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Energy Efficiency: Can Tax Incentives Reduce Consumption?

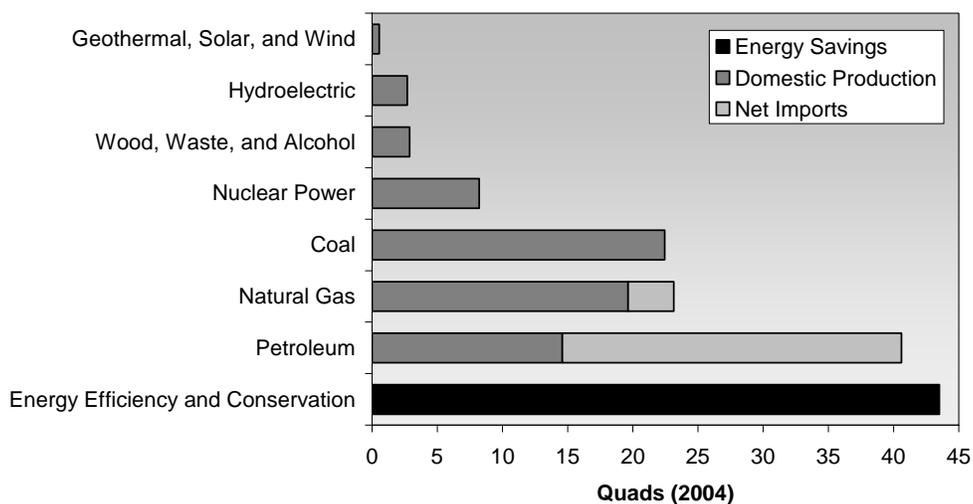
Introduction

The Alliance to Save Energy is a bipartisan, nonprofit coalition of more than 120 business, government, environmental and consumer leaders. The Alliance’s mission is to promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. The Alliance, founded in 1977 by Senators Charles Percy and Hubert Humphrey, currently enjoys the leadership of Senator Mark Pryor as Chairman; Duke Energy CEO James E. Rogers as Co-Chairman; and Senators Jeff Bingaman, Susan Collins, Larry Craig, and Byron Dorgan along with Representatives Ralph Hall, Edward J. Markey, and Zach Wamp as its Vice-Chairs. Attached to this testimony are lists of the Alliance’s Board of Directors and its Associate members.

Energy Efficiency is America’s Greatest Energy Resource

Energy efficiency is the nation’s greatest energy resource— efficiency now contributes more than any other single energy resource to meeting our nation’s energy needs, including oil, natural gas, coal, or nuclear power. The Alliance to Save Energy estimates that without the energy efficiency gains since 1973 we would now be using at least 43 quadrillion Btu more energy each year, or 43% of our actual energy use. Much of these savings resulted from federal energy policies and programs like appliance and motor vehicle standards, research and development, and the Energy Star program.

Energy Efficiency: America's Greatest Energy Resource



Source: Alliance to Save Energy

Energy efficiency is the quickest, cheapest, and cleanest way not only to tackle our current energy cost issues, but also to meet the anticipated future growth in energy demand in the United States. The enormous contribution of energy efficiency to meeting our energy needs is achieved with little or no negative impact on our wilderness areas, our air quality, or the global climate. Energy efficiency enhances our national and energy security by lessening requirements for foreign energy sources. Further, energy efficiency is invulnerable to supply disruptions; is rarely subject to siting disputes; is available in all areas in large or small quantities; and generally costs much less than it would to buy additional energy.

Energy-efficiency and conservation measures have a proven track record of balancing demand and supply much faster than drilling, constructing power plants, or building new import facilities. When a series of rolling blackouts and electricity price spikes hit California in 2000-2001, the state undertook a massive electricity efficiency outreach campaign that reduced peak summer power demand by 10 percent and reduced overall electricity use by 7 percent in less than a year, thus helping avoid further shortages. The cost was just 3 cents per kWh. The American Council for an Energy-Efficient Economy estimates that a small decrease in natural gas demand (2-4 percent) could result in a decrease in wholesale natural gas prices of as much as 25 percent over the next few years, with vast savings for consumers and energy-intensive industries.

Tax Incentives are an Essential Piece of an Energy Efficiency Policy

Tax incentives are a critical element of a comprehensive energy efficiency policy. Federal action for energy efficiency has been most effective when it combines four elements to create a cycle of improvement: 1) Support for research and development on new energy efficiency technologies, 2) Incentives and early adoption to create initial markets for the most advanced products and technologies, 3) Public education to spur widespread commercialization of efficient options, and 4) Standards and codes to set an efficiency floor. Tax incentives are the best mechanism to spur initial markets and can be an important hook for public education efforts to help efficient products achieve widespread use.

For tax incentives to have the desired impact on “market transformation” they must be carefully designed. They must not only encourage the most efficient technologies and products and last long enough to have a meaningful impact on the market, but also must keep pace with rapidly changing market conditions.

Extending and Improving the EPAct 2005 Energy Efficiency Tax Incentives

The Energy Policy Act of 2005 (EPAct 2005) included important tax incentives for highly energy-efficient new homes, improvements to existing homes, commercial buildings, heating and cooling equipment, appliances, fuel cells, and hybrid and advanced diesel vehicles. These incentives for consumers and businesses have the potential to help transform markets to embrace energy-efficient technologies and thus to help the best buildings, vehicles, and equipment become mainstream.

Unfortunately, most of the EPAct 2005 incentives were not put in place for a long enough period of time to insure market transformation. Most of the incentives were limited to two years -- expiring on December 31, 2007. And, while two of the incentives -- for commercial buildings and new homes -- were extended for one year and so now are set to expire at the end of 2008,

this is still not adequate to insure a meaningful impact on the market. In order for these tax incentives to be effective in creating a market transformation toward greater energy efficiency and reductions in energy use they need to be given more time to work. An extension for multiple years is imperative to allow enough time for the planning and construction of new buildings.

Buildings Incentives – EXTEND Act

Building energy use is a major factor in the linked problems of energy prices, energy security and global warming in the U.S. More than one-third of all energy used in the U.S., and more than two-thirds of electricity, goes to heat, cool and power buildings. Just over half of that is for homes and the rest for a wide variety of commercial buildings. There is a significant and important opportunity to reduce energy use in this sector. A 2000 study by several national labs estimated that energy-efficiency policies and programs could cost-effectively reduce U.S. energy use in residential and commercial buildings by about 20% over a 20-year span, essentially reversing the growth in demand that is projected for this sector. Tax incentives are one of the effective policy tools that can be employed to help realize this potential.

On March 8, 2007 Senators Snowe, Feinstein, Kerry, Bunning, Bingaman, Salazar, Coleman, Smith, Allard and Cornyn introduced the *EXTEND the Energy Efficiency Incentives Act of 2007* (S. 822). Companion legislation (H.R. 1385) was introduced in the House by Representatives McDermott, Markey and Weller on March 7. The EXTEND Act seeks both to restore the duration and levels of the EPAct incentives to those that were in the original energy bill passed by the Senate, but reduced during conference, and to improve those provisions. The Alliance to Save Energy believes that the provisions in the Snowe-Feinstein bill will ensure that the incentives achieve their full potential benefits.

GDS Associates has estimated the potential savings that would come from extending and expanding the current EPAct tax incentives as envisioned in the EXTEND Act. Over the 2006-2020 time period, GDS estimates that the incentives would help to reduce U.S. natural gas use by about 4.65 trillion cubic feet (almost enough to serve California and New York for a year), decrease consumer energy bills by about \$93 billion, and avoid 657 million metric tons of carbon dioxide (equivalent to 142 million passenger cars not being driven for one year.) GDS also estimates that EXTEND would reduce peak electric demand by about 15,500 megawatts by 2020 (equivalent to 52 power plants of 300 MW each).

Details about the specific incentives in EPAct, and ways that the EXTEND Act would improve upon them, are outlined below:

Existing Home Improvements Credit

The greatest immediate potential for energy savings is from efficiency improvements to existing homes. For example, just adding insulation to existing homes could save 800 trillion Btu, reduce NOx emissions by 100,000 tons and SO2 emissions by 190,000 tons, and avoid 6,500 asthma attacks and 240 deaths each year. EPAct provides a tax credit of up to \$500 for homeowners to help defray the cost of installing a variety of energy-efficient products. In particular, the measure provides homeowners a credit for 10 percent of the cost of new windows, insulation and doors. It also provides credits of \$300 for efficient central air conditioners, water heaters and heat pumps, \$150 for furnaces and boilers, \$50 for fans in furnaces and caps the portion of the

credit that may be used toward purchase of windows at \$200. This provision is currently set to expire at the end of this year (December 31, 2007).

The EXTEND Act would establish a new, performance-based tax credit for whole home retrofits that save energy. The credit starts at \$800 for homes that are certified as saving 20% and increases, based upon the percentage of energy savings realized, up to \$4,000 for a home that reduces its energy use to zero. Homes occupied by either owners or renters can qualify for the credit, which lasts until 2011. This new approach should encourage much greater energy savings by helping homeowners find the best measures for their homes and subsequently insuring that the savings are realized from the improvements made. The new credit will require an inspection and certification of the energy savings in order to establish the level of credit to be received.

There are two additional new incentives proposed to help ensure that trained certifiers are available. A credit of up to \$500 is available to help cover the cost of training and certification of personnel. A second credit of up to \$1000 is available to help defray the cost of equipment used for home energy inspections. These new credits will result in the training of many more people to perform energy ratings, audits, and inspections, creating an important infrastructure that will far outlive the limited availability of the tax credit and continue to deliver energy savings for decades to come.

In addition to the new credits, the bill extends the EAct tax credit for retrofits to existing homes until 2009 to maximize the effectiveness of this credit and to allow time for ramp-up of use of the new, performance-based credit.

Finally, the bill also includes equivalent business deductions (at three times the credit amounts) for energy-efficient retrofits to low-rise residential buildings to insure that the millions of consumers living in these types of dwellings can reap the benefits of investments in energy efficiency that the building owners are encouraged to make through the tax incentives.

New Homes

EAct 2005 provides builders a credit up to \$2,000 for a home that saves at least 50 percent compared to the model residential code, and \$1,000 for an Energy Star manufactured home. This provision is currently set to expire December 31, 2008. The EXTEND Act would extend this tax credit to 2011.

In 2006, the Residential Energy Services Network Inc. (RESNET) tracked that 8,076 new homes were certified for the \$2,000 credit. (Please note that this figure represents approximately 6 months of construction). According to the U.S. Census Bureau, there were approximately 1.65 million single-family homes built in 2006. Over 172,000 of those were Energy Star Homes – which must meet guidelines set by the U.S. Environmental Protection Agency (EPA), generally at least 15 percent more efficient than homes built to the model residential code. In addition, about 3,000 Energy Star manufactured homes, out of about 150,000 sold, qualified for the credit.

But the duration of the credit has not been long enough to allow new developments of qualifying homes. Extending the new homes tax credit to 2011 would give builders time to learn new technologies and techniques, change their designs, obtain permits, and build and sell qualifying

homes. This would allow many more families to enjoy the financial and environmental benefits of living in an efficient home and increase the market for energy-efficient building products.

Commercial Buildings

Commercial buildings use about as much energy as residential buildings, and energy use in these buildings is growing faster than in the residential sector. There is a growing interest in “green” commercial buildings and the availability of federal tax incentives, we believe, can translate this interest into action and therefore significant energy savings for the country. EPAAct provides a tax deduction up to \$1.80/square foot to owners or tenants (or designers, in the case of government-owned buildings) of new or existing commercial buildings designed to use 50 percent less energy than required by the model commercial building energy code. One-third of that amount is available for each of three systems (heating and cooling, building “envelope,” and lighting) that achieves one-third of the savings. The provision currently is scheduled to expire December 31, 2008.

Given the limited timeframe for the availability of the commercial tax deduction, and the fact that a typical large commercial building takes at least three years to build, it is almost impossible for a commercial builder to design and build a large, new commercial building before the end of 2008. This has largely limited use of the incentive to buildings that were already planned and to relatively simple retrofits such as improved lighting. An extension of multiple years is imperative to allow enough time for planning and construction of energy-efficiency buildings.

The EXTEND Act would extend the energy-efficient commercial building tax deduction through 2012, and would allow an additional two years beyond that to complete and place in service qualifying buildings. The bill also increases the amount of the deduction from \$1.80 per square foot to \$2.25 per square foot, and makes a number of technical changes to clarify what efficiency measures qualify and sets more appropriate criteria for the individual building systems.

Appliance Incentives - Super-Efficient Appliance Incentives Act

EPAAct 2005 also provides manufacturers \$50-\$200 credits for increased production of super-efficient refrigerators, clothes washers, and dishwashers. These credits expire December 31, 2007. In order to improve the extraordinary gains in efficiency of home appliances that have been achieved over the past few decades, the Alliance to Save Energy encourages the Committee to include the tax incentives for manufacturers of efficient home appliances that are in the *Super-Efficient Appliance Incentives and Market Transformation Act of 2007* (H.R. 2137), which was introduced May 3, 2007 by Representatives Sander Levin, Earl Blumenauer and Alyson Schwartz.

These tax incentives, along with strengthened appliance energy and water efficiency standards and recommended improvements in Energy Star levels, are an essential part of a consensus package that was negotiated between energy and water efficiency advocates, including the Alliance, and home appliance manufacturers. These policies work best as a package, as tax incentives for increased production of the most efficient appliances help bring those advanced technologies into the marketplace and decrease their cost, Energy Star helps efficient appliances gain market acceptance, and federal standards ensure that no appliances needlessly waste energy, water, or consumer dollars.

According to analysis conducted for the Department of Energy, the tax incentives *and* standards included in this package will save about 3.3 quadrillion Btus of energy, 10.8 million acre feet of water and nearly \$15 billion on consumer energy bills over about 30 years. Depending on minimum standard levels selected by DOE in refrigerator and clothes washer rulemakings to be completed in 2011 and 2012, the savings could grow to 15 quadrillion Btus of energy, 68 million acre feet of water, and \$68 billion in consumer energy bill savings.

The manufacturer tax incentives in the bill are designed to spur increased market share for the most energy-efficient and, where appropriate, water-efficient refrigerators, residential and commercial clothes washers, residential dishwashers, and dehumidifiers. Multiple tiers allow larger incentives for the most efficient appliances. The limited duration, and applying the incentives only to increased production of eligible products, ensures cost-effective use of taxpayer funds in this dynamic marketplace.

Industrial and Commercial Equipment

EPAct 2005 included no incentives for industrial equipment or for combined heat and power, which provides efficient, on-site electricity generation. The Alliance to Save Energy supports a modified version of a provision that was in the Senate version of EPAct 2005 to provide a 10 percent investment tax credit for combined heat and power systems under 50 Megawatts in size. The Alliance also supports a new proposal for a credit for purchasers of efficient electric motors that meet the highest efficiency tier set by the National Electrical Manufacturers Association. Like the appliance tax credits, this credit is part of a negotiated package that includes improved efficiency standards for electric motors.

Vehicle Incentives

In addition to providing tax incentives to increase energy efficiency in the built environment, the Alliance to Save Energy believes that it is imperative to address vehicle fuel use given that the transportation sector accounts for two-thirds of U.S. oil use (passenger cars and light trucks consume 40 percent of that oil), the majority of CO and NOx emissions, and one-third of U.S. greenhouse gas emissions. These realities, coupled with the fact that U.S. vehicle miles traveled are growing at a faster rate than vehicles and at more than twice the rate of the population, underscore the criticality of improving the efficiency of today's passenger cars and trucks immediately.

Hybrid and diesel vehicles

EPAct 2005 provides purchasers of hybrid and lean burn diesel vehicles a credit of \$250-\$3,400 based on fuel economy and gas savings, capped for each manufacturer starting at 60,000 vehicles. It also provides a larger credit for heavy-duty hybrid vehicles (\$7,500-\$30,000) that expires in 2009. The credits for one manufacturer are already being phased out. The Alliance believes that these credits can help steer buyers toward vehicles with advanced technologies and higher fuel economy, but that in order to increase their effectiveness, they should be extended and the manufacturer vehicle volume cap should either be removed or increased.

Feebates

The Alliance encourages this Committee to consider a more comprehensive approach to encouraging more fuel-efficient vehicles. A new, innovative approach to encouraging efficiency of light-duty cars and trucks is a national “feebate” system. A national feebate would apply a fee or rebate to new vehicles based on the expected lifetime fuel use of the vehicle. We would recommend that the fee and rebate apply to manufacturers of all light-duty passenger vehicles—including SUVs and minivans—but they could be determined relative to vehicles in the same class or to vehicles of the same size. The fee or rebate would then be determined relative to a dividing line or reference mpg (eg for a 27.5 mpg car, $\$1/\text{gallon} * 160,000 \text{ miles} / 27.5 \text{ mpg} = \5818 ; if the dividing line were at 24 mpg, or $\$6667$, the 27.5 mpg car would receive a $\$848$ rebate.)

We would recommend setting this dividing line between fees and rebates each year such that the total fees would pay for all the rebates thereby allowing the program to operate at no cost to the government. Under such an arrangement, about half the vehicles would receive a rebate, and about half the vehicles would be assessed a fee.

This would create an incentive for manufacturers to use fuel-efficient technologies in the vehicles they produce, and hence should increase the availability of efficient vehicles, as well as creating an incentive for consumers to purchase more efficient vehicles. As fuel economies increased, the reference mpgs would be ratcheted up, creating an incentive for continual improvement, but never out of line with the existing market.

This policy has the potential to improve fuel economies throughout the passenger vehicle fleet, not just give new technologies a foothold in the marketplace. Thus, depending on how it is set up, it could be complementary to tax incentives for hybrid and other advanced technology vehicles, or could provide a technology-neutral incentive for high efficiency vehicles of all kinds.

Conclusion

By wisely using the tax code, the federal government can spur the development and use of energy-efficient buildings, technologies and vehicles throughout the United States. While EPAct 2005 made important strides in this area, the energy-efficiency tax incentives can and must be expanded and enhanced in order to ensure that the American people are given immediate, cost-effective and sustainable assistance in addressing spiraling energy costs, an ever-less secure energy future and the dire environmental impacts associated with the production and use of energy.