

Sincerely,

W. T. SLICK, Jr., *Senior Vice President.*

Attachment.

THE POTENTIAL OF OIL SHALE DEVELOPMENT FOR ALLEVIATING DEPENDENCE ON OIL IMPORTS

Western oil shale deposits—particularly those in Colorado—represent a large potential source of oil with quality equivalent to the better, low sulfur natural crudes. Methods for mining and processing have been developed to the point that construction and operation of facilities of a commercial size appear to be the next logical step in the learning process. Logistics of constructing the first plants and of subsequent stepwise growth of the industry suggest that under favorable conditions 10 to 15 years would be needed to develop a shale industry capable of substantially reducing oil imports.

Estimates of achievable production rates during this century range from a low of one or two million barrels daily to some five million with the size of the estimate controlled by individual assessment of steps taken to surmount the regulatory, environmental, and economic barriers now holding back development of this resource. Following is a list of some of the more important actions which are needed if shale oil production is to reach the potential of two to five million barrels this century:

Mitigate the vulnerability of the return on the large fixed investment in an oil shale plant due to competition from lower cost supplies, both foreign and domestic.

Seek resolution of the problems of capital availability and the uncertain outlook for government regulations affecting capital formation.

Establish firm and reasonable environmental regulations (both state and federal) specific to oil shale development and eliminate the threat of project delays because of environmental suits.

Institute a leasing program which relaxes the unrealistic limitation on federal leaseholding (now 5,120 acres) and otherwise assures that federal shale lands will be available under reasonable terms.

Resolve questions surrounding the adequacy of water supplies which are often used as a reason for holding back on shale development.

Even under the most optimistic assessment, shale oil output would not be sufficient to solve the imports problem; and a national commitment to oil shale development should not be allowed to detract from programs aimed at developing conventional crude oil and natural gas supplies, at promoting the direct use of coal to the maximum extent, and at securing supplies of coal-based synthetic fuels.

RESERVES

Oil shale resources contained in the states of Colorado, Utah, and Wyoming are set forth by the National Petroleum Council as 1.8 trillion barrels of in-place oil; however, much of the resource either is not well defined or is of relatively low quality. According to the NPC, the richest, best-delineated, and most accessible deposits contain potential recoverable oil of about 54 billion barrels with 47 billion assigned to the Piceance Creek Basin of northwestern Colorado and 7 billion to the Uinta Basin of western Utah. To illustrate the magnitude of this reserve, it is sufficient to support a production rate of 3 million barrels daily for 50 years.

TECHNOLOGY

The U.S. government as well as numerous private companies has carried out shale mining and processing research and development over the past quarter century. As a result the technology for producing high quality oil from shale is now ready for commercial size plants; however, pioneer ventures are apt to encounter early problems which would demand time and expense for their solution. Some delay can be expected, therefore, in adapting technology developed on small-scale equipment to the huge facilities typical of prospective commercial plants.

First generation technology would consist of physically mining the shale rock, crushing it, and heating it in aboveground retorts to recover raw shale oil. This raw oil would be processed to produce a synthetic crude oil which is suitable in all respects for processing in modern petroleum refineries to a full line of liquid fuels. This method of shale commercialization requires disposal of spent shale on the surface.

In-situ production methods, i.e. the recovery of oil without removing the shale from the ground, are receiving attention as means of avoiding the problems of aboveground disposal. While research of such methods has merit, the technology is anticipated to be complex; and it is considered unlikely that successful in-situ results will be achieved in the first generation time frame.

INVESTMENT AND TIMING

Capital investment requirements are huge. Estimates for a project to produce 50,000 barrels of synthetic crude oil daily are in the range of \$750 million to \$1 billion in terms of 1975 dollars and because of inflation could be substantially higher in future years. The time of engineering, construction, and operations shakedown for a project of this magnitude is of the order of four to five years,

exclusive of regulatory and legal delays which have marked the development of any new energy source in recent years. Each million barrels of daily capacity would require 20 of these complexes consisting of a shale mine plus its associated retorting and upgrading facilities. Even under a massive program, logistics would very likely limit the number of plants under construction at any one time. On the basis of such considerations, an NPC study suggested a period of about 15 years for the construction of initial facilities having an aggregate capacity of 1,000,000 barrels per day.

ECONOMICS

There are, of course, many uncertainties regarding the cost of producing shale oil; and these will not be fully resolved until commercial production is established. Current published estimates by others vary from \$9-17 per barrel for high quality, low sulfur synthetic crude oil at the plant site. Exxon's estimate is near the middle of this broad range at about \$14. These estimates are in terms of 1975 dollars and have in them returns on investment in the range of 12-15% (DCF).

GULF OIL CORP.,
Washington, D.C., July 24, 1975.

HON. HERMAN E. TALMADGE,
U.S. Senate, Russell Office Building,
Washington, D.C.

DEAR SENATOR TALMADGE: At the Senate Finance Committee hearings on the Energy Conservation Act, H.R. 6860, you requested that the American Petroleum Institute furnish you information regarding the possibilities for the development of oil shale. Gulf Oil Corporation has been asked to respond since it has one of the largest investments in shale reserves and, in partnership with Standard Oil Company of Indiana, has initiated a program to determine the feasibility of developing these reserves.

Shale oil is an "unconventional" energy source. Compared to the crude oil made by nature, it is a man-made, synthetic resource which can be used just as conventional sources of petroleum are used. The product extracted from shale is actually kerogen-"young" petroleum which requires further processing to turn it into a usable raw material.

Shale oil has long been known as an energy source. There are indications that it was used for heating and medicinal purposes in Europe during the Middle Ages, but it has never been a commercially viable product because of the availability of cheaper, more easily produced energy sources.

Presently, five basic markets: Transportation, industrial, residential, electric power production and commercial are served by five basic energy sources: Oil, natural gas, coal, water power and nuclear fission. Shale oil could be used as a substitute fuel in each of the five basic markets, as a gasoline, diesel or jet fuel, for example; to power utility plants, or serve as a petrochemical feedstock for products such as fertilizer.

The importance of shale oil for the U.S. today lies in the vast energy potential of our shale oil deposits to meet the nation's expanding energy needs and reduce our dependence on imported foreign crude oil.

The oil shale resources of the Green River Formation, a relatively small area in Colorado, Utah and Wyoming, are estimated at 600 billion barrels of recoverable oil. This amount is about equal to present Middle Eastern crude oil reserves and sufficient to provide our present level of oil consumption for at least 100 years.

Even with the major effort to develop conventional domestic energy sources, predictions are that we will be forced to continue to import oil in the foreseeable future. To avoid the threat to the security and economic well-being of our nation posed by continued high levels of oil imports, shale oil must be developed too.

Presently, Gulf, in partnership with Standard Oil of Indiana, is conducting environmental, technical and socio-economic studies preparatory to development of a shale oil tract in Colorado, leased from the Federal Government last year. It will be at least 1980 before the first oil can be produced.

Technologies for producing oil from oil shale are available, but they have never been attempted on a commercial scale before. It is estimated that the cost to bring a single 50,000 barrel-per-day oil shale plant into production could approach \$1 billion. On the basis of current U.S. oil prices it would be uneconomic to com-

mercially develop oil shale production. Consequently, either an increase in crude oil prices or additional incentives will be necessary to protect an investment of this magnitude, with its high front-end costs and long payout, and to ensure its rapid development.

We understand that the Senate Finance Committee has reached a tentative decision to provide a 12% investment tax credit for machinery and equipment used in the extraction of oil shale. We believe that such a provision would improve the economics of oil shale development and we urge you to support this provision.

There are environmental, technical and economic challenges to be met in the establishment of the oil shale industry. But the energy from this resource is needed today and will be vital tomorrow. We would be delighted to meet with you at any time to provide more detailed information.

Sincerely yours,

J. M. REESE,
Director, Washington Office.

Materials requested at page 737 of this hearing

RESPONSE OF THE AMERICANS FOR ENERGY INDEPENDENCE

Distribution of contributions by percentage (as of Nov. 20, 1975)

Architect engineers.....	4.2
Electric utilities.....	44.8
Manufacturers.....	32.7
Financial institutions.....	9.0
Independent oil producers.....	3.8
Labor unions.....	2.5
Individuals.....	1.5
Foundations.....	.5