

## Europe's Emissions Trading System: An Effective and Efficient Instrument for a Low-Carbon Economy\*

by Hans-Joachim Ziesing

### 1. EMISSIONS TRADING IN EUROPE – BACKGROUND

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 and came into force in 1994. Its main purpose is to stabilise »greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system« (UNFCCC 1992). The declaration came with no obligations attached and it took another five years before the Kyoto Protocol to the UNFCCC was adopted, in December 1997. The Kyoto Protocol contains the first agreement with binding commitments, creating two clusters of countries and making it mandatory in Article 3 that:

The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012. (Kyoto 1997)

With the ratification of the protocol by the Russian Federation, the minimum number of signatories was reached and the Kyoto Protocol came into force on 16

February 2005.

The Kyoto commitments cover the period 2008 to 2012 and are calculated with 1990 as base year. For some countries, future emissions growth was limited, while others agreed to an absolute reduction. The range lay between minus 8 per cent in most of the countries which committed themselves to quantified emission limitation or reduction (Annex B countries) and plus 10 per cent. The EU15 as a group committed itself to an 8 per cent reduction. To comply with this joint obligation, the Member States agreed to a differentiated »burden sharing«, with a broad range of commitments from minus 28 per cent in Luxembourg to plus 27 per cent in Portugal.

It soon became obvious that the trend of actual greenhouse gas emissions in the EU15 remained too high and that at least eleven out of the fifteen Member States fell far short of their agreed share of the stabilisation pact. The European Commission then pushed the idea that emissions trading should play an important role particularly in bringing the less well

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performing EU Member States back on track. Since then, the Commission has become the driving force in favour of emissions trading and has received support especially from the United Kingdom, the Netherlands and the Scandinavian countries. An intensive discussion started in 2000 with the »Green Paper on greenhouse gas emissions trading within the European Union« (EU 2000). In June 2000, the Commission launched the European Climate Change Programme (ECCP), which identified and developed all the necessary elements of an EU strategy to implement the Kyoto Protocol (EU 2001).

With Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (EU 2003) the preconditions for the beginning of emissions trading in 2005 had been created.<sup>1</sup> This Directive was supplemented in October 2004 by the so-called linking directive (EU 2004a), which allowed emissions savings from investments in project activities to be eligible for commitments under the Kyoto Protocol (Art. 6 on »Joint Implementation (JI)« and Art. 12 on »Clean Development Mechanism (CDM)«). This Directive applies to energy-intensive installations with activities specified in Annex I.

## 2. ESSENTIALS OF THE EU DIRECTIVE ON EMISSIONS TRADING

The goal of emissions trading is to reduce greenhouse gas emissions in the most cost-efficient way. The core of emissions trading is the »cap and trade« system. A »cap« or ceiling has to be fixed on the total amount of individual greenhouse gases that can be emitted by factories, power plants and other installations which are included in the EU emissions trading system (referred to as the EU ETS). Limitations on the total number of allowances available create scarcity and thus a market is established. Within the given cap, companies receive individual emission allowances which they can sell to or buy from one another as needed. Trading emission rights ensures that emissions are reduced where it costs the least to do so. If there are no caps there will be no trade! And if there is no trade there will be no price signals for business decisions made in a decentralised

way. The required price signal is a function of the reduction target and of the nature of the individual structural elements (Ziesing 2009).

The decision of a company to opt for a reduction of emissions at its own installations or to purchase emission allowances from others on the market depends solely on the price of emission allowances in relation to the internal marginal abatement costs. There are two cases:

- If the internal marginal abatement costs are lower than the allowances price, it is economically reasonable to implement emission reduction measures in their own installations instead of buying carbon credits.
- If the internal marginal abatement costs are higher than the allowances price, it is economically reasonable to buy carbon credits instead of implementing emission reduction measures in their own installations.

At the end of the year each company must relinquish enough allowances to cover all its emissions, otherwise heavy fines are imposed. As important as the amount of the excess emissions penalty is the fact that the payment of the penalty shall not release the operator from the obligation to relinquish missed allowances in the following year. This regulation guarantees that the operators will not be able to buy their way out of the obligation to comply. If a company reduces its emissions, it can keep the remaining allowances to cover its future needs or else sell them to another company that is short of allowances.

Basically, emissions trading is possible on a national level. However, it is important to note that the efficiency of an emissions trading system, as well as the liquidity in the market, depends to a considerable extent on the number of countries and companies involved. In the same way, it is important to maintain pressure by defining ambitious caps, as well as by reducing total allowances over time. This creates a mechanism to encourage invest in more energy-efficient and emission-friendly technology.

<sup>1</sup> For a survey of the legislative history of Directive 2003/87/EC see: [http://europa.eu.int/comm/environment/climat/emission/history\\_en.htm](http://europa.eu.int/comm/environment/climat/emission/history_en.htm)

### 3. EUROPEAN EMISSIONS TRADING, 2005 TO 2012

The EU ETS is the first international trading system for CO<sub>2</sub> emissions in the world and has been in operation since 2005. The first trading period from 2005 to 2007 was a »learning by doing« phase to prepare for the crucial second trading period. The second trading period began on 1 January 2008 and runs until the end of 2012. The second trading period coincides with the first commitment phase of the Kyoto Protocol, during which the EU and other industrialised countries must meet their targets to limit or reduce greenhouse gas emissions. For the second trading period EU ETS emissions have been capped at around 6.5 per cent below 2005 levels to help ensure that the EU as a whole and Member States individually comply with their Kyoto commitments (minus 8 per cent with regard to 1990 levels).

When it came into force in 1 January 2008, it applied to the 27 EU Member States and three members of the European Economic Area – Norway, Iceland and Liechtenstein – which joined voluntarily. The ETS currently covers over 10,000 installations in the energy and industrial sectors which are collectively responsible for close to half of the EU's emissions of CO<sub>2</sub> and 40 per cent of its total greenhouse gas emissions.

The EU ETS does not cover all greenhouse gases and sectors. Essentially, it is linked to CO<sub>2</sub> as the most important greenhouse gas and focuses on energy activities, the production and processing of ferrous metals, parts of the mineral industry and some other activities. The transport sector, as well as the residential and service sectors, are not (yet) included. However, an amendment to the EU ETS Directive agreed in July 2008 will bring the aviation sector into the system from 2012 (EU 2008).

Theoretically, auctioning as a market-oriented instrument is the most efficient and transparent method with regard to initial allocation. Auctioning allows market participants to acquire the allowances concerned at the market price. The result will be a uniform starting-price for subsequent emissions trading.

However, due to a lack of political acceptance at that time the ET Directive 2003/87/EC of October 2003 imposed tight limits on auctioning and stipulates that for Phase I (2005-07) Member States shall allocate at least 95 per cent of the allowances free of charge, whereas for Phase II the free of charge allowance shall still be 90

per cent (EU 2003). Therefore, auctioning could play only a very limited role. In contrast, the initial allocation of allowances for the periods 2005–2007 and 2008–2012 was free of charge. It was based either on historical CO<sub>2</sub> emissions in a reference period (»grandfathering«), announced emissions or specific benchmarks.

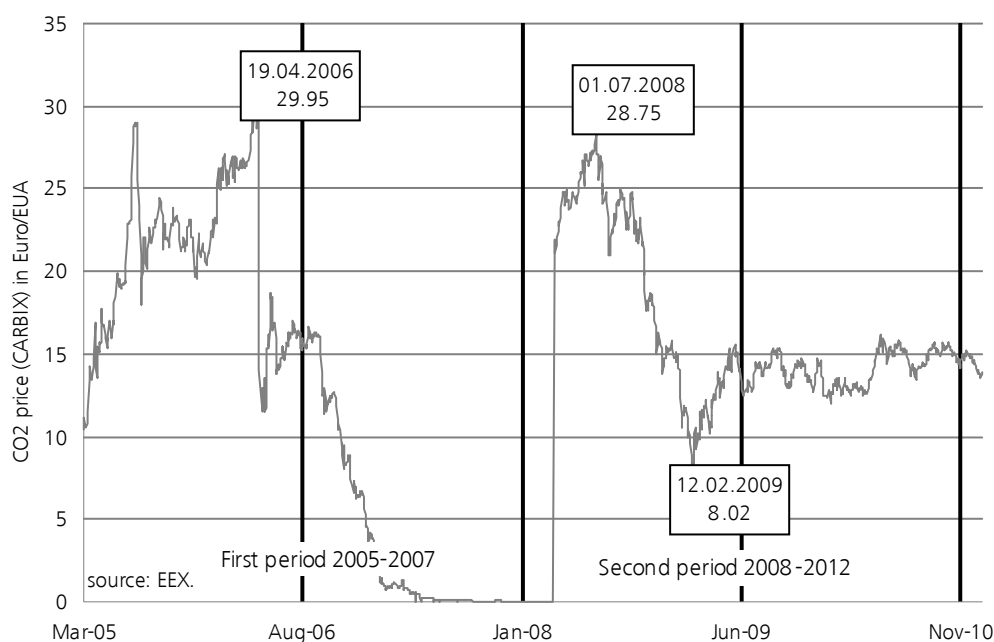
Most important for all the Member States in the first and second trading periods is Article 9 of the ET Directive. It calls for a national allocation plan stating the total quantity of allowances that it intends to allocate for that period and how these allowances are to be distributed to the installations subject to emissions trading according to Annex I of the ET Directive. The national plan must be based on transparent criteria and take due account of comments from the public. Overall, the member states have to show that their strategy is consistent with their obligations under the Kyoto Protocol.

Assessment is carried out by the European Commission which has the right to reject a national allocation plan. In this case the Member State may not proceed to implement the plan as it stands; in other words, the Member State may not allocate the number of allowances proposed. The Commission must declare the rationale behind each rejection decision. These reasons will guide the Member States on how to make plans compatible with the allocation criteria.

Emissions trading systems need clear monitoring and reporting systems to be efficient. The EU's guidelines for the monitoring and reporting of greenhouse gas emissions (MRG) were published on 29 January 2004 (EU 2004b) and became legally binding (EU 2007a). The Commission Decision containing the MRG is addressed to the Member States. Member States must ensure that the provisions of the monitoring guidelines are applied in the monitoring and annual reporting of greenhouse gas emissions of each of the installations covered by the EU trading scheme. The MRG thus provide the legally binding rules for the monitoring and reporting of greenhouse gas emissions within the EU ETS. Member States must choose the appropriate modalities to ensure that these rules are applied by the operators of installations covered under the EU ETS.

The MRG define »monitoring methodology« as the methodology used for the determination of emissions specifying how an operator of an installation will carry

**Figure 1: CO2 prices in Germany on the European Energy Exchange in the first and second periods of EU emissions trading, 2005-2007/2008-2012**



out the monitoring and reporting of CO2 emissions for that specific installation. This includes, among other things, the fuel and material streams to be monitored, a description of metering devices (location, technology, uncertainty), a detailed description of emission measurement systems (if applicable) and QA/QC procedures for monitoring and reporting (for example, for the processes of data collection and emission calculation). The approved documentation of the monitoring methodology is part of or connected to the permit of an installation. Once approved, the installation has to implement the monitoring of its greenhouse gas emissions in accordance with the approved »monitoring methodology«. This is checked by the verifier as part of the verification process.

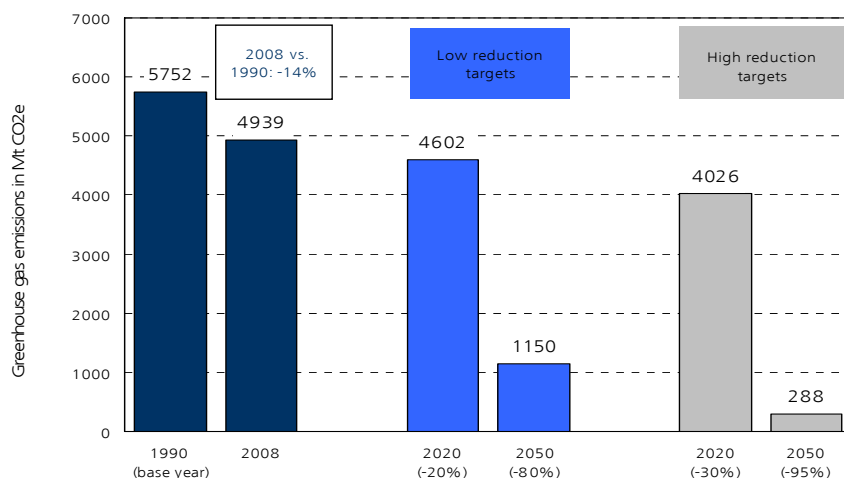
The first trading period (2005–2007) established the emissions trading system across the EU, putting in place the necessary infrastructure and developing a dynamic carbon market. The environmental benefit of the first phase may have been limited due to excessive allocation of allowances in some Member States and sectors. This was linked partly to the difficulties of relying on emission projections before verified emissions data became available. The publication of verified emissions data for 2005 in late April 2006 highlighted an »over-allocation«. As a result, the market reacted to the surplus by

lowering the trading price. There was a dramatic fall in CO2 prices from almost 30 euro/t CO2 to almost 10 euro/t CO2 in early May 2006. From March to December 2007, it was down to less than 1 euro, signalling that the carbon market had collapsed (see Figure 1). This experience demonstrates that an economically efficient emissions trading system is workable only when a cap is set at a level at which it creates significant and even increasing scarcity.

The availability of verified emissions data allowed the Commission to ensure that the cap on national allocations under the second phase was set at much lower levels, which resulted in real emission reductions. However, during the second phase, another over-allocation occurred in the wake of the economic crisis in 2008/2009 when companies were forced to reduce their production. This again resulted in a significant price decline, albeit at a much higher level of around 13 to 15 euro/t CO2 from mid-2009 to late 2010 (Figure 1).

Besides underlining the need for verified data, experience so far has shown that greater harmonisation is needed within the EU ETS to ensure that emissions reduction objectives are achieved at least cost and with minimal competitive distortions. The need for more harmonisation is paramount with regard to setting the cap on overall emission allowances.

The first two trading periods show that widely differing national methods for allocating allowances to installations threaten fair competition in the internal market. Furthermore, greater harmonisation, clarification and refinement are needed in respect of the scope of the system, access to credits from emission-reduction projects outside the EU, the conditions for linking the EU ETS to emissions trading systems elsewhere and the monitoring, verification and reporting requirements.

**Figure 2: Targets for the reduction of greenhouse gas emissions in the EU 27 by 2020 and 2050**

The experiences in the previous and the present trading periods demonstrate that it is possible to trade in greenhouse gas emissions and also that a multi-national emissions trading scheme can exist and work effectively and efficiently. Apart from this, past experience also illustrates that a further development of the trading system is necessary. In the EU, this will happen with the third trading period, starting in January 2013.

#### 4. A NEW EMISSIONS TRADING PERIOD: 2013–2020

##### European Long-term Energy Action Plan

In March 2007, the European Council adopted a comprehensive energy Action Plan for the period 2007–2009, with the following three precise and legally binding targets to be achieved by 2020 (Council 2007b):

- (i) A reduction of at least 20 per cent in greenhouse gases – rising to 30 per cent if there is an international agreement committing other developed countries to »comparable emission reductions and economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities«.
- (ii) A 20 per cent share of renewable energies in EU energy consumption.
- (iii) A cut of 20 per cent in the EU's energy consumption compared to projections for 2020 through energy efficiency.

These targets are still valid. However, these 2020 targets

have now been supplemented by longer-term objectives for 2050. In October 2010, after welcoming the recognition in the Copenhagen Accord that the increase in global temperature should be kept below 2°C compared to the pre-industrial level,<sup>2</sup> the European Council also agreed that to achieve this UN goal global greenhouse gas emissions must be reduced by at least 50 per cent (2050 compared to 1990) and continue to decline thereafter. To achieve a global reduction of 50 per cent,

developed countries have to move faster as a group and reduce their greenhouse gas emissions below 1990 levels by between 80 per cent and 95 per cent by 2050 (Council 2010; see also Figure 2). Against this background the European Commission presented a »Roadmap for moving to a competitive low carbon industry in 2050« in March 2011 (EU 2011; Hedegaard 2010).

##### Mid-term Target for 2020

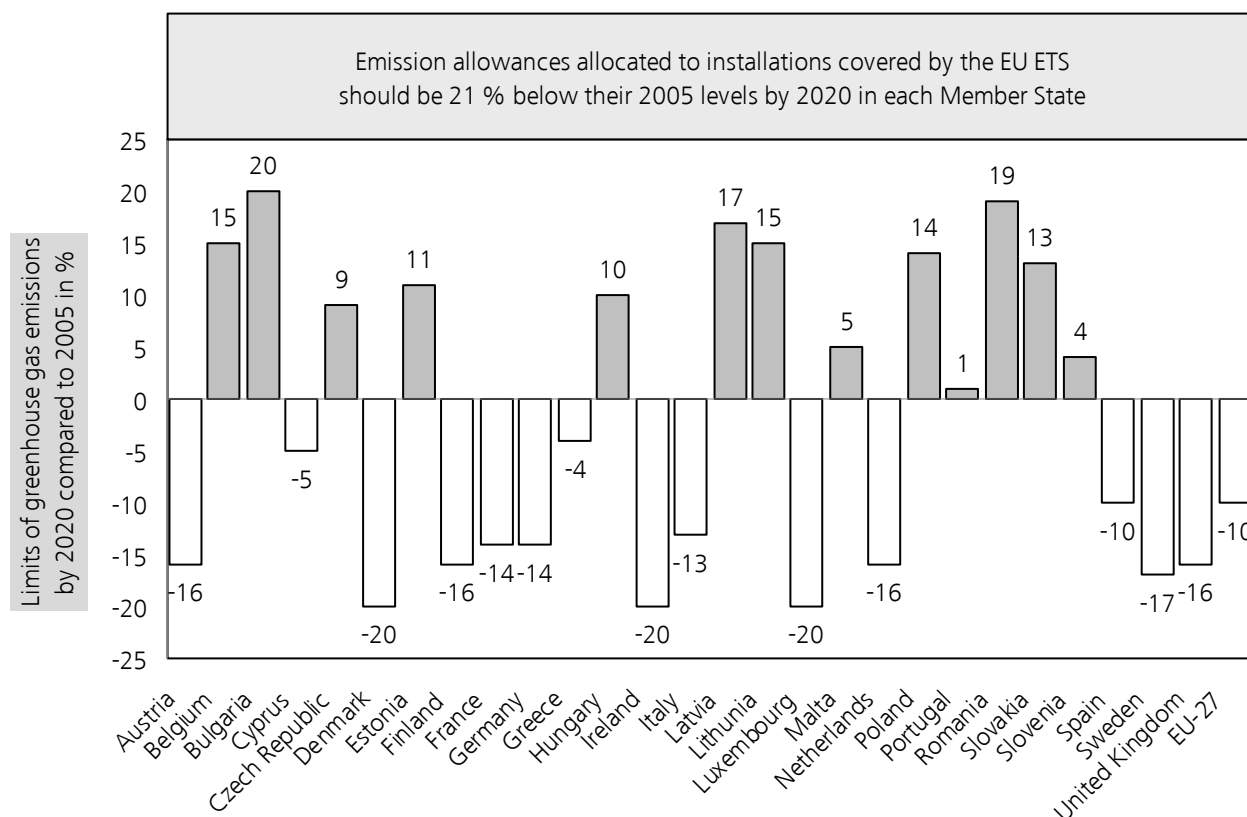
The mid-term target for reducing greenhouse gases below 1990 levels by at least 20 per cent by 2020 should be met by expanding the scope of the EU ETS and by encompassing more economic sectors:

- According to EU Directive 2009/29/EC of 23 April 2009 the emissions of installations covered by the Community emissions trading scheme should be 21 per cent below their 2005 emission levels by 2020 (EU 2009a).
- The so-called »Effort Sharing Decision« No. 406/2009/EC of 23 April 2009 reaches out to new sectors not yet included in the Community emissions trading scheme, such as transport, buildings, agriculture and waste. The emissions from these non-ETS sectors should be 10 per cent below their 2005 levels by 2020 (EU 2009b).

Both measures taken together should be sufficient to accomplish the overall emissions reduction goal of the EU (20 per cent cut below 1990 levels by 2020). However, in contrast to the ETS sectors there will be no uniform EU-wide obligation for the non-ETS sectors.

<sup>2</sup> This target was confirmed officially at the UNFCCC Conference of the Parties in Cancun in December 2010.

**Figure 3: EU Member State greenhouse gas emissions targets by 2020 vs. 2005 for ETS and non-ETS sectors**



Instead, each Member State is supposed to contribute to this effort according to its relative wealth. To meet the particular targets each Member State must implement additional policies and measures.

Figure 3 presents the overall obligation of each Member State when both its commitment under the uniform targets for ETS sectors (light grey box on top) and the country-specific targets for non-ETS sectors (grey and white columns) are taken together.

**Regulations for ETS – Phase III (2013–2020)**

Taking into consideration the reduction targets for 2020, the long-term vision for 2050 and the experiences with past trading the EU has concluded new regulations for the ETS beyond 2012. These new rules are flexible to some extent and may be amended before the third period finally commences on 1 January 2013. In any case, from 2013 onwards the system for allocating emission allowances will change significantly compared to the two previous trading periods.

The EU ETS Phase III should improve efficiency and fairness by the following means:

- (i) Emission allowances will be distributed according to fully harmonised, EU-wide rules, meaning that the same rules will apply across all EU Member States. This also means that national allocation plans will no longer exist.
- (ii) Auctioning will be the rule for the power sector, which means that the majority of allowances under the EU Emissions Trading System will no longer be allocated for free. Only sectors and sub-sectors found to be exposed to a significant risk of carbon leakage will receive allowances for free, based on ambitious benchmarks, but for non-exposed industries such allocations will be phased out. These rules imply that as from 2013 at least half the total number of allowances is expected to be auctioned.
- (iii) The longer trading period (eight years, instead of three years for Phase I and five years for Phase II) will strengthen the flexibility of the ETS.
- (iv) A robust and annually declining emissions cap (21 per cent reduction in 2020 compared to 2005) will stimulate investments in energy efficiency and emissions reduction. The Union-wide quantity of allowances to be issued under the Union scheme for 2013 is defined in the Commission's Decision of 22 October 2010. The cap for 2013 has been

determined at 2,039,152,882 allowances (in other words, just under 2.04 billion). The cap will decrease each year by 1.74 per cent of the average annual total quantity of allowances issued by the Member States in 2008–2012. In absolute terms, this means that the number of allowances will be reduced annually by 37,435,387 (EU 2010b). This annual reduction will continue beyond 2020 but may be subject to revision not later than 2025.

From 2013, the scope of the ETS will include additional sectors and greenhouse gases. Inter alia, more CO<sub>2</sub> emissions from installations producing bulk organic chemicals, hydrogen, ammonia and aluminium will be included, as will nitrous oxide (N<sub>2</sub>O) emissions from the production of nitric, adipic and glycolic acid and perfluorocarbons from the aluminium sector.

#### **Auctioning of Allowances as a Basic Principle**

Auctioning will become the basic principle for allocation of emission rights (EU 2009a). This will certainly improve efficiency in trading. The electricity sector, with some minor exceptions, will be wholly subject to auctioning from the very beginning of Phase III. For non-exposed industries (industries which are not exposed to a significant risk of carbon leakage<sup>3</sup>) the level of auctioning of allowances will increase in a linear manner to reach 70 per cent by 2020, with a view to reaching 100 per cent by 2027.

The ETS Directive sets out various objectives and principles for the auctioning of emission allowances. Auctions shall be conducted in an open, transparent, harmonised and non-discriminatory manner and the process should be predictable. Auctions shall be designed to ensure full, fair and equitable access for small and medium-sized enterprises covered by the EU ETS and small emitters. All participants should have access to the same information at the same time and an appropriate legal framework should be in place to minimise any risk of money laundering, terrorist financing, financial crime, insider dealing and market manipulation. The Commission's Auctioning Regulation seeks to ensure these objectives (EU 2010c).

According to the EU ETS Directive at least 50 per cent of the revenues generated from the auctioning of

allowances should be used for specified purposes, especially the following:

- to reduce greenhouse gas emissions, including by contributing to the Global Energy Efficiency and Renewable Energy Fund and to the Adaptation Fund as made operational by the UNFCCC Conference of the Parties (COP 14) on Climate Change in Poznan in December 2008, to adapt to the impacts of climate change and to fund research and development, as well as demonstration projects for reducing emissions and for adaptation to climate change, including participation in initiatives within the framework of the European Strategic Energy Technology Plan and the European Technology Platforms;
- to develop renewable energies to meet the commitment of the Community to using 20 per cent renewable energies by 2020, as well as to develop other technologies contributing to the transition to a safe and sustainable low-carbon economy and to help meet the commitment of the Community to increase energy efficiency by 20 per cent by 2020;
- to avoid deforestation and increase afforestation and reforestation in developing countries that have ratified the international agreement on climate change, to transfer technologies and to facilitate adaptation to the adverse effects of climate change in these countries;
- environmentally safe carbon capture and storage (CCS), in particular from solid fossil fuel power stations and a range of industrial sectors (for example, the steel industry) and subsectors, including in third countries. (For regulations regarding CCS see EU 2010a.)

#### **Benchmarks**

If other developed countries and other major emitters of greenhouse gases do not take comparable action to reduce their emissions, certain energy-intensive sectors in the EU that are subject to international competition could be put at an economic disadvantage. Therefore, allocating emission allowances free of charge is aimed at limiting the costs for EU industries in relation to competitors outside the EU. At the same time, an absence of comparable action outside the EU could lead to an increase in greenhouse gas emissions in third countries where industry is not subject to comparable carbon constraints. This would undermine the

<sup>3</sup> Carbon leakage occurs when there is an increase in carbon dioxide emissions in a second country as a result of an emissions reduction by one country with a stricter climate policy (that is, an EU27 country).

environmental integrity and benefit of actions by the EU. To address these issues, industrial sectors that face international competition from industries outside the EU which are not subject to comparable climate legislation will receive a higher share of free allowances than those which are not at risk of such »carbon leakage«. Specific conditions for sectors or sub-sectors deemed to be exposed to significant carbon leakage are unavoidable and these sectors in general are exempt from auctioning (for the list of sectors, see EU 2009c).

According to the Directive, production from sectors deemed to be exposed to a significant risk of carbon leakage will receive relatively more free allowances than other sectors. Free allowances will in principle be allocated based on product-specific benchmarks for each relevant product. The starting point for the benchmarks is the average of the 10 per cent most efficient installations – in terms of greenhouse gases – in a sector and they shall take into account the most efficient techniques, substitutes and alternative production processes. Regarding the sectors exposed to a significant risk of carbon leakage, free allocation will be multiplied by a factor of 1 (100 per cent), while for other sectors the allocation will be multiplied by a lower figure (0.80 in 2013, and reduced every year to reach 0.30 in 2020). It thus does not mean that the exposed sectors are exempted from the ETS. Furthermore, given that the benchmarks will be stringent, only the most efficient installations have any chance of receiving all of the allowances they need for free.

Installations that meet the benchmarks (and thus are among the most efficient installations in the EU) will in principle receive all the allowances they need. Installations that do not meet the benchmark will have a shortage of allowances and the option to either lower their emissions (for example, by engaging in abatement) or to purchase additional allowances to cover their excess emissions. In contrast to the allocation methods in force since 2005 and until 2012, this new system applying from 2013 onwards will no longer have the perverse effect of providing more free allocations to the highest emitting installations (EU 2010d).

The definition of benchmarks will therefore play a decisive role within the allocation system. They will provide a strong signal with regard to what is possible in terms of low-carbon production. The benchmarks are a milestone to show that the EU is pressing ahead with the

implementation of its ambitious climate agenda and that it is serious in its efforts to achieve a low-carbon economy. A benchmark does not represent an emission limit or even an emission reduction target but merely a threshold for the level of free allocations for individual installations. The benchmarks are to be developed per product, to the extent feasible. The benchmarks were established on the basis of the principle »one product, one benchmark« (x tonnes of CO<sub>2</sub> per tonne of a specific product, for example, glass or steel) which means that the benchmark methodology does not differentiate by technology or fuel used, nor by size of installation or geographical location. More or less the agreed benchmarks were the result of a bargaining process between the Commission and the industries or companies concerned.

#### **The Role of the Clean Development Mechanism/Joint Implementation Credits**

The future role of the Clean Development Mechanism (CDM) and Joint Implementation (JI) seems to be rather unclear. The Kyoto Protocol sets out quantified targets for developed countries for the period 2008–2012, and provides for the creation of certified emission reductions (CERs) from CDM projects and emission reduction units (ERUs) from JI projects and their use by developed countries to meet part of these targets. While the Kyoto framework does not enable ERUs to be created from 2013 onwards without new quantified emission targets being in place for host countries, CDM credits can potentially continue to be generated.

EU legislation provides for participants in the EU ETS to use most categories of JI/CDM credits from mechanisms established under the Kyoto Protocol towards fulfilling their obligations under the EU ETS. Credits from afforestation, reforestation and nuclear projects cannot be used. During the Phase II trading period, the EU laws allow operators to use JI/CDM credits up to a percentage determined in the National Allocation Plans (NAPs). Unused entitlements may be transferred to the trading period 2013–2020 (EU 2009a).

JI and CDM should be substantially reformed at the UNFCCC level in order to improve their environmental integrity and efficiency. To limit climate change to 2°C, the project-based CDM offsets should be replaced over time by sectoral crediting mechanisms for advanced developing countries. These types of mechanisms go



beyond the pure offsetting of emissions from the EU and could form stepping stones towards a system of globally linked economy-wide cap-and-trade systems. CDM would then be focused on Least Developed Countries.

Instead of the present CDM/JI projects the EU supports the design of new sectoral crediting mechanisms for actions in developing countries, preferably within the UNFCCC framework. These mechanisms could help scale up emission reduction activities in developing countries and result in real, verifiable and additional emission reductions against ambitious crediting thresholds. From 2013 onwards, operators covered by the EU ETS could use sectoral credits as substitutes for the project-based Joint Implementation/Clean Development Mechanism (JI/CDM) credits for compliance within the overall limits determined by the supplementarity provisions.

**Further Regulations**

The EU ETS Directive requires that the Commission adopt guidelines for the monitoring and reporting of greenhouse gas emissions under the ETS. It also requires Member States to ensure that operators of installations and aircraft operators monitor and report their greenhouse gas emissions in accordance with these guidelines, which are legally binding.

Besides a monitoring and reporting system the registries system composed of the EU ETS registries and the Community Independent Transaction Log (CITL) is at the core of the European Emissions Trading System. Operational since January 2005, the registries system ensures the accurate accounting of all allowances issued under the EU ETS and keeps track of the ownership of allowances in the same way as a banking system keeps track of the ownership of money. Those allowances are held in accounts in electronic registries administered by Member States.

In future, there will be some changes. The revised ETS Directive adopted in 2009 provides for the centralisation of the ETS operations into a single European Union registry (EU 2010a). This new

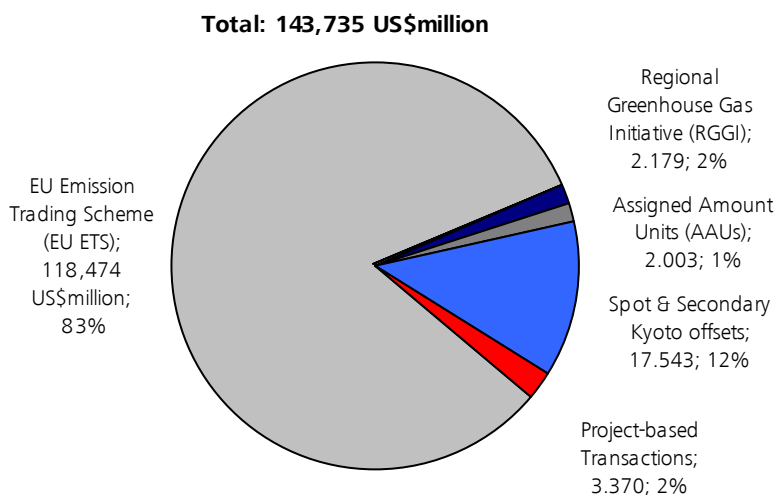
registry will be operated by the Commission and will replace all EU ETS registries currently hosted in the Member States. The EU registry will be used by more than 25,000 end-users (for example, operators, traders). All transactions taking place in the registry will be subject to the approval of the European Union Transaction Log (EUTL), the successor of the CITL.

**5. ETS AS A MEANS OF CREATING A GLOBAL CARBON MARKET**

Beside the considerations regarding CDM/JI projects the Commission sees the EU Emissions Trading System as an important building block for the development of a global network of emissions trading systems. Linking other national or regional cap-and-trade emissions trading systems to the EU ETS can create a bigger market, potentially lowering the aggregate cost of reducing greenhouse gas emissions. According to the EU's vision, the development of an international carbon market is expected to develop through bottom-up linking of compatible domestic cap-and-trade systems. Currently, the EU ETS dominates the global carbon market (see Figure 4).

An OECD-wide carbon market is expected by 2015, which would be extended to include economically more advanced developing countries by 2020. New sectoral crediting mechanisms would be a stepping stone to cap-and-trade for these developing countries. The European Commission is also a founding member of the

**Figure 4: Total value of the global carbon market in 2009**



Source: Carbon Finance at the World Bank, 2010.

International Carbon Action Partnership (ICAP). The partnership is made up of countries and regions that are actively pursuing the development of carbon markets through implementation of mandatory cap-and-trade systems. The Partnership provides a forum for sharing experiences and knowledge.<sup>4</sup>

## 6. FINAL REMARKS

The EU Emissions Trading System has proved that it is possible to trade in greenhouse gas emissions. It has also showed that a multinational emissions trading scheme can exist and work effectively. While the Phase I trading period (2005–2007) was like a training period and Phase II (2008–2012) already showed significant progress, Phase III (from 2013 on) will hopefully demonstrate the full advantages of emissions trading as the most promising market-oriented and efficient instrument for reducing greenhouse gas emissions.

The advantages include, in particular:

- emission reduction targets will be achieved exactly;
- a price for emissions is created, leading to least cost reductions;
- an ex ante defined scheme provides high predictability/reliability;
- greatest possible flexibility for companies/operators;
- cap-and-trade automatically adapts to crises (price goes down) or to upturns (price goes up); and
- linking can lead to a global carbon market and improve cost efficiency.

Thus emissions trading is an essential pillar of every climate protection policy, both national and international, and Europe has gained a lot of (good) experience with this system and the step-by-step improvements since 2005. Because it is an efficient way of reducing greenhouse gas emissions it is strongly recommended that other countries should adapt an emissions trading system.

The definition of an economy-wide emissions target and a specified cap for the installations subject to emissions trading is a necessary requirement but not a sufficient precondition to meet the agreed overall target.

While the targets for activities under the emissions trading system can definitely be achieved according to the binding cap, the implicit emissions reduction targets must be met by specific policies and measures.

We should also keep in mind that emissions trading systems do not cover all sectors which are responsible for greenhouse gas emissions. With the exception of the aviation industry the remaining sectors outside energy and industry (such as transport, the residential sector and services) are not and probably will not be the subject of emissions trading.

Emissions trading is only one element of successful strategies towards a low-carbon economy, especially for certain greenhouse gas emission sources, such as large point sources with low transaction costs and emissions sources with low data uncertainties, as well as certain sectors with fairly high emissions.

Climate policy is more than emissions trading. An effective and efficient climate protection policy must use the full range of available policies and measures on a national and international scale to meet the imperative of a radical reduction of global greenhouse gas emissions.

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