

## Emissions Trading Schemes

The EU Emission Trading Scheme (EU ETS) is a “cap and trade” scheme which aims to reduce CO<sub>2</sub> emissions by creating a market where CO<sub>2</sub> emissions allowances can be bought and sold.

### The Principle

The EU ETS is market-based mechanism for GHG emissions reductions. Its aim is to reduce GHG emissions by creating a market for emissions permits.

To do this, a country places a limit on overall emissions from a number of energy-intensive sectors rather than placing mandatory caps on each individual company’s GHG emissions. This limit is then divided into permits with each representing 1 ton of GHG emissions per annum. A permit gives its owner the right to emit 1 ton GHG per annum.

Since the permits are limited, their scarcity makes them valuable and because they have a value, they can be bought or sold in a market. The name ‘emissions trading’ is therefore slightly misleading since it is actually the right to emit (emissions permits), rather than the emissions themselves, that are traded in emissions trading schemes.

Emissions trading schemes have a further benefit - they achieve more efficient emissions reductions than mandatory caps. This is because, while the government sets the overall cap, the methods which companies choose to stay within this cap are chosen by the companies themselves.

For some companies, it may be inexpensive to implement technology that will reduce their emissions. For these companies, there is the incentive to reduce emissions below the amount allocated by their permits and then sell their additional permits. For other companies it may be very expensive to reduce emissions and therefore they have the option to buy additional permits instead of implementing expensive emissions abatement technology.

### Example country

- 1) Country X’s overall emissions for its five most energy intensive sectors = 1,100t pa.
- 2) Through the emissions trading scheme, Xs government places a cap on overall emissions at 1,000t pa. This cap is in line with its Kyoto Protocol commitments.
- 3) The government then converts this limit into 1,000 1t permits - each allowing the owner to emit 1t GHG pa.
- 4) The permits are allocated to X’s 100 companies/installations covered by the

scheme. Allowances are based on each company's verified emissions for the previous five year period.

- 5) At the end of each year, operators are required to ensure they have enough allowances to cover their installation's emissions. They have the flexibility to buy additional allowances (on top of their free allocation), or to sell any surplus allowances generated from reducing their emissions.<sup>1</sup>

## **EU ETS**

1. Each EU Member State sets the total quantity of emissions they will allow within their country in their National Allocation plan (NAP). This is monitored by the European Commission. The total quantity of allowances allocated by each country must be such that it enables the country to meet its Kyoto target. The UK's Kyoto target is a 12.5% reduction in emissions by 2012.
2. The allocations, called EUAs, are then distributed across companies/installations who are the major emitters of carbon dioxide which, for the EU ETS include: energy utilities, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper<sup>2</sup>. These represent almost half of the EU's total emissions and 43% of the UK's emissions<sup>3</sup>.
3. The allocated allowances are valid for the duration of a phase. The first phase of EU ETS was from 2005-2007 and covered only CO<sub>2</sub> emissions. The second phase runs from 2008-2012 and the third will start in 2013. The idea is that each participating country decreases its allocations stated in its NAP for each phase.
4. The price of the EUAs is a market price, i.e. is a function of demand and supply
5. The EU ETS is currently in phase II. This phase builds upon phase I and has been broadened to cover CO<sub>2</sub> emissions from glass, mineral wool, gypsum, flaring from offshore oil and gas production, petrochemicals, carbon black and integrated steelworks.
6. The EU ETS also enables participants to achieve some emissions reductions by purchasing offset credits through the Clean Development Mechanism (CDM) and Joint Implementation (JI). Further details below.

## **Credits from CDM and JI**

In line with the Kyoto Protocol, EU companies may also buy certified emissions reduction (CER) credits from certified emissions-reduction projects in developing countries. Set up by the UN, this 'Clean Development Mechanism' (CDM), aims to stimulate sustainable development and emission reductions, while giving industrialised countries some flexibility in how they meet their emission reduction limitation targets.

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<sup>1</sup> <http://www.environment-agency.gov.uk/business/topics/pollution/32232.aspx>

<sup>2</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN&guiLanguage=en>

<sup>3</sup> [http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/change\\_energy/tackling\\_clima/emissions/eu\\_ets/eu\\_ets.a.spx](http://www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_clima/emissions/eu_ets/eu_ets.a.spx)

Similar to the CDM, the Joint Implementation (JI) allows Annex B Kyoto Protocol countries (defined as those have Kyoto targets) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another Annex B Party. The ERU can be used to help countries fulfil their Kyoto targets.

### **Carbon Reduction Commitment**

While the EU ETS is instrumental in reducing emissions from energy-intensive industries, over half of total UK emissions are not covered by the EU ETS. The Carbon Reduction Commitment (CRC) is a new cap and trade scheme which, when implemented, will target UK emissions currently not included in the EU ETS including the service sector, public sector and local authorities. All organisations whose electricity consumption is greater than 6,000MWh/yr (approximately equivalent to an annual electricity bill of £500k) will be required to participate in the scheme. In the introductory phase (2010-2013), allowances will be bought at a fixed price. After this phase, allowances will be auctioned and the overall number of credits available will diminish over time.

### **Voluntary Carbon Markets (VCM)**

Carbon trading is neither unique to the EU nor always mandatory. In many countries carbon trading takes place through voluntary schemes some of which are largely unregulated. Such schemes enable companies to commit to a emissions caps in order to prepare them for potential legislation changes in the future (i.e. introduction of mandatory schemes) or to take advantage of some of the incentives available under voluntary schemes (such as Japan). A number of voluntary exchanges and schemes exist including the Japan Voluntary Emissions Trading Scheme (JVETS), the Chicago Climate Exchange and the Asia Climate Exchange.

All schemes, whether voluntary or mandatory, have received some criticism. Many argue that emissions trading will not do enough to address climate change because the large emissions allowances that companies are given do not incentivise developed nations to act any differently. Emissions trading, therefore, should not be seen as the one perfect mechanism for reducing emissions but rather that, if structured correctly, is one of a range of regulatory and financial instruments which can be used to reduce overall emissions levels.

### **US Schemes**

Since no mandatory cap and trade markets have been introduced in the US, Carbon markets in the have evolved differently to those in the EU as all trading has taken place through VCMs. While it may seem that there is little incentive for companies to participate in such schemes, the schemes are beneficial in enabling companies to pre-empt and prepare for legislation changes and the associated costs. It also enables them to mitigate reputational and regulatory risk present it failing to address climate change. One such market is the Chicago Climate Exchange (CCX) which is a voluntary market whose members commit to legally binding emissions reduction targets. There are also a number of 'over the counter' markets which exist outside of any formal

exchange. These allow the buyer to purchase offset credits. While the credibility of these markets is questionable, it demonstrates that there is demand for these offsets.

New legislation, however, will change the way that carbon markets are currently working. The American Clean Energy and Security (ACES) Act has been passed in the House of Representatives but must still go through the Senate if it is to be enacted. Included in the Act is a cap and trade scheme similar to the EU ETS. It will set a national economy-wide cap on GHG emissions by large sources—coal-fired power plants, large factories, natural gas suppliers, and fuels. The cap will also be phased in to other sectors such as electricity and home heating.

### **Australia**

As in the US, the carbon market in Australia has not been mandatory but instead has existed only through a small voluntary market for carbon offsets generated from forestry and energy efficiency. With the election of the more climate-conscious Rudd government, however, Australia is considering the implementation of a regulated cap and trade system. Whether or not the scheme is implemented largely depends on the political support of the Federal Opposition – a process which is currently being negotiated. If it is agreed, the Carbon Pollution Reduction Scheme (CPRS) will impose annual emissions caps (set five years in advance) on specific sectors at below 'business as usual' limits. All six GHG's will be covered in the scheme. Tradable Permits, known as Australian Emissions Units (AEUs) will, for the first year (2011/12), be issued at a fixed price of \$10 per permit. In the following four years the price will be capped at an indexed base amount of \$40 per AEU.

<b>Acronym/Terminology</b>	<b>Meaning</b>
EUA	European Union Allowances- the name of emissions permits
Annex B Kyoto countries	Countries with an emission reduction or limitation commitment under the Kyoto Protocol, EU-15, Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland, USA, Canada, Hungary, Japan, Poland, New Zealand, Russian Federation, Ukraine, Croatia, Norway, Australia, Iceland
ACES	American Clean Energy and Securities Act
CDM	Clean Development Mechanism
JI	Joint Implementation
GHG	Greenhouse gas
CRC	Carbon Reduction Commitment
NAP	National Allocation Plan
VCM	Voluntary Carbon Market
CCX	Chicago Climate Exchange
JVETS	Japan Voluntary Emissions Trading Scheme