

EN

EN

EN



EUROPEAN COMMISSION

Brussels, 26.5.2010  
COM(2010) 265 final

**COMMUNICATION FROM THE COMMISSION  
TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN  
ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE  
REGIONS**

**Analysis of options to move beyond 20% greenhouse gas emission reductions and  
assessing the risk of carbon leakage**

{SEC(2010) 650}

## 1. INTRODUCTION

When the EU decided in 2008 to cut its greenhouse gas emissions, it showed its commitment to tackling the climate change threat and to lead the world in demonstrating how this could be done. The agreed cut of 20% from 1990 levels by 2020, together with a 20% renewables target, was a crucial step for the EU's sustainable development and a clear signal to the rest of the world that the EU was ready to take the action required. The EU will meet its Kyoto Protocol target and has a strong track record in climate action.

But it has always been clear that action by the EU alone will not be enough to combat climate change and also that a 20% cut by the EU is not the end of the story. EU action alone is not enough to deliver the goal of keeping global temperature increase below 2°C compared to pre-industrial levels. All countries will need to make an additional effort, including cuts of 80-95% by 2050 by developed countries. An EU target of 20% by 2020 is just a first step to put emissions onto this path.

That was why the EU matched its 20% unilateral commitment with a commitment to move to 30%, as part of a genuine global effort.<sup>1</sup> This remains EU policy today.

Since the EU policy was agreed, circumstances have been changing rapidly. We have seen an economic crisis of unprecedented scale. It has put huge pressure onto businesses and communities across Europe, as well as causing huge stress on public finances. But at the same time, it has confirmed that there are huge opportunities for Europe in building a resource-efficient society.

We have also had the Copenhagen summit. Despite the disappointment of failing to achieve the goal of a full, binding international agreement to tackle climate change, the most positive result was that countries accounting for some 80% of emissions today made pledges to cut emissions, even though these will be insufficient to meet the 2°C target. It will remain essential to integrate the Copenhagen Accord in on-going UNFCCC negotiations. But the need for action remains as valid as ever.

The purpose of this Communication is not to decide now to move to a 30% target: the conditions set are clearly not met. To facilitate a more informed debate on the implications of the different levels of ambition, this Communication sets out the result of analysis into the implications of the 20% and 30% targets as seen from today's perspective. It also covers the issue of carbon leakage, in the context of the Directive on the Emissions Trading System (ETS)<sup>2</sup> to come forward with an analysis in the light of the outcome of the Copenhagen Conference by June 2010. It is accompanied by more detailed technical analysis of these issues, set out in staff working papers.

---

<sup>1</sup> The European Council in December 2008 confirmed "the European Union's commitment to increasing this reduction to 30 % within the framework of an ambitious and comprehensive global agreement in Copenhagen on climate change for the period after 2012 on condition that the other developed countries undertake to achieve comparable emission reductions and that the economically more advanced developing countries make a contribution commensurate with their respective responsibilities and capabilities".

<sup>2</sup> Directive 2009/29/EC.

## 2. THE 20% TARGET TODAY

The baseline for assessing what the 30% target might mean must be to analyse what the 20% target implies today. Not surprisingly, the economic crisis has had a major impact on the assumptions made when the 20% was agreed. But its impact has worked in different ways.

### *The economic crisis and the challenge of meeting the 20% target*

Between 2005 and 2008, the EU cut its emissions from 7% to 10% below 1990 levels<sup>3</sup>. So when the crisis hit, stepped up climate action and high energy prices had already led to an acceleration in EU emission reductions.

The crisis brought an immediate further reduction. Verified emissions in the ETS in 2009 were 11.6% below 2008 emissions. Carbon prices fell correspondingly, with a drop in early 2009 from some €25 to €8 per tonne of CO<sub>2</sub>.<sup>4</sup> But the fall in carbon prices has shown how the impact of the ETS on companies and consumers can also adapt to changing economic circumstances.

This one-off reduction in emissions meant that in 2009, the EU emitted around 14 % less greenhouse gases than 1990. But, of course, as production recovers in energy-intensive industries like steel, this rate of reduction cannot be simply extrapolated into the future.

However, the absolute costs of meeting the 20% target have fallen. In the analysis presented in 2008 underpinning the climate-energy package, based on the expectation of continued economic growth, the costs of reaching the target were estimated as at least €70 billion per annum in the year 2020<sup>5</sup>. Today, the analysis also takes account of the recession<sup>6</sup>. The price tag is now estimated at €48 billion (0.32% of GDP in 2020). This represents a reduction of some €22 billion, or 30% less than expected 2 years ago. Nevertheless, this reduction in absolute costs comes in the context of a crisis which has left businesses with much less capacity to find the investment needed to modernise in the short run, and great uncertainty over how long it will take to recover. The lower cost of the climate and energy package today is due to the interplay of several factors. Firstly, lower economic growth has effectively reduced the stringency of the 20% target. Secondly, the rise in oil prices<sup>7</sup> proved an incentive to improve energy efficiency: energy demand has fallen. Thirdly, the carbon price is likely to remain lower as allowances not used in the recession are carried forward into the future.

The flexible architecture of the ETS means that the impact of the crisis will have consequences lasting several years. With many allowances unused during the crisis, companies will be able to carry over some 5-8% of their allowances from the 2008–2012 period into the third phase of the ETS (2013-2020). In addition, the achievement of renewable

---

<sup>3</sup> Data based on MS inventories, without LULUCF, but with aviation included.

<sup>4</sup> Since then, the carbon price has edged up to €12-15.

<sup>5</sup> These figures represent an additional energy cost, not a reduction of GDP. It includes additional investments needed, as well as energy savings. It does not include air quality benefits.

<sup>6</sup> In the analysis presented in 2008, EU GDP over the period 2005-2020 was assumed to grow yearly at an average rate of 2.4%. In this updated analysis, this average yearly growth over the same period has decreased to 1.7%. For more information see table 4 of Part II of the Staff Working Document (SEC(2010) 650) accompanying this Communication.

<sup>7</sup> The estimated oil price in the 2007 baseline was 66\$ per barrel in 2020, while in the new baseline it is 88\$.

energy targets and efficiency measures reduce emissions further. The result will be a carbon price well below the projections made in 2008<sup>8</sup>.

In the “effort sharing sectors”<sup>9</sup>, not covered by the ETS, a similar picture emerges with different levels of reductions in different sectors. Through meeting the renewables target and energy efficiency measures already under way, appropriate incentives will be required to meet the overall EU target of a 10% reduction compared to 2005 for the sectors not covered by the ETS.

At the same time, the crisis has put heavy pressure on the EU economy. Businesses today are squeezed by depressed demand and the challenge of finding sources of funding. With a lower carbon price, government revenue from auctioning could also be halved, adding to pressure on public finances and reducing another potential source of public funds available for climate purposes. The requirement has not gone away to find the investment needed in areas like electricity, heating, and transport to reach the agreed 20% renewable energy target.

### *The green technology revolution*

There is now a widespread consensus that the development of resource-efficient and green technologies will be a major driver of growth. As countries worldwide sought to boost their economies in the crisis through stimulus packages, there was a clear pattern of investment being directed towards infrastructure for less polluting transport modes, such as public transport, intelligent traffic management systems (ITS), low-carbon energy production, smart electricity grids and clean transport- and energy-related R&D. Signs of the transition towards a low carbon economy are emerging across the world, with countries attracted to the greener option also because of its potential to create large numbers of new jobs.

In the EU, the Europe 2020 programme has at its core the conviction that Europe's industrial base needs to reorientate towards a more sustainable future and to seize the opportunities provided by Europe's early investment in green technology. But this potential to lead cannot be taken for granted.

The reality is that global competition is fierce. Europe's automobile sector is in the vanguard of efforts to cut CO<sub>2</sub> emissions of new cars. 17% of all new cars sold in 2008 in the EU emitted less than 120g/km, and for some Member States the market share of such cars was already above 25%. In 2009 car fleet renewal schemes have further enhanced this. But similar progress is being made by other manufacturers, leapfrogging towards hybrid and electric vehicles.

In energy, renewables accounted for 61% of new electricity generating capacity in the EU in 2009. But Europe's lead is challenged. The 2010 Renewable Energy Attractiveness Index now cites US<sup>10</sup> and China as the best investment opportunity for renewable energy. The US is aiming to double its renewable energy generation by 2012. In 2009, China topped the global

---

<sup>8</sup> The Impact Assessment projected a carbon price of some €32 (2008 prices) in the ETS, in case of full implementation of the package (including renewables policies and maximum use of international credits). New projections show a carbon price of €16 in 2020 (including renewables policies to meet the 20% target, without necessitating international credits).

<sup>9</sup> The Effort Sharing Decision (Decision No 406/2009/EC) covers all emissions from sectors not covered by the ETS, such as road transport, heating, agriculture (excluding LULUCF) and waste.

<sup>10</sup> In particular those States with renewable portfolio standards.

league table for wind power installation. Chinese and Indian wind turbine manufacturers now appear in the top ten. China and Taiwan now produce most of the world's PV panels. This at a time when the lower cost of basic materials, improved efficiencies and increased productivity has seen the price of PV modules halved in just a few years. These industries are rapidly becoming global players.

A further reason for needing change is energy security. Despite a blip in 2009, energy consumption continues to rise. The International Energy Agency has warned that, by 2015, oil supply could face difficulties to keep abreast with increasing demand, leading to further increases in oil prices, potentially stifling renewed economic growth. Domestically-sourced energy like renewable energy brings major benefits in terms of reduced reliance on imports.

So Europe needs to boost still further the incentives to develop these industries at home. However, as stimulus packages are phased out and an era of tight public spending begins, the incentives are being reduced. Other drivers exist, such as the target for renewable energy, product standards for energy-efficient products and vehicles and green public procurement. But the 20% target was always seen as a critical force for modernisation. Investment in options like carbon capture and storage (CCS) is heavily dependent on the price signal delivered by the carbon market. A lower carbon price acts as a much less powerful incentive for change and innovation.

#### *Increasing divergence from a 2°C trajectory after 2020*

To reach the goal of staying under a 2°C temperature increase requires reductions of 80-95% by 2050 for developed countries, compared to 1990<sup>11</sup>. Even if some of this could be accounted for by EU efforts outside its borders, an initial estimate indicates the EU's own domestic emissions would have to fall to roughly 70%. The trajectory agreed in 2008 would bring the EU's domestic emissions down to -20 % by 2020 and, if continued unchanged, up to -25 % in 2030. This is not enough to take the EU to its 2050 level of ambition at optimal cost. If action is delayed, the EU, as well as our global partners, would have to catch up after 2020. For example, the IEA has estimated that at the global level, every year of delayed investment on more low-carbon energy sources adds €300-400 billion to the price tag.<sup>12</sup> Therefore, a long-term roadmap to 2050 is needed in order to plan investment ahead in the most cost-effective way.

Therefore, there is a risk that, with the 20% target by 2020 now driving change less strongly than expected in 2008, the task for the EU after 2020 will become more difficult and more expensive.

### **3. AN ANALYSIS OF THE 30% TARGET**

The changing circumstances that have had such an impact on the 20% target also underline the need for a careful analysis of the 30% target. The economic consequences of the 30% target for the EU must be clear. Going beyond 20% would in all probability entail increasing

---

<sup>11</sup> Reaching the goal of staying under a 2°C temperature increase will also require developing countries as a group, in particular the more advanced among them, to achieve a substantial and quantifiable deviation below the currently predicted emissions growth rate, in the order of 15 to 30% below business-as-usual by 2020.

<sup>12</sup> World Energy Outlook 2009, estimate: US \$ 500 billion.

the stringency of existing policies or introducing new policies. The question arises, therefore, what these new policies might be, which existing policies might be made more stringent, and how this stringency might be increased.

The options below are among those which could be considered by the EU if and when the decision is taken to step up to the 30% target.

### **3.1. Possible options to reach the 30% target**

#### *Options inside the Emissions Trading System*

As the primary tool to drive emission reductions, the ETS should be the starting point for options for going beyond 20%.

- *Recalibrating the ETS by "setting aside" a share of the allowances planned for auction* – Should a political decision be taken to increase the emission reduction target, the ETS could make its main contribution to a stepped up target through a gradual reduction of the allowances auctioned. A tighter ETS cap would raise the level of environmental achievement and would have the effect of strengthening the incentive effect of the carbon market. Reducing auctioning rights by some 15% over the whole period 2013-2020, representing some 1.4 billion allowances, could be sufficient. Projections suggest that auctioning revenue might increase by around a third, because carbon prices are expected to increase by more than the reduction of allowances auctioned. How Member States use the new revenue from auctioning will be important in terms of investing in low carbon solutions for the future.
- *Rewarding fast movers that invest in top performing technology* - The benchmarking system provides an opportunity to identify those who make rapid progress in improving performance and to reward them with extra unallocated free allowances. This would be a way to release extra finance to companies ready to innovate.

#### *Technological options*

Regulation can contribute to reaching more ambitious climate targets, particularly by encouraging energy and resource efficiency. This can come through product standards, such as the measures taken under the Eco-design Directive<sup>13</sup> and limits of CO<sub>2</sub> emissions from vehicles<sup>14</sup>, and implementation of the Digital Agenda<sup>15</sup>. Smart grids can help change consumer behaviour, increase energy efficiency and enable a higher penetration of renewable energy. Smart meters for example, have been estimated to pay for themselves in less than 4 years through increased productivity, as a result of increased customer awareness and energy price signals.

#### *Carbon taxes*

The introduction of taxes that target CO<sub>2</sub> emissions in sectors not covered by the ETS represents a straightforward market-based instrument to incentivise lower emissions at

---

<sup>13</sup> Directive 2005/32/EC.

<sup>14</sup> Regulation (EC) No 443/2009.

<sup>15</sup> COM(2010) 245.

national or European level. Calibrating the tax system for fuels or products to reflect the CO<sub>2</sub> component is one of the options some Member States already apply, for instance to exploit the large reduction potential in heating, reduce the carbon intensity of the car fleet, and increase transport efficiency. The analysis indicates that this could make an important contribution to meet stepped up targets, and, depending on the level and the application range, generate considerable revenues for Member States, which could be used for low carbon investments in order to create local green jobs, and allow for "greener" public procurement, such as provided for by the Directive on the Promotion of Clean and Energy Efficient Road Transport Vehicles<sup>16</sup>.

#### *Using EU policies to drive emission reductions*

The EU could continue to encourage Member States, regions and cities to step up low-carbon investment by directing a greater volume of cohesion policy funding towards green investments. This would accelerate the existing trend to use cohesion funds more effectively to boost renewable energy, energy efficiency, and the promotion of public transport. It would also provide an alternative to the use of surplus Assigned Amount Units (AAUs) as a source of funding, which undermines the environmental integrity of the carbon market.

Significant energy saving possibilities remain unused due to many market and regulatory barriers. An enhanced energy efficiency policy framework would make an important contribution to move beyond the 20%.

Land use, land use change and forestry (LULUCF) activities were not included in the 2008 climate and energy package, but have potential for additional emission reductions. Also maintaining and restoring natural carbon sinks is necessary to avoid further emission increases. Today, uncertainties in calculation<sup>17</sup> and volatility<sup>18</sup> make short term predictability of LULUCF activities – and their contribution to EU targets – difficult to assess. However, as the work continues to establish effective rules to govern these activities, they could over time provide a growing contribution to the mitigation effort through improved cultivation methods and forestry management. The Common Agricultural Policy could incentivise farmers and foresters to move towards more sustainable practices and make a greater contribution to emission reductions over time.

#### *Using the leverage of international credits*

The EU was first in recognising that efforts made outside its borders can stimulate private sector action. The Clean Development Mechanism (CDM) has led to several thousand projects worldwide, often making very cost effective reductions. But such initiatives now seem more appropriate for action by emerging economies themselves, and a generous and prolonged stream of such low-cost reductions into the EU ETS slows down innovation in the EU.

---

<sup>16</sup> Directive 2009/33/EC.

<sup>17</sup> e.g. because of lack of data or of agreed measuring techniques for carbon in forest and agricultural soils.

<sup>18</sup> Due to a large impact of variable weather conditions (e.g. storms affecting the standing stock of forests).

One way to improve the leverage of EU action would be to substitute part of the demand for CDM credits with new sectoral credits<sup>19</sup>. This would redirect carbon market finance towards actions with a greater potential for carbon reduction (e.g. in the power sector in advanced developing economies), and could be linked to schemes like a multiplier<sup>20</sup> for conventional CDM credits (e.g. industrial gas projects). This could deliver significant additional emission reductions in developing countries to contribute to the overall EU effort, while leaving at the same time greater room for continued CDM in Least Developed Countries (LDCs).

On maritime emissions, the EU will continue to pursue an international agreement through the IMO and the UNFCCC. As agreed under the climate and energy package, the EU will take steps to move forward if no such agreement has been agreed by 31 December 2011.

Significant progress has been made in Copenhagen on developing a robust international rulebook in order to accelerate the fight against the loss of tropical forests. Cooperation between developing countries with tropical forests, EU Member States and the Commission should be fostered. The EU could partially fulfil reinforced targets with international emission reduction credits that meet adequate standards of environmental integrity.

### **3.2. The challenge of reaching the 30% target**

The fact that the 20% is now more in reach than was assumed in 2008 has an obvious knock-on effect on the challenge of meeting a 30% target. In absolute terms, the €70 billion price tag in 2020 as estimated in early 2008, would be sufficient today to take the EU more than half way towards stepping up from 20% to 30%, although in a situation where the EU economy is more constrained.

The additional total costs for the EU to step up from the current 20% to 30% are estimated to be around €33 billion in the year 2020, or 0.2% of GDP. In order to achieve this 30% reduction, it is estimated that the carbon price in the EU ETS would amount to some €30 per tonne of CO<sub>2</sub>, which is similar to the level estimated to be necessary to meet the 20% reduction target in 2008. Domestic emissions would reduce to -25% compared to 1990 with the remaining being covered by banked allowances and international credits<sup>21</sup>.

The total cost of a 30% reduction, including the costs to go to 20%, is now estimated at €81 billion, or 0.54% of GDP<sup>22</sup>.

Recalling that in early 2008, the cost of the climate and energy package was estimated to be €70 billion, or 0.45% of GDP in 2020. Therefore, going to the 30% reduction target represents an increase of €11 billion compared to the absolute costs of the climate and energy package in 2020 as projected in 2008.

---

<sup>19</sup> Art.11.a(5) of the ETS Directive (2009/29/EC) contains the legal basis for the Community to conclude agreements with third countries for the provision of sectoral credits in the event that the negotiations on an international agreement on climate change are not concluded by 31 December 2009.

<sup>20</sup> A multiplier of e.g. 2 for 1 would mean that for every tonne emitted in an ETS installation, two tonnes of CDM credits would have to be surrendered. In this way every CDM credits used to cover a tonne emitted in Europe would as a by-product result in another tonne reduced in a developing country.

<sup>21</sup> As available under existing legislation.

<sup>22</sup> Cost estimate includes the achievement of the 20% renewables target.

But while costs clearly have decreased, the reduced profitability of companies, spending power of consumers, and access to bank loans has reduced the ability of the EU economy to invest in low carbon technologies: a legacy of the crisis which can only be offset by the return of growth and proactive policies to prioritise growth in these sectors.

*Where would the extra burden fall?*

In terms of sectors, the analysis suggests that the greatest potential for emissions reductions comes from the electricity sector through a combination of improved demand-side efficiency and a reduction of carbon-intensive supply-side investments. A significant amount of ageing electricity generating capacity needs to be replaced in the coming decade, and doing this by low-carbon solutions represents an important opportunity to reduce emissions. As for industrial sectors in the ETS, some have a significant cost-effective potential (e.g. refineries). In the "effort sharing sectors", households and services are important to reduce CO<sub>2</sub> emissions, mainly from heating. In the agricultural sector, experience in some Member States suggests that there may be further potential for reducing methane and nitrous oxide emissions in intensive farming, although the costs must be carefully evaluated.

As regards the geographical distribution, the emission reduction potential for moving from 20% to a 30% target is proportionally higher in the poorer Member States. It will be necessary to mobilise the public and private financial resources to enhance emission reduction without jeopardising economic growth. The EU's cohesion policy is an important instrument in this regard.

The analysis further highlights that in relative terms the cost-effective split between efforts in the ETS and non-ETS sectors in the case of a 30% reduction target remains largely the same as for the 20% target. In the case of moving to a 30% target, in 2020, the ETS cap would be 34% rather than the current 21% below 2005 emissions, while the overall target for sectors not covered by the ETS would be 16%, rather than the current 10% below 2005 emissions.

The analysis in the accompanying staff working paper has been done at EU level. A potential move to 30% would require a decision on a specific mix of options on how to share the additional reductions. A detailed analysis of impacts at Member State level and economic sectors can only be on the basis of specific options.

### **3.3. Other implications of the 30% target**

The realisation of a 30% target cannot be seen in isolation. Alongside achievement of the 30% target itself, there will be a variety of other consequences.

One would be to restore the incentives for innovation lost by the easing of the 20% target. This is particularly important because low carbon technologies tend to be more labour intensive than conventional sectors, and also increase energy security. Achieving a 30% reduction target reduces imports of oil and gas by some €40 billion in 2020, at an assumed oil price of US\$ 88 per barrel in 2020. Instead, investment would be geared to promoting green jobs in low carbon technologies in the EU, such as a more energy efficient housing stock. Macro-economic analysis generally shows small overall effects on employment - although sectoral differences exist - but smart use of auctioning revenues or carbon taxes changes the picture. There will also be a need for both re-skilling and up-skilling, and education and trainings systems have to adapt to this challenges, as reflected in Europe 2020 strategy flagship initiative

The advantage of acting earlier rather than later contributes to significant long-term benefits for Europe's competitiveness, by maintaining a strong position in a rapidly growing global market for low carbon technologies.

Finally, there would also be benefits in terms of air quality. Achieving the 30% targets would mean less pollution control equipment would be needed for the reduction of other pollutants like particulates, sulphur dioxide and heavy metals so that the costs of reaching the objectives of the Thematic Strategy on Air Pollution would be reduced by around €3 billion in 2020. Improved air quality would bring additional health benefits, estimated between €3.5 to 8 billion in 2020<sup>23</sup>. These co-benefits are not included in the cost estimates of going to 30%.

#### **4. ASSESSING THE RISK FOR CARBON LEAKAGE**

One of the important considerations in EU climate policy is avoiding "carbon leakage". This concerns the risk that in the absence of sufficient global effort, domestic action leads to a shift in market share towards less efficient installations elsewhere, thereby resulting in increased emissions globally. There are, of course, many reasons for competitive advantages and disadvantages other than the costs of carbon, but the more competitor countries sign up to comparable levels of effort to cut emissions, the less the risk of carbon leakage. The climate and energy package recognised that the risk of carbon leakage had to be monitored, and put in place measures to counter it.

The fact that the carbon price has been lower than originally foreseen has consequences for the carbon leakage debate. In addition, due to the fall in emissions, energy-intensive sectors already in the ETS before 2013 are likely to end up with a very considerable number of unused freely allocated allowances at the end of the second period of the ETS in 2012, which can be carried over into phase three (2013-2020). This will put them into a comparatively better position when facing international competition compared with 2008 estimations.

The ETS legislation set out the need for a report by June 2010, to examine carbon leakage in the light of the outcome of the international negotiations. The fact that the UNFCCC negotiations continue, means that a definitive assessment is difficult. But an implemented Copenhagen Accord would clearly be a move in the right direction. All developed countries and the major developing countries – so the key competitors for the EU's energy-intensive industries – have for the first time officially promised to undertake actions to reduce emissions.

Impacts of EU's 20% target, when others implement their low pledges, are estimated to be less than 1%, with the organic chemicals, inorganic chemicals and fertiliser sectors hardest hit with production losses of respectively 0.5%, 0.6% and 0.7%. Only the sector "other chemicals" has an even higher impact of 2.4%. Compared to the EU's unilateral implementation of the 20% target, some EU energy-intensive sectors would actually be in a slightly better position, while for other sectors it would make no difference at all. Given the uncertainties related to the actual implementation of the Copenhagen Accord, the Commission considers that the measures already agreed to help energy-intensive industries – free allocation and access to international credits – remain justified at present.

---

<sup>23</sup> This will help realise the objectives of the Thematic Strategy on Air Pollution - COM(2005) 466.

### *Stepping up to 30%*

The macro-economic analysis shows that the incremental impact of stepping up the EU effort to 30% while the others remain at their low pledges in comparison to the current climate and energy package on the output of the EU's energy intensive industry would be limited, as long as the special measures for energy-intensive industry stay in place. Stepping up to 30% would entail extra estimated production losses of around 1% for the ferrous and non-ferrous metals, chemical products and other energy intensive industries compared to the 20% target. Impacts for the sectors of organic chemicals, inorganic chemicals, fertiliser and "other chemicals" increase to 0.9%, 1.1%, 1.2 and 3.5% respectively. The more that major trading partners implement their high-end pledges, the lower the risk of carbon leakage.

Evidence gained so far from the emissions patterns of energy-intensive industries is inconclusive, in particular as to the extent EU climate policy has triggered the relocation of economic activity outside Europe. On the one hand, the emissions of energy intensive sectors have significantly declined over the last years. Unused free allowances have been monetised. On the other hand, investment in low-carbon technology in energy-intensive sectors has strengthened their overall productivity.

There are cases where carbon leakage can have effects other than loss of competitiveness. For some Member States at the periphery of the EU with easy interconnection to countries outside the EU, there could be an impact on energy security. For example, this is the case for the Baltic States, given the unique situation of the Baltic electricity markets. This is one of the reasons why the ETS already provides for an optional and partial exemption from full auctioning for these countries. Investments in the transmission grid can help reduce the risk to electricity security. In addition, the Commission will closely monitor developments and will, if appropriate, take further measures with a view to enhancing energy security and providing a level playing field for competition on the electricity markets.

### *Options for addressing carbon leakage*

The main issue for carbon leakage is the competitive difference between the EU and third countries. There are, therefore, broadly three ways in which carbon leakage could, if it can be demonstrated, be tackled: by giving further support to energy-intensive industries through continued free allowances; by adding to the costs of imports to compensate for the advantage of avoiding low-carbon policies; or by taking measures to bring the rest of the world closer to EU levels of effort.

Given the uncertainties surrounding the Copenhagen pledges, stepping up to the 30% target could be accompanied by additional steps in this direction. These measures would also provide additional incentives for countries to engage more strongly in an international agreement.

The most obvious way to provide further help to level the playing field by action inside the EU is to maintain the free allocation of allowances.

As set out in the current legislation, there would also be an option of *including imports into the ETS*. Specific proposals have been formulated along the lines according to which international aviation activities has been included into the ETS. That would imply that allowances would have to be bought on the market to cover for the emissions of certain

imported goods. Similar proposals are also being discussed in the United States, and obviously it would be desirable for such initiatives to be taken together with such partners.

This raises broader issues about the EU's trade policy and its overall interest in an open trade system: a number of emerging economies have already signalled their concerns related to this issue and any system would have to recognise that developed and developing country mitigation efforts will not run at the same pace. Also the impact of increased costs of imported inputs for EU manufacturers needs to be considered. Such a measure could also potentially be circumvented by EU imports being delivered by the "cleanest" third country producers, while keeping "dirtier" production for their own domestic use.

The inclusion of imports *per se* into the ETS would need to be very carefully designed to ensure that it is fully compatible with WTO requirements. It could be hard to implement a system which sought to define in detail the carbon content of each individual category of goods, but such precision might be required: this suggests that the system could at best only be envisaged for a limited number of standardised commodities, such as steel or cement. Secondly, for each category of goods an average EU carbon content would have to be defined. This could become an administrative burden, and require agreement on such an average, likely to be a difficult and protracted process. Thirdly, it would seem challenging to verify the performance of individual installations in third countries without a highly sophisticated monitoring and reporting system in place at installation level.

There are different ways in which action by the EU could help to *bring low-carbon measures in other countries closer to EU levels*, closing the competitive gap for energy-intensive industries. These would help to remove any "free rider" effect or unfair competition from third countries.

For example, the EU should consider applying a more targeted approach to the nature and recognition of international credits in the ETS. Options are to reinforce efforts to move towards sectoral crediting based on ambitious crediting thresholds (except for the Least Developed Countries), and to restrict the use of CDM credits generated in energy-intensive sectors (e.g. steel, cement and aluminium) in third countries other than the Least Developed Countries. Consideration should also be given to enhance the environmental integrity of CDM credits from countries which are not participating adequately in international climate efforts. One promising option for such an enhancement would be to apply a multiplier, for instance requiring two CDM credits to be surrendered per tonne emitted in the ETS. These ideas could be embodied in bilateral agreements on sectoral crediting between the EU and a number of third countries – for example, the EU should engage in supporting a pilot for an EU/China sectoral crediting agreement on steel.

Other approaches would see more positive efforts by the EU to help partners to meet EU levels of climate action and close any potential competitive gap. For developing and emerging economies, this could include technology transfer. For more developed partners, the rapid development of an international carbon market covering, in the first place, the most energy-intensive sectors across the world, would remove the need for special measures to be taken.

## 5. CONCLUSION

Since the EU took its historic decisions on combating climate change in 2008, the economic crisis has brought some fundamental changes to the political and economic landscape of the EU's climate policy. The pressure on the EU economy is intense. The EU, however, remains deeply committed to action on climate change. Arresting the rise in global temperature remains one of the biggest challenges facing this generation. The EU has led the way in showing how concrete, effective measures can be taken to reverse the trend of increasing greenhouse gas emissions without adversely affecting economic growth. It will stay in the vanguard of global efforts with the implementation of the climate and energy package.

The implementation of policies to cut greenhouse emissions is acting as one of the key drivers for the modernisation of the EU economy, directing investment and innovation to sectors with huge potential for growth and employment in the future. As set out in the Europe 2020 strategy, it is one of the core themes in any credible strategy to build sustainable prosperity for the future.

This Communication has set out how changed global circumstances have impacted on the targets set in 2008. While the absolute costs of meeting a 20% target have been reduced, representing a welcome relief for businesses facing the uphill battle of recovery, it also represents a risk that the effectiveness of the 20% target as a motor for change diminishes. This all comes at a time of severe economic constraint, both for Governments and businesses.

Therefore, it is important to analyse the direct consequences of a possible move to a 30% target. A political decision to move to this target cannot be taken without consideration of the international context. At present the conditions set for stepping to 30% have not been met. In addition, such a decision also needs to be taken in full consciousness of the economic consequences at home. Both the international context and the economic analysis suggest that the EU should maintain the option for moving to a 30% target: we should be ready to act whenever the conditions are right to take this decision.

In the meantime, we need to strengthen efforts to work with our international partners, to push and encourage them so that we can achieve the level of ambition needed to put global efforts on track to secure the real limitation of climate change to which we are all committed.

The Commission will continue to monitor the situation, including the competitiveness of EU industry *vis-à-vis* its main international competitors, particularly those which have not yet taken convincing action to combat climate change. Furthermore, in the light of the evolving economic situation and the international negotiations, the Commission will further update its analysis to inform the continued discussions in the Council and the European Parliament on the content of this Communication.