Hearing by the Senate Committee on Finance on

"Auctioning under Cap and Trade: Design, Participation and Distribution of Revenues"

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Summary

The EU Emissions Trading System (EU ETS) exists since 2005. It covers almost half of the EU's greenhouse gas emissions. While there is no sunset clause, the EU ETS operates in multi-year trading periods.

Phase 1 (2005-2007) was a test phase and started with a moderate cap. This phase delivered significant learning benefits, and created an EU-wide carbon price with a liquid market. Due to lack of data, industrial facilities in some cases received too many free allowances.

In the current Phase 2 (2008-2012) the cap is much firmer, and allocations to industry were made at a much more realistic level, ensuring a requirement on the part of industry to reduce emissions (even though the current recession has temporarily rendered the cap less strict).

For Phase 3 (2013-2020) the power sector, and all other power generation, will get no free allowances. Industry will also have to buy a substantial share of needed allowances through auctioning. Sectors that are considered to be significantly exposed to carbon leakage on the basis of objective and transparent criteria and data will get a higher share of free allowances than other industries.

This implies that at least half of the allowances will be auctioned from 2013. The reason for abolishing free allocation to the power sector is that power companies, in the deregulated EU market, increased power prices even though allowances were distributed for free. Revenues from the auctions will go to the public authorities in the Member States, which can use them for climate action or other purposes.

Industry will also receive less free allowances. As a transitional measure, all industry will get some free allowances, but the sectors more exposed to international competitive pressure will get a higher share. Exposure is based on cost impact of the EU ETS and the trade openness of the sector.

The free allowances will, from 2013, be distributed based on technology-based benchmarks to the extent feasible. Thus, there will be a certain amount of free allowances per ton of product, e.g. per ton of flat glass. This benchmark per product

will be determined in advance of the trading period. It will be multiplied by a historic production figure. There will also be pre-determined annual reductions. The facilities will therefore know already by 2011 how many free allowances they will get each year until 2020. This method will provide high degree of certainty for industry, and ensure that only the most efficient facilities will get a large share of the required allowances for free.

There are many good reasons for deciding the amount of free allowances in advance, which are outlined in the statement. Revisions of the amount of free allowances will be made only if a facility closes down, or significantly changes its capacity.

The allocation provisions will be reviewed after the international agreement expected in Copenhagen. If the competitive situation for EU companies improves due to climate action by other nations, less free allowances may be provided.

It is crucial that the auctions are properly organized to ensure that they do not distort the secondary market for the EU allowances, and that they are conducted in an open, transparent, harmonized and non-discriminatory manner. The EU will adopt a Regulation by mid-2010 to set the rules.

Introduction

The method to allocate allowances is one of the most important decisions to be taken in the design of a robust carbon cap and trade system. Two principal methods are at hand – allowances can be given away for free to regulated entities, or they can be sold or auctioned. The methods are not mutually exclusive and there can be a mixture of both. While both methods have been researched in detail, the practical experience that exists so far is largely on different ways of giving away allowances for free. For example, the operational cap and trade systems to control air pollutants at federal and state level in the United States are largely based on free allocation. These free allowances were the result of significant reductions from existing emissions (about 50 to 80%) and were meant, in part, to compensate firms for the reduced value of existing capital assets. Currently, free allocations in these US systems only cover about 20 to 30% of the baseline in these programs.

In general, carbon allowances represent a much larger asset value than e.g. sulfur dioxide allowances. Allocating them for free, rather than by means of a market mechanism, is a major distributional exercise for the responsible legislator or regulatory agency. Free allocations not only involve a complex exercise but also require substantial and robust emissions and other data to avoid distributional outcomes that are perceived as unfair. Finally, regulated companies subject to the carbon cap and trade system will pass on as much of the allowance value to their customers (in the form of increased prices) as the market situation allows, even if the allowances are allocated for free.

This leads to the distributional effect (dubbed windfall profits), where carbon-intensive companies actually see increased profitability due to the implementation of a robust carbon market. The more robust the system (i.e. the higher the value of the allowances), the more significant these distributional effects are likely to be. The increased profitability from windfall profits in principle comes at the expense of the public budget, which could have received income from selling allowances instead of allocating them for free.

For all these reasons, the interest in auctioning as an allocation method for carbon allowances is growing world-wide. In revised legislation decided in December 2008, the European Union made auctioning the default future allocation method for carbon

allowances in Europe's emissions trading system (EU ETS). For some sectors – notably power generation – free allocation will cease immediately at the start of the third trading period in 2013, subject to limited justifiable exceptions; other sectors will in principle see a gradual phase-out of free allocation by 2027. In the regional carbon market in the US Northeast (Regional Greenhouse Gas Initiative), each participating state auctions off at least 25% of the allowances and some participating RGGI states have decided to auction 100% right from the start in 2009. In the discussions of other emerging carbon markets (e.g. Australia) a significant amount of auctioning is being considered from the beginning.

Allocation provisions in EU ETS Directive

The EU ETS covers over 11,500 energy-intensive installations (facilities) across the EU, representing close to half of Europe's CO_2 emissions. These installations include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. From 2012, aviation will be included in the EU ETS (the EU ETS does not otherwise cover transportation) and from 2013 further sectors such as non-ferrous metals and basic chemicals will be included.

The aim of the EU ETS is to help the EU achieve compliance with its commitments under the Kyoto Protocol and further reductions beyond 2012. Implementing an emissions trading system does not imply new environmental targets, but allows for cheaper compliance with existing and future targets. Letting participating companies buy or sell carbon allowances means that the targets can be achieved at least cost.

<u>Existing rules for the first (2005-2007) and second (2008-2012) trading periods</u>

Inspired and informed by the practice in the existing and well-functioning US air pollutant cap and trade systems at the time its initial rules were established earlier in this decade, Europe has so far based its allocation policy in the carbon market largely on free allocation. This was in particular due to concerns expressed by industry sectors about a loss of competitiveness and to the fact that the ETS was introduced

with a learning phase. Furthermore, it was not certain that the Kyoto Protocol would indeed come into force when the ETS allocation policy was decided.

The Directive[1] of 13 October 2003, setting up the EU ETS, contains provisions that fix the minimum amount of free allocation at 95% of the total amount of allowances that each Member State created in the first trading period (running from 2005 to 2007). The minimum amount of free allocation is reduced to 90% in the second trading period (running from 2008 to 2012). Consequently, in the first trading period, Member States were allowed to auction up to 5% of total allowances, while for the second trading period the Directive provides for auctioning of allowances up to 10% of the total amount. The Directive does not provide for any such limit from 2013 onwards.

The current rules (applicable until 2012) governing allocation in the EU ETS establish a relatively loose framework at European level beyond the above-mentioned provisions on limiting auctioning. Detailed rules for free allocation in the first and second trading period were set rather at Member State level, leading to a wide diversity of approaches that generated concerns in terms of transparency and fair competition.

The basic principle has nevertheless been to allocate free allowances based on historical emissions, with the negative effect of favoring less efficient facilities. The variety of methods and detailed rules in the Member States has given rise to preferences both from Member States and a wide range of stakeholders for much more EU-wide harmonization. This has resulted in substantially revised rules, decided in December 2008, to be applicable in the third trading period (2013-2020) and beyond.

<u>Revised rules for the third trading period (2013-2020)</u>

[1] Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 98/61/EC

In December 2008 the European Union adopted the so-called climate and energy package, which contains an amended EU ETS Directive[2]. The changes to the legal framework of the EU ETS will apply as of the start of the third trading period.

A core element of the revised legal framework is to make auctioning the basic principle of allocation because of its simplicity, transparency and economic efficiency and since it also generates income for climate action.

Since the power market in the EU is largely liberalized / deregulated, with only a few temporary exceptions, and since it is not exposed to competition from outside the EU, the power companies have to a high degree passed on the costs of carbon allowances right from the start of the EU ETS. Combined with free allocation of allowances, this led to windfall profits. Full auctioning is therefore the rule from 2013 onwards for the power sector, and also for power production taking place within an industrial facility, e.g. in the form of combined heat and power production.

Some of the newer Member States[3] have the right (so-called derogation) to continue to allocate some allowances to the power sector for free. They requested the right to do so in order to temporarily mitigate potential increases in electricity prices. Since providing the allowances for free would imply foregone public revenue, and have an uncertain impact on power prices, it is not certain that the derogation will be much used. Eligible Member States have to make decisions to what extent to use the derogations in 2011.

For the industrial sectors, a transitional system to phase out free allocation over time has been agreed. This was decided in view of the commitment of the EU to reduce greenhouse gas emissions by 20%, independently of what efforts other countries undertake. The EU has also committed to reduce emissions by 30% provided that other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries contribute adequately according to their responsibilities and respective capabilities.

In order to ensure a smooth transition to full auctioning for industrial sectors, it was decided that the amount of free allowances would be gradually reduced over time to

[2] http://register.consilium.europa.eu/pdf/en/08/st03/st03737.en08.pdf

[3] Criteria are if more than 30% of electricity was produced from a single fossil fuel, and where GDP per capita did not exceed 50% of the average GDP per capita in the EU

allow the industries to adapt. The reduction of free allowances works in two ways. On the one hand through an annual reduction of the overall amount of free allowances available for industrial facilities. This applies equally to facilities across all covered industrial sectors. On the other, there will be a gradual reduction in the degree of free allowances for sectors not deemed to be exposed to the risk of carbon leakage. These two mechanisms are further explained below.

How to allocate allowances for free

In the first and second phase, allowances were to a large extent distributed for free based on historical emission values. For the third phase, the base for the allocation of free allowances will be, to the extent feasible, emission benchmarks and historical production values. This means that all facilities within a given sector will get the same number of free allowances per amount of product (e.g. per ton of steel).

The production values that will be used for determining free allowances will be from a past period (most likely the average for 2005-2007). The amount of free allowances per unit of production will be determined based on the performance of the 10% most efficient facilities across the EU.

A facility will in principle receive free allowances by multiplying historic production with a benchmark. Taking into account certain pre-determined reduction factors, the facilities will know already by 2011 how many free allowances they will get each year until 2020. The only exception is if they close down or significantly reduce capacity, or if they increase capacity. For those cases, modification of the number of free allowances is envisaged, also in line with pre-determined but yet to be fixed rules.

There are several reasons why the EU opted for allocating the allowances for free based on historical data (so called ex-ante allocation), instead of basing it on actual production figures (ex-post allocations). The main reason is to minimize distortions in the decision making of companies, beyond the evident aim of providing incentives to reduce CO2 emissions. If a company were to receive more free allowances the more it produced, we would *de facto* subsidize some carbon intensive production over other competing products which are less carbon intensive.

It could be argued that subsidizing production and encouraging maximum production is the aim of the free allowances. To some extent it is, but it is important not to provide more support than necessary, which would be the case if more allowances were allocated as more was produced. It can also be noted that since the start of the EU ETS, free allowances are set ex-ante, in the form of fixed amounts per year for the entire trading period, based on historical emissions but without a link to actual production figures. This method is considered to have performed well in avoiding carbon leakage and competitiveness problems even at times when EU allowances were at the level of 30 Euro (40 US$) per ton.

Providing free allowances based on actual production would also lead to major administrative complexities. In the EU ETS, facilities have to surrender allowances by the end of April to achieve compliance for the preceding year. However, to collect production figures, verify them, calculate the amount of free allowances per facility and then to distribute them would by necessity take much more time than the four months available. The compliance schedule would be much delayed with the risk that compliance in one year would not be finalized the year after. Linked to this, there would also likely be legal challenges on a recurring basis, instead of only at the start of the trading period, since all allocations will be revised every year.

A further disadvantage for industry is that an individual facility would not know how many free allowances it would receive for a given year until several months after the compliance year, since the amount of free allowances per unit of production would depend on how much other facilities covered by the ETS have produced. This uncertainty may in fact substantially detract from the intended effect of supporting facilities to maintain production within the EU.

Using historical production figures for providing free allowances will also significantly reduce the confidentiality problems with an approach based on actual production. Since the benchmarks (free allowances per production unit) will be known, and the number of free allowances per facility will also be public, it would be easy to calculate the production figures of the previous year. Using historical production figures for the allocation will be much less sensitive since e.g. production data from 2005/2007 will not be very sensitive if disclosed in 2013 or later.

Sectors exposed to carbon leakage

The EU ETS Directive defines carbon leakage as the extent to which it is possible for a sector to pass on the costs resulting from the EU ETS into product prices without loss of market share to less carbon efficient facilities outside the EU. There is thus an economic and an environmental dimension to carbon leakage.

If a sector is deemed to be exposed to risk of carbon leakage, the sector will have its benchmark multiplied by 100% when calculating the amount of free allowances to a facility in the sector. For other sectors the benchmark will be multiplied with a discount factor that will start at 80% and decline annually to reach 30% in 2020.

The sectors are in principle assessed at the European four-digit industry code level (NACE4 – equivalent to the US six-digit NAICS codes), but an analysis at a higher disaggregation might be accepted for some sub-sectors.

The list of sectors that will be eligible for 100% of the benchmark depends mainly on CO2 intensity, electricity intensity and trade intensity of the sectors concerned. A sector is in principle exposed:

- if the cost impact of the EU ETS (buying needed allowances plus higher electricity prices) exceeds 5% of gross value added, and trade exposure[4] exceeds 10%,

- or if either of these two parameters exceeds 30%.

The regulatory decisions on the thresholds were informed by input from various independent studies, reports made for and by governments, and other relevant sources. A general explanation for the final thresholds is the following:

- The "cost increase" threshold (5%) was decided to be reasonable in relation to the average profitability of EU industry

- the "trade intensity" threshold (10%) was inspired by a method used in competition law to determine the geographical size of the markets

[4] Defined as (imports+exports / production+imports).

- the "cost only increase" threshold (30%) and the "trade only intensity" threshold (30%) reflect cases where either a particularly high additional cost could lead to a rapid change in trade patterns if not taken into account, or where a very high trade openness rendered the EU industry very vulnerable to foreign competition.

The environmental dimension ("carbon efficiency in the EU vs. the rest of the world") is currently under examination, but it is clear that it is more difficult to quantify and therefore more difficult to take into account when determining the list of sectors.

The list of exposed sectors will be formally determined in December 2009, but the first results of the economic analysis, made on data from 2005 and 2006, were recently made public on the Commission's carbon leakage website[5]. After the list has been finalized, it will be updated every five years based on most recent data. Sectors may also be added to the list before the five-year review in the case of data changes.

The total amount of allowances available for industry to receive for free is limited in advance. This amount, as well as the total EU ETS cap, will be reduced annually by 1.74 % to ensure compliance with the EU's -20% target. If there is a successful international agreement, and the EU then takes on a more stringent target, the total EU ETS cap, and the amount available for free to industry, will also be reduced year by year. In addition, the entire system of free allowances, including criteria to determine sectors exposed to carbon leakage, may also be reviewed following Copenhagen.

In summary, the EU has for the period 2013 to 2020 and beyond opted for a system with no free allowances for the power sector (with some small potential exceptions), a quickly reducing amount of free allowances for non-exposed sectors, and a slower reduction of free allowances for the trade-exposed sectors. What will happen beyond 2020 is not decided, but the Directive outlines that the aim is to abolish free allowances for non-exposed sectors in 2027.

Border measures

[5] http://ec.europa.eu/environment/climat/emission/carbon_en.htm

Border measures, in the form of a CO_2 tax or obligation for importers to purchase carbon allowances to compensate for CO_2 emissions in imported products, have sometimes been put forward as a means to address competitiveness problems.

However, the EU has decided not to introduce border measures, for several reasons. Firstly, it is extremely difficult to set the correct border measure, since the emissions factor for each imported product would need to be known. Secondly most industry sectors covered by the EU ETS oppose border measures for fear of retaliation and since they often import intermediate products which would in turn become more expensive. Most manufacturing industry also opposes border measures, suggesting for example that the price of steel would increase within the EU, harming the competitiveness of, for example, car producers. For all these reasons the EU has not introduced border measures.

Nevertheless, the EU ETS Directive states that the Commission should analyze the outcome of the international climate change negotiations and if appropriate propose modifications to the Directive. This may include the inclusion of importers, but it is unlikely that the EU's position would change, unless the international agreement would considerably modify the current competitive situation for European companies covered by the EU ETS.

Summary on allocation

In summary, the allocation of allowances in the EU ETS differs clearly in the three trading periods.

- Phase 1 (2005-2007) started with a moderate cap and allocation was to a large extent for free and made based on stated needs to manufacturing industry. Due to lack of data, industrial facilities in many cases received too many free allowances. The power sector was in general subject to a tighter allocation, but due to its ability to pass on full costs, including the opportunity costs of allowances that were received for free, there were significant "*windfall profits*" to the power sector.

- In the current Phase 2 (2008-2012) the cap is much firmer, and allocations to industry were made at a much more realistic level, ensuring a need to reduce emissions (even though the current recession has temporarily rendered the

cap less strict). For legal reasons, the power sector still gets part of its allowances for free, while some Member States have introduced taxation to recuperate at least part of the windfall profits.

- For Phase 3 (2013-2020) – on which most of the text of this statement is focused - the EU has reversed the societal burden of proof. The power sector, and all other power generation, will get no free allowances. Industry will have to buy a substantial share of its allowances through auctioning. Sectors that are considered to be significantly exposed to carbon leakage and can provide this proof to society on the basis of objective and transparent criteria and data will get a higher share of free allowances than other industries. However, all industries will face strict benchmarks, ensuring that only the most efficient facilities will get most of the required allowances for free.

Preparing for phase 3 auctions

The new legislation stipulates that all allowances not allocated for free will be auctioned, so from 2013 more than 50% of the total cap will be auctioned. This constitutes a major change since the current level of auctioning is only less than 4%.

The share of each Member State in the total quantity to be auctioned is largely based on historical emissions in the trading system. However, 10% of the quantity is distributed on the basis of GDP per capita and another 2% is distributed among nine Member States that in 2005 had emissions reductions well below their requirements pursuant to the Kyoto Protocol. This basically implies that there will be a redistribution of 12% of the auctioning revenues from the richer to the poorer (new) Member States.

The Member States will dispose of the auctioning revenues and it is for Member States to decide on the use. The legislation stipulates, however, that 50% of the revenues should be used to fight and adapt to climate change mainly within the EU, but also in developing countries.

The legislation provides for a procedural responsibility for Member States to auction their allowances, but also requires adequate harmonization and does not exclude the

possibility for Member States to use a common auctioning process and/or involve a central auctioneer to carry out the auctions on their behalf.

Designing and implementing auctions presents a technical challenge due to the limited practical experience with auctioning in operational emissions markets. However, governments conduct auctions of other economic assets with considerable value on a regular basis (e.g. government or treasury bonds, spectrum licenses) and these offer rich experience and institutional arrangements to draw from. Moreover, there is already a well-developed secondary market for allowances which gives a clear carbon price signal, thereby greatly facilitating the organization of competitive auctions. In this context it will be important to ensure that the auctions are conducted in a way that will support and strengthen the functioning of the secondary market.

The European Commission is given the task to adopt by June 2010 further legislation to ensure that auctions are conducted in an open, transparent, harmonized and non-discriminatory manner. The auctioning process should be predictable, particularly regarding the timing and sequencing of auctions and the estimated volumes of carbon allowances to be made available. An open consultation of stakeholders on all relevant aspects is planned for later this year.

Conclusions

The EU ETS is now in its fifth year of operation, and has proven that a cap and trade system for greenhouse gases functions. It has created a European carbon market and it provides a fixed cap of emissions, together with an economic incentive to reduce emissions. The cap has been set for many years ahead, ensuring both regulatory stability for the carbon market and that emissions are being reduced annually until 2020 and beyond.

The EU ETS directive has already put in place all the measures needed in case the EU will decide to tighten the cap following an international climate change agreement.

The considerable share of carbon allowances auctioned in phase 3 will generate tens of billions of Euro in income for Member States. These funds can and should be used

in part for climate change mitigation and adaption. The auctions will be conducted in an open and transparent manner to ensure no distortion of the carbon market.

The costs for involved companies are contained by allowing for the use of Clean Development Mechanism (CDM) credits (a form of UN-based international offsets). Over time, the CDM should increasingly be superseded with a sectoral crediting mechanism, as major developing countries transition to cap and trade. The incentive for abatement action in developing countries could be strengthened considerably if other developed nations pursued a similar approach as regards the recognition of international offsets / credits in their respective cap-and trade legislation.

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