



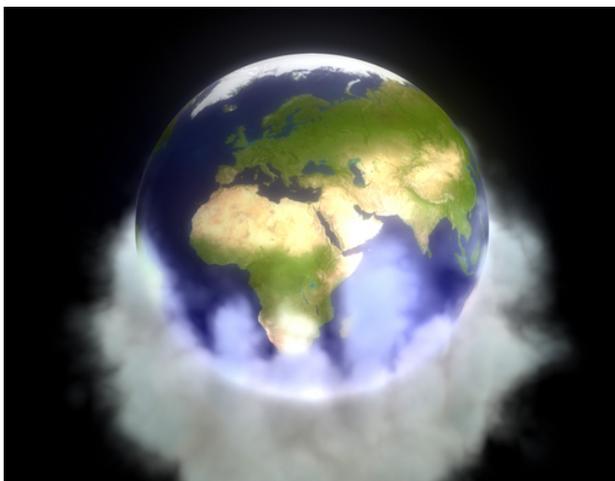
## Phasing in changes to EU emissions trading

*Economic theory suggests that the most cost-efficient way to reduce greenhouse gas emissions is to price them. This is the theory behind the EU Emissions Trading Scheme (EU ETS).*

*When it began in 2005, the EU ETS was an exercise in trial and error. Insufficient scientific data and a lack of practical experience resulted in a scheme with little environmental impact. The scheme is now mid-way through its second phase and stakeholders are preparing for Phase 3, which includes important changes.*

*In Phase 3, the scheme moves towards a more centralised administration to reduce the burden on Member States and increase security. It also extends coverage. At the same time, new restrictions are being applied to interactions between the EU carbon market and the international market, to ensure that adequate emissions reduction occurs within Member States. The Commission is improving transparency in Phase 3 by distributing most of the emissions rights through auction. The revenue is expected to fund climate-change-related projects in the EU and developing countries.*

*Today, the EU ETS exists as a model for countries looking to place a price on greenhouse gas emissions. From this, a global and comprehensive emissions-trading market may one day evolve.*



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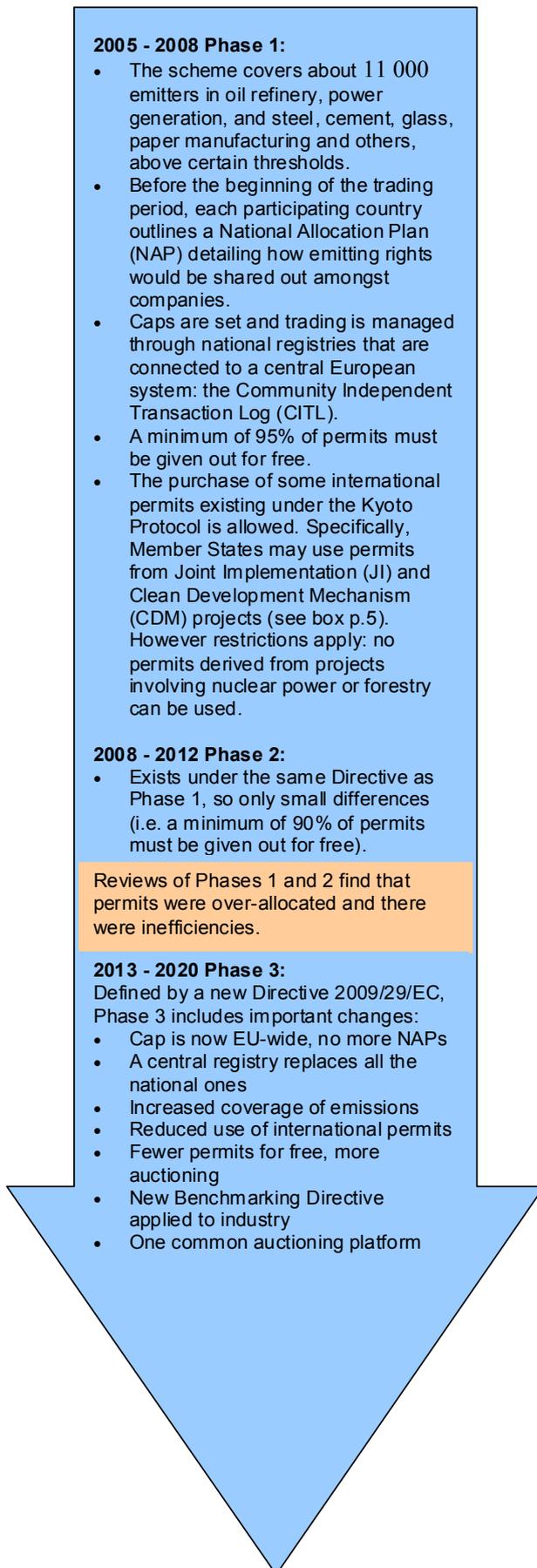
### Context

The EU has long [acknowledged](#) the need to reduce global greenhouse gas emissions in order to moderate the impacts of climate change. In line with this, the EU established in 2005 an emissions trading system (ETS). It was the first major economy to do so. Today the EU ETS is in its second phase and includes all 27 Member States plus Norway, Lichtenstein and Iceland. Phase 3 is set to start in 2013, and is to introduce changes aimed at a more robust, transparent and ambitious market-based scheme. However, as dictated by necessity and feasibility, improvements in Phase 3 are based on reviews of results achieved by 2008/09. Some critics [suggest](#) that new information may justify a revision of Phase 3.

### The world's first ETS for CO<sub>2</sub>

#### What is the EU ETS?

The EU ETS is a cap-and-trade scheme. Such a scheme sets an overall limit ("cap") for the level of emissions permitted over a certain timeframe. This limit decreases over time. Within the limit, a cap is imposed on the emissions of each emitter (installation), in this case of carbon dioxide (CO<sub>2</sub>). The caps are implemented by the use of permits, where each permit represents the right to emit one tonne of CO<sub>2</sub>. Emitters are allocated permits and can trade these between them. In practice, if an emitter can reduce emissions at a cost below the market price of permits, it will do so,



**Figure 1: Timeline of EU ETS phases and broad outline of scheme**

and make a profit from selling surplus permits. As in any market, third parties such as brokers and other financial institutions can also trade in these permits.

### A work in progress

The first EU ETS trading period lasted from 2005 to 2007. This was characterised as the 'learning by doing' phase. Phase 2 started in 2008 and will end in 2012, matching the [Kyoto Protocol](#) commitment period. Phase 2 emissions caps correspond to Member States' Kyoto targets.

There are differing views on whether the EU ETS has been a success to date. According to [the Commission](#), the major accomplishment has been to demonstrate that an ETS can be implemented. However, there has been modest (if any) environmental benefit. This is mainly because of an over-allocation of permits (in other words, setting the caps too high) due to a lack of emissions data. The Commission has also noted inefficiencies in the scheme due to differing allocation methods between Member States.<sup>1</sup>

Critics claim that the EU ETS has achieved nothing and will continue in the same vein unless major changes are implemented.<sup>2</sup>

Since 2008, the Commission has been working with stakeholders towards a revised EU ETS. Passed in April 2009, [Directive 2009/29/EC](#) amends the current ETS legislation ([Directive 2003/87/EC](#)) to improve and extend it beyond 2013 (Figure 1).

### Structural changes

In passing the EU climate and energy package in 2008, the European Parliament (EP) and the Council agreed to ambitious environmental targets, known as the 20-20-20 targets. Amongst other things, by 2020, the EU aims to achieve a 20% reduction in greenhouse gas emissions on 1990 levels. Phase 3 of the EU ETS, as agreed to by the Council and the EP, is an integral part of the plan for achieving this target.

### Increased coverage

Six greenhouse gases are recognised under the Kyoto Protocol, and more have been discovered in recent years.

**Definition:** Carbon dioxide equivalent (CO<sub>2</sub>e) is a way of expressing all greenhouse gases in one number. It takes into account the global warming potentials of greenhouse gases and their lifetimes relative to CO<sub>2</sub>.

Currently, the EU ETS covers only CO<sub>2</sub> emissions from a limited number of sectors. In Phase 2 Member States had the option of including nitrous oxide (N<sub>2</sub>O) emissions from nitric acid production.

From 2012, N<sub>2</sub>O emissions from the production of nitric, adipic and glycolic acid are automatically included for all Member States. Emissions of CO<sub>2</sub> from the petrochemical, ammonia and aluminium sectors are also added, as are emissions of perfluorocarbons from aluminium production. Emissions from a new category of installations will count too: those undertaking Carbon Capture and Storage (CCS) (see also the box on 'The special case of aviation').

As well as these additions, there are some exclusions. Any installation using 97% or more biomass for its combustion is excluded. Also, small installations that would normally be covered by the ETS but emit less than 25 000 tonnes of CO<sub>2</sub>e annually can opt-out of the ETS. However they must demonstrate emissions reduction efforts equivalent to participation in the ETS through other initiatives.

As a result of these changes, Phase 3 covers 43% of all EU greenhouse gas emissions, as compared to the 40% under Phase 2.

### EU-wide cap

An important change in Phase 3, one [supported](#) by the EP from the beginning, is the adoption of an EU-wide cap, removing the need for NAPs. The EU total reduction

effort is intended to be 20% by 2020 on 1990 levels. This equates to 14% emissions reduction on 2005 levels. However, as the ETS covers only 43% of EU emissions, it needs to make a bigger dent in those sectors. Therefore, the EU ETS aims to reduce greenhouse gas emission by 21% on 2005 levels by 2020. In sectors not covered by the ETS, the reduction effort needs to be 10% on 2005 levels according to the [Effort Sharing Decision](#).

In 2013, the EU ETS cap is set at just under 2.04 billion tonnes of CO<sub>2</sub>e, corresponding to a 1.74% linear reduction on the Phase 2 cap. The cap will continue to decrease annually for the eight years of Phase 3.

Phase 3 also abolishes national registries, creating a single central registry, known as the EU Transaction Log (EUTL). Including all traders, the EUTL will list around 25 000 accounts. The key driver for a centralised system has been to avoid extra administrative processes and increase security. Over the past few years, national registries have been the victims of a number of attacks of fraud and theft. In one [case](#), nearly two million permits (potentially worth more than €20 million) were stolen from various registries, prompting the Commission to temporarily suspend trading.

There have also been changes to financial market rules, [bringing the spot market for carbon permits under existing regulations](#).

### New auctioning practices

In Phase 1, at least 95% of permits had to be given out for free and in Phase 2 it was 90%. In practice, less than 5% was auctioned in each phase. In Phase 3, there is a stronger tendency towards auctioning; in fact more than 50% of permits will be sold. The EP has been a keen supporter of the decision, as it is hoped that this will reduce unintended profits to some sectors and increase transparency in the process. Early on in the scheme, [estimates](#) of windfall profits in Phase 2 ran into the tens of billions of euros,

mainly flowing to the power generation industry.

#### *Using benchmarks*

Accordingly, in Phase 3 there will be no free permits for the power sector (except under special circumstances) and industry will only be allowed some free permits up to a set benchmark.

The benchmark is the average of the top 10% best performers in emissions intensity per product (regardless of installation size, geography or production procedure).

Up to this benchmark, most installations will receive 80% of their permits free, decreasing gradually to 30% in 2020 and finally reaching 0% in 2027.

The allocation of free permits is different for activities that have high emissions and are deemed at risk of carbon leakage. The Commission listed those activities assessed at risk of carbon leakage.

**Definition:** Carbon leakage is the relocation of production capacity from ETS countries to other less-regulated countries, potentially leading to an increase in global emissions.

In the lead up to Phase 3, heavy emitters in industries such as cement and steel production warned that operations would be driven offshore if free permits were no longer available. In response, the Commission determined that any activities on the carbon leakage list would be eligible for 100% free permits up to the benchmark until 2020.

Member States must apply all of the rules on benchmarking and carbon leakage to determine their National Implementation Measures showing how many free allowances will be given. All other permits will be auctioned.

#### *Common auctioning platform*

In Phase 3, permits will be auctioned centrally. One common platform will undertake the majority of public sales,

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although Germany, the United Kingdom and Poland have opted to set up their own auction platforms. An independent auction monitor will oversee the platforms. The first sales are likely to take place in late 2012.

#### *Auction revenues*

According to estimates, Phase 3 auctioning of permits will generate between €30 and 50 billion annually by 2020.<sup>3</sup> Of this:

- 10% will be distributed to those Member States with low per capita income levels and good potential for growth;
- 2% will be distributed Member States that had achieved at least 20% emissions reduction on their Kyoto Protocol base year by 2005.<sup>4</sup>
- The final 88% will be distributed to Member States relative to their shares of emissions from EU ETS-covered installations in 2005.

Although the EU cannot infringe on national revenues, Article 10(3) of Directive 2009/29/EC provides that at least 50% of auction takings be earmarked for climate change actions at home or in developing countries. How this provision will be implemented is yet to be seen. Initially, the Commission had proposed that just 20% of revenues be channelled towards environmental measures. However under pressure from the EP this figure was revised upwards to 50%.

Some revenue is also being redirected specifically towards projects in CCS and innovative renewable energy sources, in an initiative known as the NER300.

## International linkages

Whether emission reductions occur in France, Australia, or Indonesia makes no difference from an environmental perspective. Therefore, it makes economic sense to allow certain international emissions permits into the EU ETS, as they may prove cheaper. However, doing so risks

flooding the EU carbon market, and undermining environmental benefits.

#### *Decreased use of Kyoto permits*

Some permits from the Kyoto Protocol can be traded in the EU ETS, although those derived from projects involving nuclear power and forestry are excluded (and there are also [guidelines](#) on projects in large hydropower).

The Kyoto Protocol allows developed countries to undertake emissions reduction projects in other countries and retain the permits generated from these projects. If the host is another developed country, the project is one of [Joint Implementation](#) (JI) and the permits are Emission Reduction Units (ERUs). If the project takes place in a developing country, it is a [Clean Development Mechanism](#) (CDM) project and the permits are called Certified Emission Reductions (CERs).

Recently, the list of restrictions on international permits that can be used in the EU ETS has been expanded.

- Firstly, ERUs or CERs from some industrial gas projects are [disallowed](#).<sup>5</sup>
- Secondly, only CERs from projects undertaken in the group of [Least Developed Countries](#) are accepted.
- Finally, a limit has been placed on the share of international permits allowed into the EU ETS. From 2008 to 2020, a maximum of 50% of emissions reductions below 2005 levels in EU ETS sectors can come from CDM or JI projects. This aims to ensure that Member States undertake adequate actions.

These decisions are highly dependent on outcomes of international climate change negotiations. December 2011 discussions in Durban resulted in an extension of the Kyoto Protocol beyond its end-date of December 2012. However, there is still uncertainty surrounding many details of an international agreement.

#### **The special case of aviation**

According to the Commission, about 3% of the EU's greenhouse gas emissions result directly from aviation. Under [Directive 2008/101/EC](#), aviation emissions will be included in the EU ETS from 1 January 2012. Any domestic or international flights that depart from, or arrive at, an EU airport will be covered by the EU ETS. International air carriers are exempt only if they can demonstrate that their home country has adopted measures with an equivalent impact on flight emissions.

In 2012, the cap for aviation is set at 97% of emissions from the baseline period 2004-06. In 2013-2020, the cap is to be lowered to 95%. Of this, 15% of permits are auctioned, and the remaining are either distributed for free or retained as a special reserve (most likely for new entrants). All revenue from the auctioning of aviation permits is to be used to tackle climate change.

There has been some international grievance over the inclusion of aviation in the EU ETS. Some non-EU airlines dispute the EU's right to impose extra costs on their flights into and out of the EU. A group of US airlines have challenged the rules in the English courts, claiming that they contravene the [Chicago Convention](#) and/or the EU-US [Open Skies Agreement](#). The case is now before the Court of Justice (CJEU) for a preliminary ruling. The Advocate General's [opinion](#) is that the EU scheme does not contravene international laws. A final verdict from the CJEU is expected in 2012.

US [legislation](#) was passed in 2011 prohibiting the participation of US airline operators in the EU ETS. China and India have also voiced their opposition.

#### *Foreign schemes*

When it began, the EU ETS was unique. Since then, a number of new regional and national schemes have emerged around the world.

- In the United States, three [regional ETS](#) are in operation or under development. In total, they cover 11 states.
- Since 2008, New Zealand has had an [ETS](#) in place covering only its forestry sector, but this was expanded in 2010 to include some energy and industrial sectors.
- In 2011, Australia passed [emissions-trading legislation](#) that will be phased in

by 2015.

- South Korea has a pilot ETS in place which will become [mandatory](#) in 2015.
- Switzerland has had an ETS since 2008. Swiss companies can participate in it [instead of paying a CO<sub>2</sub> tax](#).
- China has been trialling an ETS regionally and has [announced](#) in its 12th Five Year Plan that an ETS may be developed by 2015.

Through participation in a number of bilateral discussions, the EU has shown that it is open to ideas of linkage with foreign schemes, but to date no formal proposal has been put forward.

## Further reading

Ellerman, AD, Convery, FJ, and de Perthuis, C, [Pricing Carbon: The European Union Emissions Trading Scheme](#), 2010, Cambridge University Press.

[Functioning of the ETS and the Flexible Mechanisms](#), EP DG IPOL Policy Department A Study, 2011.

[EU action against climate change—The EU Emissions Trading Scheme](#), European Commission, DG ENVI, 2009.

[EU Emission Trading Scheme: use permit revenues to fund climate change protection, says Environment Committee](#), EP Press Release, 7 October 2008.

[Climate Change package 2020: the EU's Emission Trading System's 3rd Phase](#), EP Press Release, 4 July 2008.

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## Endnotes

<sup>1</sup> [Questions and Answers on the revised EU Emissions Trading System](#), question 4, European Commission Climate Action website.

<sup>2</sup> [The EU Emissions Trading System: failing to deliver](#), Friends of the Earth Europe, October 2010; and [Annual EU ETS review](#), Sandbag website, viewed 7 December 2011, [http://www.sandbag.org.uk/annual\\_review/](http://www.sandbag.org.uk/annual_review/)

<sup>3</sup> [EU action against climate change—The EU Emissions Trading Scheme](#), European Commission, DG ENVI, 2009.

<sup>4</sup> Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia.

<sup>5</sup> Specifically, projects that involve the destruction of trifluoromethane and N<sub>2</sub>O from adipic acid production in the EU ETS.