

## **The Emissions Trading Scheme (ETS):**

### **The cornerstone of the EU's implementation of the Kyoto Protocol**

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The Kyoto Protocol entered into force on February 16th 2005. In Montreal, at the 11<sup>th</sup> Conference of the Parties to the UN Climate Convention in December 2005, all legal implementing rules have been adopted. Today more than 160 countries, representing over 90 percent of the world's population, are part of the "Kyoto family". The EU has been a strong supporter of the Kyoto Protocol, because in its view, it represents a promising start of a long term process of change in the worldwide production and consumption of goods and services. Perhaps the most important element of the Kyoto Protocol is the innovation of flexible policy instruments which call on market forces to reduce greenhouse gas emissions.

Since the negotiation of the Kyoto Protocol in 1997, the EU has been developing a quite comprehensive climate policy. The current status of the EU's emissions development will first be outlined in this contribution. Then the European Climate Change Program, an implementation programme that

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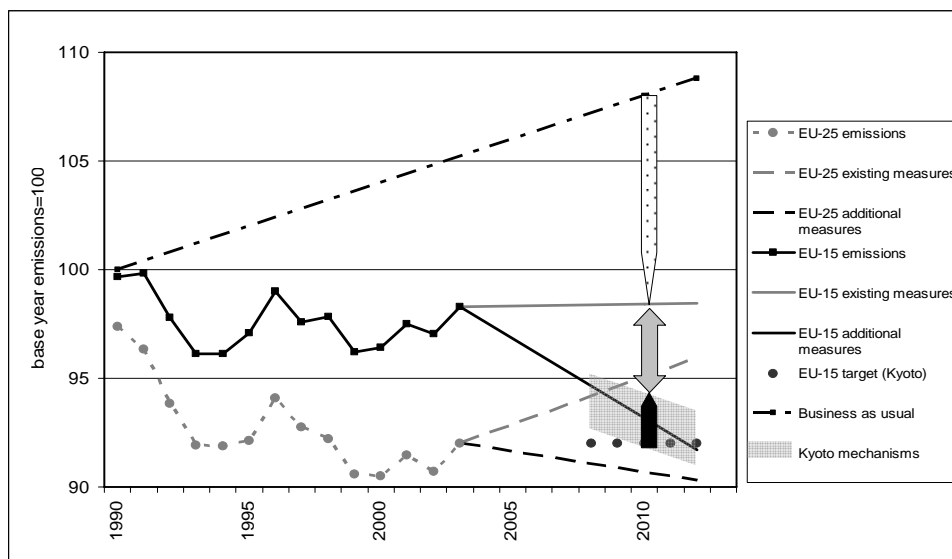
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started in 2000, is briefly explained. Finally, a first assessment on the European Emissions Trading Scheme (EU ETS) which entered into force on January 1<sup>st</sup> 2005, will be developed.

## 1. The EU's Kyoto Protocol commitments

The Kyoto Protocol commits the EU15 to have its emissions of greenhouse gases (GHGs) reduced by 8 percent by 2012, using 1990 emissions as a baseline. Graph 1 shows that the “business as usual” scenario, i.e. the case of absence of emission reduction policies, would end up in 2012 with emissions located some 8 percent above the 1990 baseline, instead of 8 percent below it. In other words, because of the strong relationship between greenhouse gas emissions and GDP growth, the EU faces an actual reduction of some 16 percent.

**Graph 1: EU's greenhouse gas emissions development since 1990**

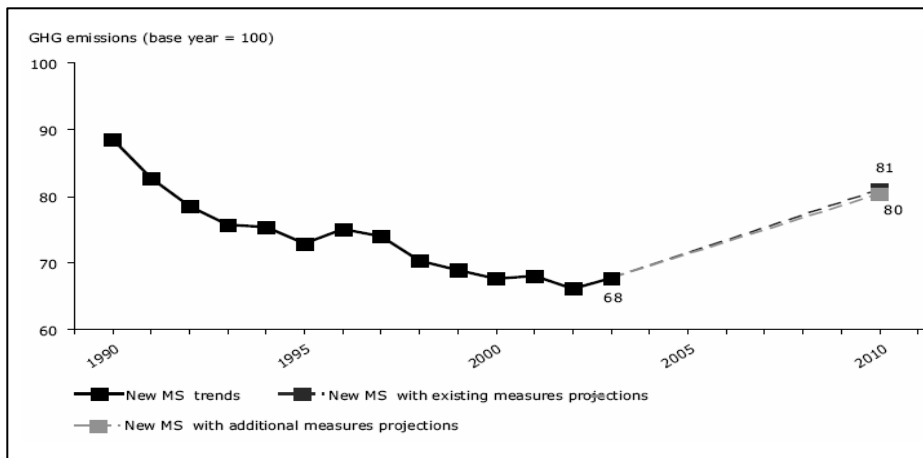


The solid black line in Graph 1 shows historical emissions since 1990, up to the latest figures of 2002. The erratic reductions and swings of the early 1990s reflect some important historical developments, in particular the

restructuring of the energy intensive industry in the former German Democratic Republic following the re-unification process and the switch from coal to gas in the UK. Today the EU15 is 2.1% below the 1990 level, which means that further measures are necessary to fill the remaining gap of some 6%. The graph shows that Member States have already identified such measures but they still need to go through the political process. The middle bidirectional arrow shows the contribution of identified domestic policies, while the lower upward arrow and the shadow area represents an estimate of the contribution of the intended use of flexible mechanisms, as reported by the Member States.

Graph 1 also shows that the overall development for the current EU, i.e. EU25, is significantly below the 1990 level. The 10 new Member States have their own targets under the Kyoto Protocol and therefore they are not covered by the 8% Kyoto Protocol target of the EU15, and thus by the so-called burden sharing agreement they decided on. (see Table 1 last column)

**Graph 2: Projected emissions in New Member States**

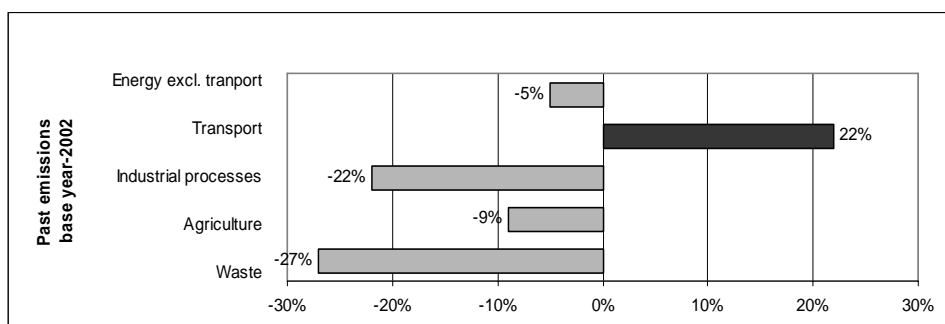


Graph 2 shows that the new Member States are significantly below their Kyoto targets, due to the intensive restructuring of their economies. However, it is likely that the high economic growth that is expected for the coming years will neutralise a significant part of this margin. Analysis however indicates that the new Member States will experience a

comprehensive renewal of their capital stock, and this will lead to a significant improvement of the carbon efficiency of their economies. On average indicators show that for example the energy efficiency of the 10 new Member States is only a quarter of the EU15's average. The increase in emissions that is expected for the 10 new member states is therefore much lower than what would be expected on the basis of their economic growth forecasts.

As indicated before, the shadow area in Graph 1 shows the expected role of the so-called Kyoto mechanisms, in particular the Clean Development Mechanism (CDM) and Joint Implementation (JI) schemes. This implies that the Kyoto Protocol offers the possibility of earning carbon credits through climate friendly projects outside the EU. EU Member States have already indicated that they plan to acquire extra certificates for at least some 500 Mio tonnes of CO<sub>2</sub> in the period 2008-2012. This obviously diminishes the reduction efforts that have to be undertaken on the EU's territory, but gives a boost to the transfer of climate friendly technology and emission reduction experience to non-EU countries. A welcome effect is that this improves the cost-effectiveness of the EU's climate policy and the liquidity on the EU's carbon market (see point 3).

**Graph 3: EU greenhouse gas emissions per sector, 1990-2002**



These aggregate projections however hide significant differences at the sectoral level. As set forth in Graph 3, the sectors of energy (excluding transport), industrial processes, agriculture, and waste have obtained significant emission reductions. The opposite however happened in services, households and in particular in transport. Increased emissions in the transport sector have effectively neutralized the progress made in other

sectors and more efforts will be necessary to counter that development. Sectoral forecasts indicate that even with quite ambitious measures, the EU may at best be capable of avoiding a further increase of the 2002 emissions.

## **2. The ECCP**

Today, a tremendous amount of promising technologies and managerial experiences exist to significantly reduce greenhouse gas emissions. However, there is no silver bullet, no single technology capable of reducing carbon dioxide emissions, and that is likely to remain the case for some decades ahead. The challenge is therefore to select those measures that can realise the required emission reductions in a cost effective way.

That is why the European Climate Change Program was set up in 2000. It started with a screening of a wide-ranging list of measures in the field of energy, transport and industry. Table 1 shows that it resulted in a number of directives to achieve energy efficiency in buildings, the promotion of combined heat and power plants, the promotion of electricity from renewables, biofuels for transport and measures to limit the use of fluorinated gases. Another example has been a voluntary commitment of the car manufacturers to improve the CO<sub>2</sub> efficiency of new cars by some 25 percent between 1995 and 2008. Also, an energy labelling system has been created that informs consumers on the energy performance of most important household equipment and which has resulted in accelerated market transformation for these products. Concerning waste, significant reductions in methane were reached resulting from reduced landfilling of biodegradable waste as well as from improved management methods for landfills.

The EU adopted a regulation on the substitution of fluorinated gases – which are sometimes up to 20,000 times more damaging in terms of climate change than CO<sub>2</sub> – i.a. for their use in automobile air conditioners. The Council is about to finalise a directive on energy services and on energy using products. Equally a change in the taxation of passenger cars is being discussed by the EU's finance ministers, with the objective to reschedule annual circulation and registration taxes so that CO<sub>2</sub>-friendly vehicles become more attractive to the consumer.

As indicated, emission reductions in the transport sector are particularly difficult to realise. Despite that, the EU is considering adjusting charges in

the transport sector for infrastructure use, beyond what is currently agreed in the context of the Eurovignette Directive. Today charges are in force for trucks in Germany, while at a city level successful experiments are being undertaken in London and Stockholm.

**Table 1: The European Climate Change Programme – key measures**

Measure	Reduction potential (Mt CO <sub>2</sub> -eq.) EU-15, 2010	Entry into force	Starting to deliver
EU emission trading scheme	-	2003	2005
Link JI/CDM to emission trading	-	2004	2005/2008
Dir. on the promotion of electricity from renewable energy sources	100-125	2001	2003
Dir. on the promotion of CHP	65	2004	2006
Dir. on energy performance of buildings	35-45	2003	2006
Dir. on the promotion of transport biofuels	35-40	2003	2005
Landfill directive	40	1999	2000
ACEA/JAMA/KAMA voluntary commitment	75-80	1998	1999
Energy labelling directives	20	1992	1993
Biomass action plan	-	2005	2006

### 3. The EU ETS

Out of the long list of measures, there is one that we single out as a flagship measure - the Emissions Trading Scheme. Under this scheme, companies operating large installations in the industry and the power sector must cover their carbon dioxide emissions by allowances. These allowances can be traded across the EU. The measure is result-oriented since companies - not governments - decide on how to reduce their carbon dioxide emissions. If companies manage to emit less than they're allowed to, they can sell allowances in excess to those who think it is more efficient to buy extra allowances on the market than to make costly energy efficiency investments. It is important to note that the Emission Trading Scheme differs from the Kyoto Protocol in a significant way: the European scheme is based on company actions, while the Kyoto approach is based on government actions.

The EU Emissions Trading Scheme has been developed to be flexible with other mechanisms. For example, Kyoto Protocol instruments, such as the Joint Implementation and Clean Development Mechanisms (JI/CDM) credits, comply with the ETS. This is an important incentive for the transfer of climate friendly technology to developing countries and economies in transition. Moreover, an article of the Directive provides additional mechanisms to link up with similar schemes by other states. This is an open invitation to other industrialised nations that have ratified the Kyoto Protocol. In a longer term perspective, many are hoping that the EU ETS could be extended to the United States, from whom the EU has learned valuable lessons concerning the successful sulphur trading program.

Table 2 presents the allocation data for the first trading period (2005 to 2007) in Europe. The system covers approximately 11,500 installations in the power and industrial sector, representing 40 percent of the carbon dioxide emissions of 2002. The allocations amount to 2.2 billion tons of carbon dioxide per year. Note that Germany, the UK, Poland and Italy are the most important contributors to the scheme, as they represent more than half of the total amount of allowances. All installations covered are monitoring their emissions under scrutiny of independent verifiers.

**Table 2: Distribution of allowances under the ETS**

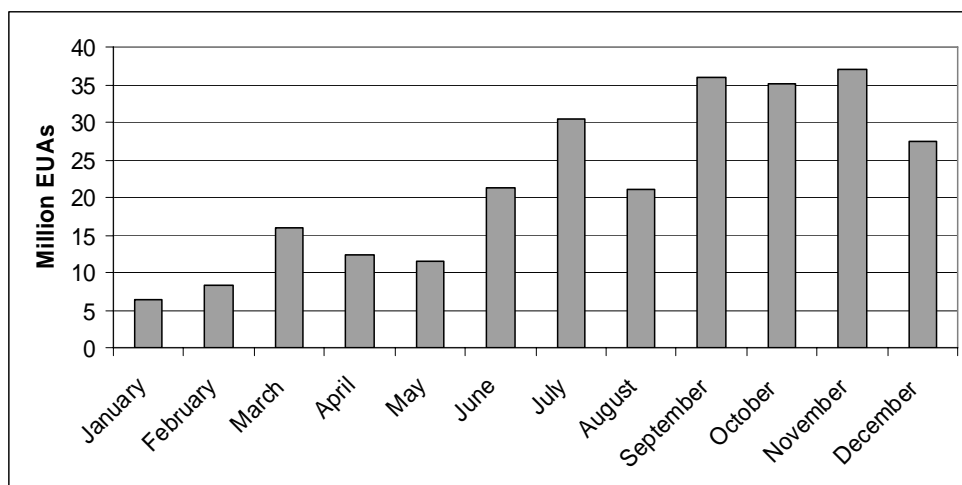
Member State	CO <sub>2</sub> allowances in mio. tonnes	Share in EU allowances	Installations covered	Registry functional (as of 01.04.06)	Kyoto target
Austria	99.0	1.5 %	205	Yes	-13%
Belgium	188.8	2.9 %	363	Yes	-7.5%
Czech Republic	292.8	4.4 %	435	Yes	-8%
Cyprus	16.98	0.3 %	13	No	-
Denmark	100.5	1.5 %	378	Yes	-21%
Estonia	56.85	0.9 %	43	Yes	-8%
Finland	136.5	2.1 %	535	Yes	0%
France	469.5	7.1 %	1,172	Yes	0%
Germany	1,497.0	22.8 %	1,849	Yes	-21%
Greece	223.2	3.4 %	141	No	+25%
Hungary	93.8	1.4 %	261	Yes	-6%
Ireland	67.0	1.0 %	143	Yes	+13%
Italy	697.5	10.6 %	1,240	Yes	-6.5%
Latvia	13.7	0.2 %	95	Yes	-8%
Lithuania	36.8	0.6 %	93	Yes	-8%

Luxembourg	10.07	0.2 %	19	No	-28%
Malta	8.83	0.1 %	2	No	-
Netherlands	285.9	4.3 %	333	Yes	-6%
Poland	717.3	10.9 %	1,166	No	-6%
Portugal	114.5	1.7 %	239	Yes	+27%
Slovak Republic	91.5	1.4 %	209	Yes	-8%
Slovenia	26.3	0.4 %	98	Yes	-8%
Spain	523.7	8.0 %	927	Yes	+15%
Sweden	68.7	1.1 %	499	Yes	+4%
United Kingdom	736.0	11.2 %	1,078	Yes	-12.5%*
<b>Total</b>	<b>6,572.7</b>	<b>100.0 %</b>	<b>11,536</b>	<b>20 in op.</b>	

The scheme has been operational since January 1st 2005, and since then both a spot and a forward market have arised. Although the allocation for the first period has been finalised by all Member States, 5 national registries are still to be connected to the Community Independent Transaction Log. This has however not compromised a smooth functioning of the scheme during the first year.

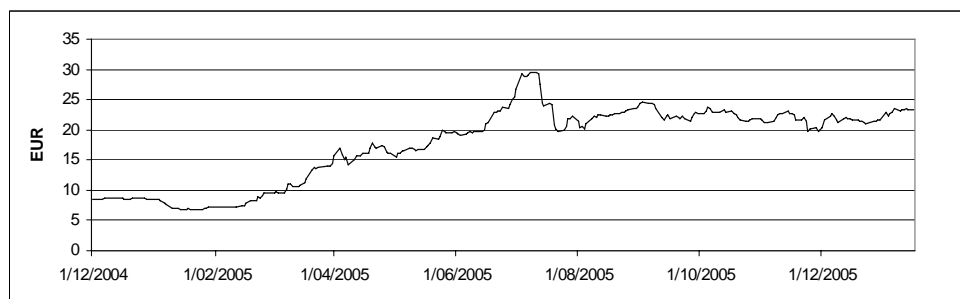
Graphs 4 and 5 give an overview for the year 2005 of the volumes traded and the corresponding prices. During the 2<sup>nd</sup> half of the year, the monthly volume regularly went beyond 30 Mio EUA (= EU Allowances, with 1 EUA = 1 ton CO<sub>2</sub>). The price level shows a steady increase from 6€ in January to a peak of 30€ in July; for the 2<sup>nd</sup> half of the year prices fluctuated around 22/25€. It can be concluded that the market is active and quite stable. Although the volume is still low, the liquidity is growing fast, and the experience of market operations with the new market-based instrument seems to be generally positive.

**Graph 4: Volumes traded in EU ETS in 2005 (in million EUAs)**



*Source: Point Carbon*

**Graph 5: Price-development of EU ETS allowances in 2005 (EUA closing prices in €)**



*Source: Point Carbon*

A key element in this smooth take-off has been the considered role of the public authorities. The Member States took an active role in the Climate Change Committee, an official body created by the ETS Directive that takes decisions under a qualified majority rule based on proposals from the European Commission. In the build-up to the scheme the Committee had to make important decisions, which it accomplished in an efficient manner. The Committee adopted monitoring guidelines, the registries regulation and

a limited number of opt-in and opt-out decisions. In a view of systematic monitoring of the practical experiences on the ETS, the Commission has maintained active discussions both with companies who are covered in the scheme and with brokers and market observers.

#### **4. The EU ETS in 2006**

The real life experience of the EU ETS over a full year has attracted a lot of attention, as the system represents a major novelty in the way the EU approaches environmental regulation. Based on the experience of market participants, lots of ideas and suggestions for improving the system have already been made.

The ETS Directive has created a tight schedule for preparing the first Kyoto period, namely 2008-2012. Member States have to submit their national allocation plans by June 2006, and in view of that the Commission has issued a new guidance document. The major point made is the necessity to bring the overall allocation for the 2<sup>nd</sup> period in line with the Kyoto commitments of the Member States as several of them risk finding themselves in non-compliance in 2012. The Commission also found it necessary to insist on a much more transparent way of developing the plans, and submitted therefore a number of standard tables and sheets. Finally the message was given that the plans need to be developed in a much simpler way, in order to bring an end to the use of concepts that the legislator did not want to incorporate into the Directive.

The ETS Directive also foresees a Review process which is likely to lead to amending the Directive itself. Such an amendment, however, needs to be adopted by the co-decision procedure between the European Parliament and the European Council, based on a proposal of the Commission. As this normally takes at least 2 years, followed typically by another year for transposition by Member States, this amendment can not be operational before the start of the Kyoto Period on January 1<sup>st</sup> 2008. The likely date of implementation of such a modification of the Directive is therefore January 1<sup>st</sup> 2013.

The Review process will be started formally in the spring of 2006. One issue that certainly will receive a lot of attention is the question whether the inclusion of very small installations is not unnecessarily complicating the

workability of the system. Another issue is the widening of the scope of the system to more greenhouse gases such as N<sub>2</sub>O and methane, and to more economic sectors such as aluminum, chemicals, and transport. On the latter, the Commission already took the decision (in principle) to extend the system to the aviation sector. A newly created ECCP working group currently investigates the details of such an extension and should finalise its work in the 2<sup>nd</sup> half of 2006 at the latest.

The preparation of the Review will have to be solidly prepared, and that process should benefit from another year of real life experience with the EU ETS. On the price development of allowances, a major question being investigated is whether the recent significant increase of electricity prices in Europe can be attributed to the start of the EU ETS. The question should focus on price effects beyond what can normally be expected from a market-based instrument. In this context, two major elements need to be considered. Firstly, the start of the EU ETS coincided with the significant price increase on the markets for crude oil and natural gas. The relevance for the carbon market is that this led to an important modification of the price of coal relative to gas. Secondly, the liberalisation process of the European power market has lately been slowing down which is not helpful when a market based instrument such as the EU ETS is tagged on to it.

Apart from the need to undertake more profound analyses on the cause-effect relationship between the different elements of the energy and allowance markets, suggestions were already made to also embark on a fundamental review of the allocation process of the ETS Directive. In the latter context, many ideas have been raised, going from introducing a significant share of auctioning into the allocation process, over taxing of so-called windfall profits in the power sector due to its ability to pass through the opportunity cost of an allowance, to more centralised ways of allocating allowances based on more technical and objective elements.

The multitude of suggestions indicates that the Review process is only in its early days, and that a lot of analytical work still needs to be undertaken before the Commission will be able to submit a well prepared proposal to Council and Parliament.

## **Conclusion**

The EU ETS mechanism has worldwide significance, since it currently is the largest multinational cap and trade scheme that is developed to continue after 2012, i.e. beyond the timeframe of the Kyoto protocol. It is designed to be a tool for low-cost compliance and an incentive for investments into low-carbon technologies. Its first year of experience has been successful in those respects. The EU ETS can become a blueprint for a global system of emissions trading. The possibilities to link the scheme with other domestic schemes and the openness to use JI and CDM credits for intra EU compliance, are useful step stones towards the creation of such a global carbon market.

