



## 28 countries across the EU, and Iceland, Liechtenstein and Norway The European Union Emissions Trading System (EU ETS)

Activity	Market-based emissions trading to cost-effectively reduce greenhouse gas (GHG) emissions.
Country	Copy
Sector(s) involved	Power and heat generation from energy-intensive industry sectors including oil refineries, steel works and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals; aluminium production; civil aviation*  *An amendment to the EU ETS Directive agreed in July 2008 included the aviation sector in the system from 2012.
Time frame	2005-ongoing

**Case summary**

The EU ETS was established in 2003 by a Directive of the European Parliament and the European Council, and came into operation in 2005. It is the cornerstone of EU policy towards combatting climate change by reducing GHG emissions cost-effectively. It is the first multinational cap-and-trade system at the level of installations and covers 45% of GHG emissions of the EU. It covers 31 countries which, in total, account for 20% of global gross domestic product (GDP) (EDF et al. 2015).

The main objective of the EU ETS is to help EU Member States meet their commitments under the Kyoto Protocol to limit or reduce GHG emissions in a cost-effective way. The system does this by capping the overall level of emissions across EU Member States and permitting the trade of emissions allowances. Each allowance gives the emitter the right to emit 1 tonne of CO<sub>2</sub> or an equivalent amount of any other GHGs. The ETS, in contrast to traditional 'command and control' regulation, allows the market to identify the most cost-effective emission reductions.



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### Background

In 2008, the EU set targets towards a low-carbon development economy. These so-called “20-20-20” targets are:

- » Reducing GHG emissions by at least 20% below 1990 levels by 2020.
- » 20% of energy consumption from renewable energy sources.
- » 20% reduction in primary energy use through energy efficiency.

The EU has also set post-2020 climate policy goals. In 2014, Member States agreed to a framework for EU climate and energy policies. This proposal suggests three key targets:

- » GHG reduction of at least 40% by 2030 compared to 1990 levels.
- » 27% share of renewable energy for the EU by 2030.
- » Improving energy efficiency by 27-30% by 2030.

The EU ETS was established with the primary objective of reducing GHG emissions in order to achieve the EU-wide climate policy targets. It was the world’s first - and largest - cap and trade ETS to be set up that targets emissions reduction at the installation level. In establishing the EU ETS, the EU demonstrated a unified commitment towards combatting climate change, and took a leading role in salvaging the Kyoto Protocol.

### Activities

- » **Setting the cap to achieve a significant GHG emissions reductions impact:** The EU target of a 20% reduction in GHG emissions by 2020 compared to 1990 levels requires efforts across all sectors. With this in mind, in 2008 the EU decided to extend the EU ETS from 2013 to cover more sectors and gases and set a centralised emissions cap at the EU level. The cap requires a reduction of 21% below 2005 by sectors covered within the EU ETS, and declines by 1.74% annually up to 2020.
- » **Distribution of allowances:**
  - » **Free allocation of emissions allowances (grandfathering):** Allocation of allowances is done either via grandfathering or auctioning. During phases 1 and 2 (2005-2012) of the EU ETS, the majority of allowances were allocated free of charge and allocations were decentralised. Each Member State prepared and published a National Allocation Plan (NAP) for its installations, which was submitted to the EC for adjustment and approval.
  - » **Auctioning of allowances and centralised allocation:** In phase 1, 5% of total emissions allowances were authorised to be auctioned and in phase 2 this increased to 10%. Approximately 50% of total allowances will be auctioned from 2013, and this percentage will rise over phase 3 (EC, 2015). Member States are now required to prepare an allocation plan called National Implementation Measures (NIMs) and retain the responsibility for data collection and final allocation, although a Member States’ discretion over allocation is drastically reduced compared to phases 1 and 2. Auctioning of allowances from phase 3 onwards is governed by the Auctioning Regulation which specifies how auctioning should operate to ensure a transparent, harmonised and non-discriminatory process (EC, 2015).
- » **Union registry set up:** following the 2009 revision of the EU ETS Directive, EU ETS operations were centralised in the Union Registry, operated by the EC. The registry is linked to the Kyoto National Registry and covers all 31 EU ETS countries (replacing national registries). The Registry records all NIMs, allowance transactions, annual verified emissions from installations and annual reconciliations of allowances with verified emissions.

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- » **Monitoring, Reporting and Verification (MRV) framework established:** each installation or aircraft operator is required to prepare and submit a monitoring plan in accordance with two Commission Regulations, the **Monitoring and Reporting Regulation (MRR)** and the **Accreditation and Verification Regulation (AVR)**. In order to encourage a cost-effective and harmonised approach towards the MRV of emissions by Member States, the EC has published templates and guidance documents for monitoring plans, Annual Emission Reports (AERs), verification reports and improvement reports.
- » **Provisions put in place to allow participants to comply with their emissions obligations:** since 2008, participants of the EU ETS can 'bank' allowances if they have a surplus at the end of the current trading period. These allowances then count towards the participants' emissions obligation in the next trading period. Borrowing allowances is also possible, but only within the same trading period.
- » **Flexibility mechanisms introduced to manage market volatility (back-loading and the Market Stability Reserve (MSR)):** to overcome the problem of a surplus of allowances, and hence a depressed carbon price, the EC has postponed the auctioning of some allowances (back-loaded). 900 million allowances due to be auctioned in 2014-2016 have been delayed until 2019-2020. The total volume of allowances is unchanged. This allows for persistent supply and demand imbalances to be structurally corrected. The creation of the MSR has been agreed and is now awaiting formal approval by the European Council.

### Institutions involved

- » European Parliament; European Commission (EC); European Council; EU Member State governments; EC Climate Change Committee

### Finance

- » The market-based mechanism of the EU ETS means that there is a relatively small amount of upfront public investment needed, compared to command and control mechanisms. Only a small amount of public spending, mainly borne by Member State governments, was needed to set up an emissions registry and allocate allowances.

### People

- » A small team of experts from the EC, led by Jos Delbeke, Director General at the EC Directorate-General for Climate Action, were responsible for establishing and operating the EU ETS, together with the EU national governments that manage domestic ETS-related affairs. The team at the EC was very effective in implementing the EU ETS.

### Impact of activities

- » **Significant GHG emissions reductions:** According to the EU Environmental Agency, CO<sub>2</sub>e emissions declined by approximately 19% between 2005 and 2013, a trend that is close to what is necessary to achieve the 21% emissions reduction target by 2020 (EDF, 2015). There are several reasons why emissions have been reduced in the EU (lower economic growth due to the global financial crisis starting around 2007-08, lower population growth, and other low carbon development programmes), but the EU ETS is deemed to have played an important part.
- » **A carbon price embedded in companies' decision-making processes:** The EU ETS has raised awareness in companies whereby the decision makers have become more informed about climate change issues. A carbon price means that there is now a cost to emitting GHGs that influences a company's bottom line and its decision-making process.
- » **Cost-effective GHG emission abatement:** research carried out by CDC Climate Research (2013) points at how the EU carbon price has been useful in promoting cost-effective emission abatements. The price of carbon has led to a reduction of 1,048 million tCO<sub>2</sub>-e between 2008 and 2012 through the use of carbon credits from the CDM and JI mechanisms. These lower carbon credits prices have enabled installations to reduce their costs of compliance with emissions targets. Cost savings by companies across the EU are estimated to be between EUR 4 and EUR 20 billion over the period 2008-12.

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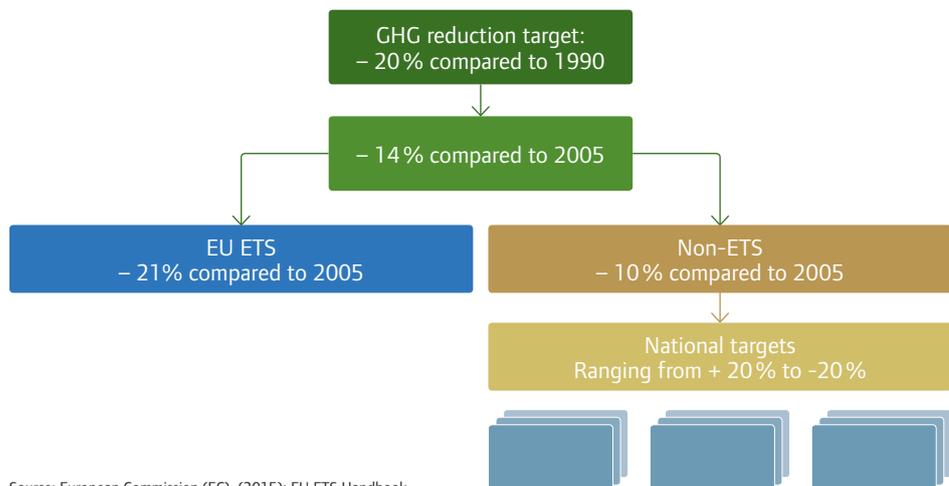
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- » Investment stimulated low carbon technologies in the energy efficiency (EE) and renewable energy (RE) sectors: if prices of allowances are high enough, the market-driven nature of the EU ETS will trigger an increase in investments in energy efficiency measures, thus reducing energy costs and the financial risks associated with increasing energy prices. The EU ETS has supported EE and RE programs by providing financial incentives for developing innovative RE technology and carbon capture and storage projects through the NER300 fund. The revenues generated from the EU ETS also provide Member States with finances that can be used for low carbon and RE programs.

### Why is it good practice

- » In establishing the EU ETS, the EC has shown **strong political commitment and ownership** towards achieving the EU's climate policy goals. There is a team of **highly skilled and dedicated experts** that has played a critical role in advocating the system and passing the EU ETS Directive.
- » The EU ETS has **put a cap and market price on carbon**, demonstrating that it is possible to trade in GHG emissions and, in doing so, **reduce emissions at the installation level in a cost-effective way**. Each company faces the same carbon price, therefore they are incentivised to cut GHG emissions through implementing the least costly options in order to maintain competitiveness.
- » The EU ETS aims to **achieve significant GHG emissions reductions** by targeting key emission sources at the installation level. Emissions of GHGs from installations participating in the EU ETS are estimated to have decreased by at least 3% in 2013 (EC, 2015).
- » **Capping emissions provided certainty** about the future level of GHG emissions (from installations responsible for around 50% of EU emissions). This predictability helps to **stimulate private investment** in low carbon technologies.
- » The EC achieved **buy-in from stakeholders** across a diverse range of EU Member States. A compromised proposal - including the grandfathering of allowances and giving the Member States autonomy over allocation - were effective methods of convincing stakeholders to back the scheme.
- » **A comprehensive MRV framework was established** ensuring harmonised monitoring and reporting of emissions among all Member States.

### Contribution of EU ETS to the EU's Climate Policy Goals



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### Success factors

- » The scheme has set long-term emissions targets, yet **retained flexibility** for stakeholders to revise these targets to improve the efficacy of the system. This has contributed significantly to the **longevity** of the scheme.
- » **Strong political commitment and leadership:** to establish the first multinational emissions trading system involving a diverse range of Member States with varying economic, social and political characteristics required strong leadership at the level of the EC. During the process of establishing the EU ETS, major political issues were largely avoided and the discussions were kept mainly on a technical level.
- » **Embeddedness in European legislation and regulation:** The EU ETS is now fully integrated into the EU legislative system with clear ownership from the EC to ensure sustainability and permanence of the scheme over time.
- » **Certainty and predictability for stakeholders:** a cap gives certainty to stakeholders about the level of emissions in the EU. This means that investment in low carbon technology can be made without concerns about policy changes, stimulating the scaling up of private sector financing flows into the sector.
- » **Trustworthy and audited GHG data at firm level:** a robust MRV framework has been established at the installation (only > 20MW units) level. The carbon price sets a cost of emissions for companies, incentivising them to ensure GHG data is accurate and robust.
- » **Widespread stakeholder acceptance of the EU ETS:** The EC achieved this by using compromises such as the allocation of free allowances in the first phase of the scheme and giving the autonomy to Member States to distribute these allowances as they deemed appropriate.

### Overcoming barriers/ challenges

#### Institutional

What were the main barriers/challenges to delivery?  
How were these barriers/challenges overcome?

Challenging to set up the necessary institutional structure to support the EU ETS in such a short time period.

National registries responsible for ensuring the accurate accounting of allowances were established at the Member State level. Experts were hired with the necessary skills to conduct MRV tasks such as calculating emissions, and carrying out monitoring and reporting to the EC. Trading desks were set up at banks and other institutional capacity was developed that is necessary for a market to function.

#### Information

Lack of reliable data and information at the Member State level meant that it was difficult to set the level of the cap.

The percentage reduction factor for the overall cap has been too low. This will be increased after 2020 to align with achieving the emissions reduction targets set by the EU for 2030 and beyond.

Companies and other market players faced **uncertainty** about National Allocation Plans (NAPs). The NAPs were highly complex, not transparent or harmonised across the Member States, and time-consuming to develop. Critically, the different methodologies used by Member States when developing their NAPs created confusion and uncertainty for the market.

NAPs are no longer used in phase 3. Allocation is instead determined via common rules agreed at the EU level. NIMs, for which the procedure and methodology is harmonised across EU countries, have replaced NAPs. The EC approves and amends NIMs as appropriate and ensures the harmonisation of allocation methodology across Member States resulting in greater transparency and equal treatment of market actors.

#### Capacity

The administrative burden on the EC was initially heavy because they had to approve the various allocation schemes of the Member States, each of which had different allocation approaches.

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<p>Socio-cultural</p>	<p>Since 2008, the emissions cap has been set at the EU level (centralised), which reduces the administrative burden on the EC to some extent.</p> <p>The diversity in cultures, and economic and social circumstances of the different Member States. Some were concerned about how restrictive such a scheme could be on economic growth, particularly the States with lower income levels.</p> <p>Free allocation of emissions allowances and giving the Member States the responsibility for distributing their allocation were two ways that helped overcome initial concerns/ reluctance.</p>
<p>Structural/system</p>	<p>A mismatch between the supply of and demand for emissions allowances resulted in a surplus of allowances which has grown steadily, reaching approximately 2 billion by the start of 2013. This has led to persistently low carbon prices in the EU ETS, reducing the price incentive for investing in low-carbon measures (EC, 2015).</p> <p>The EC has developed a short-term solution of 'back-loading' allowances aiming to rebalance supply and demand. The longer-term solution proposed by the EC is to establish the MSR which enables persistent imbalances between supply and demand to be automatically adjusted via an objective and rule-based mechanism under certain conditions.</p>
<p>Lessons learned</p>	<ul style="list-style-type: none"> <li>» An ETS needs to be robust against external shocks in order to avoid imbalances in the supply and demand of allowances and to stabilise the carbon price. In phase 3, the EU ETS has suffered from excess supply of allowances following the economic crisis, which led to a lower than expected carbon price. A long-term structural plan is necessary to respond to such shocks, otherwise the EU ETS risks becoming marginalised.</li> <li>» Grandfathering of allowances can be an important method for achieving buy-in from stakeholders. However, it can also lead to market distortions such as carbon leakage and price volatility. The auctioning of allowances combined with setting a centralised cap (EU wide in the case of the EU ETS) and the harmonisation of free allocation of allowances across Member States can help to correct these distortions.</li> <li>» A decentralised allocation system gives autonomy to Member States and can be an effective way of curbing opposition to an ETS. However, making NAPs was a cumbersome and complicated process therefore transitioning towards a more centralised allocation system and setting a centralised cap in the longer term can reduce complexity for market actors and the administrative burden on Member States.</li> <li>» Long-term policy certainty can generate confidence in the marketplace, thus stimulating private investment in low-carbon technologies.</li> <li>» A comprehensive MRV framework helps to develop harmonised monitoring and reporting of emissions among participants and promote a cost-effective and efficient functioning of the ETS.</li> </ul>
<p>How to replicate this practice</p>	<ul style="list-style-type: none"> <li>» Ensure strong political ownership and commitment: This is needed at the highest possible political level. It is also imperative to put in place a dedicated team with the necessary expertise to implement and advocate such scheme.</li> <li>» Establish a robust cap at the beginning: establishing an initial cap that is sufficiently resilient to external shocks, such as an economic downturn, is crucial.</li> <li>» Begin with a decentralised system including the grandfathering of allowances before transitioning to a more centralised, auction-based system: In the early stages of implementation, stakeholder acceptance can be achieved by using compromises such as grandfathering allowances and giving Member States the autonomy to distribute these allowances.</li> </ul>

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- » Robust, transparent, consistent and accurate monitoring and reporting of GHG emissions: A comprehensive MRV system needs to be established ensuring that all participants follow the same procedures and are harmonised in their approach to MRV.
- » Integrating different emissions trading schemes: Linking might be cost-effective but there will be two different carbon prices that need to be merged which could lead to opposition from various stakeholders on both sides. Strong, high level political commitment towards integration of schemes and a participatory stakeholder approach could help this process run more smoothly.

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### Website(s)

- » [ec.europa.eu/clima/policies/ets/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/index_en.htm)

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