

## Reform of the EU carbon market

### From backloading to the market stability reserve

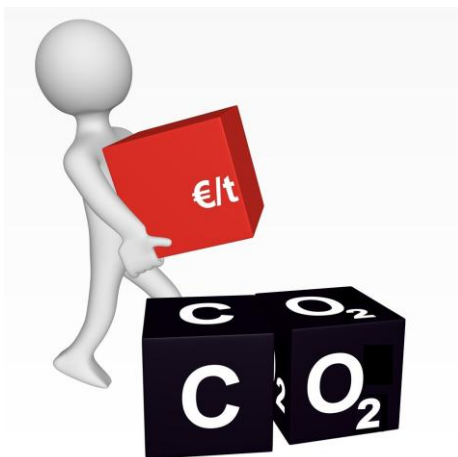
#### SUMMARY

The EU Emissions Trading System (ETS) aims to achieve cost-efficient reduction of greenhouse gas (GHG) emissions through a market for trading emission allowances. The amount of available allowances is fixed in advance, in line with the EU's GHG reduction targets.

Recent developments include a decision about the allocation of free allowances to heavy industries, in order to safeguard their global competitiveness, and a dispute about the application of the EU ETS to international aviation. The future of the EU ETS will also be influenced by upcoming decisions about the EU's 2030 climate and energy targets and by on-going negotiations towards a new global climate agreement.

In recent years, weak demand for allowances – due in large part to the economic crisis – has led to a surplus of over 2.1 billion allowances and a fall in the price of allowances, which is now considered too low to incentivise certain low-carbon investments.

As a short-term fix, the auctioning of allowances in the third ETS trading period (2013-2020) has been delayed ('backloading'). However, this does not reduce the surplus, as the 'backloaded' allowances will come onto the market towards the end of the decade. To improve the ETS's resilience to fluctuating demand for allowances, the European Commission proposed to introduce a 'market stability reserve' for the period after 2020. The proposed mechanism would be fully automatic and predictable, without any need for political decisions. Some stakeholders have proposed to introduce the market stability reserve earlier, and to transfer the 'backloaded' allowances to the reserve.



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### Glossary

**Greenhouse gas (GHG):** gas in the earth's atmosphere which traps heat and prevents it from escaping into space. An increase in GHG concentrations leads to warming of the planet. The most common GHG is carbon dioxide (CO<sub>2</sub>).

**Carbon dioxide equivalent (CO<sub>2</sub>e):** the global-warming potential of other GHGs is expressed in carbon dioxide equivalent (CO<sub>2</sub>e).

**Emission allowance:** permit to emit a quantity of GHG. One EU allowance (EUA) gives its owner the right to emit one tonne of CO<sub>2</sub>e.

**Cap:** upper limit of the amount of allowed emissions, which determines the number of emission allowances issued.

**Carbon leakage:** relocation of a business to a jurisdiction with lower emission prices.

**Carbon:** in the context of emissions trading, the word often refers to traded GHG emissions (the most important of which is carbon dioxide), not to the chemical element.

## EU climate policies

### Current EU climate policy objectives and instruments

The EU is committed to taking action to limit global warming to below 2 degrees Celsius above pre-industrial levels, in line with the 2009 Copenhagen Accord. The EU's long-term objective – agreed by the European Council in 2009 – is to reduce EU greenhouse gas (GHG) emissions by 80 to 95% by 2050, compared to 1990.

For the period up to 2020, the EU's targets are a 20% reduction in GHG emissions compared to 1990, a 20% market share for renewable energy sources, and a 20% improvement in energy efficiency. These so-called '20-20-20' targets were agreed by EU leaders in 2007, and enacted in the 2009 climate and energy package. With an 18% reduction in GHG emissions by 2012, the EU is likely to achieve this 2020 target. Achieving the 2020 targets for renewable energy sources and energy efficiency will be more challenging, and still require additional efforts by Member States.

There are two mechanisms for achieving the 2020 target of reducing GHG emissions by 20% compared to 1990 levels: an EU-wide cap on GHG emissions of industrial installations under the Emissions Trading System (ETS), and national targets for sectors not covered by the ETS (such as transport, buildings, agriculture and waste).<sup>1</sup> Emissions from transport and fuels are covered by separate EU legislation. Under the EU's 2014-20 Multiannual Financial Framework (MFF), at least 20% of the budget across all EU spending areas should be spent on actions related to climate change.

While Europe has reduced its CO<sub>2</sub> emissions, global emissions have risen by 36% since 2000. If GHG emissions continue growing at this rate for the next two decades, the internationally agreed target of limiting global warming to below 2°C is likely to be missed.

### Functioning of the EU Emissions Trading System

The European Emissions Trading System<sup>2</sup> (ETS), introduced in 2005, is a 'cap and trade' scheme, in which there is a fixed annual number of emission allowances (the cap), which can be traded among GHG emitters. It covers emissions of CO<sub>2</sub>, nitrous oxide (N<sub>2</sub>O) and perfluorocarbons (PFCs), and applies to more than 11 000 power stations and industrial plants in the 28 EU Member States as well as Iceland, Liechtenstein and Norway, thereby accounting for 45% of emissions. Since 2012, it has also applied to the

aviation sector. It is the world's largest carbon<sup>3</sup> market, accounting for more than three quarters of international carbon trading in 2013.

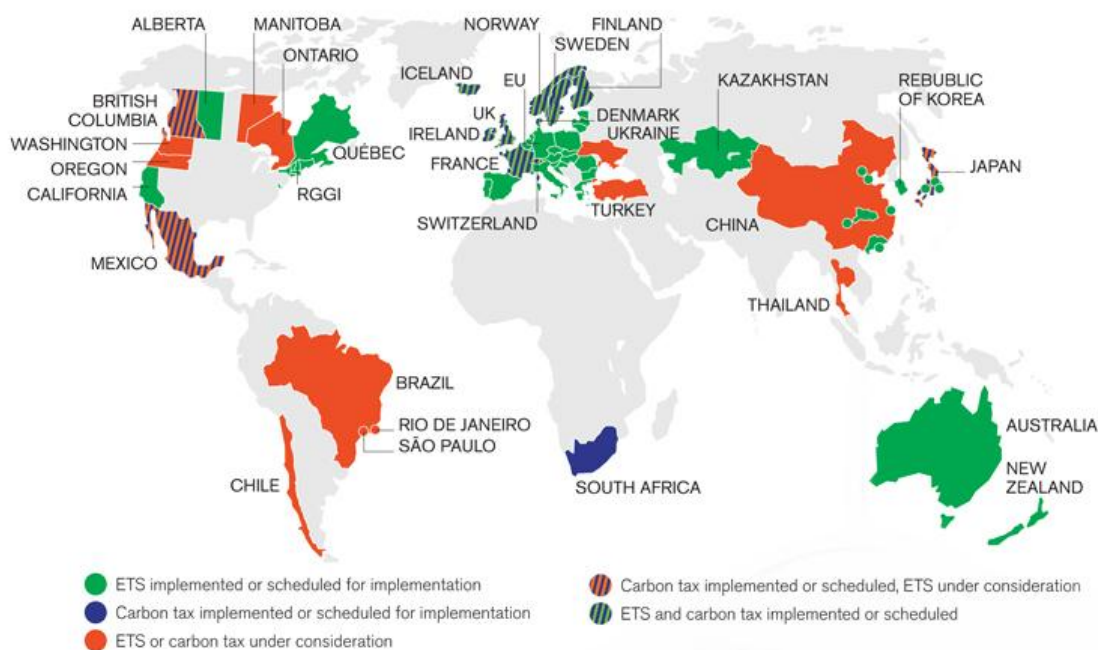
The EU-wide cap limits total GHG emissions for industrial installations which are subject to the ETS. In order to achieve, by 2020, a 20% emissions reduction compared to 1990 levels, the cap is lowered by 1.74 percentage points per year, as laid down in the ETS Directive ([2009/29/EC](#)). A separate non-declining cap applies to the aviation sector until 2020 (5% below the average annual emissions in the years 2004-06).

### Carbon markets outside the EU

39 countries and over 20 cities and regions have put a price on carbon, either in the form of a carbon tax or through emissions trading. Currently, 17 other emissions trading schemes have been implemented or are in preparation around the world. Three of these are in North America and nine in China, two of the world's major GHG emitters. Some of these markets have mechanisms to match supply to demand and to guarantee a minimum price.

[Carbon markets](#) are expected to play a role in the on-going negotiations on a new global climate agreement, which is due to be concluded in [Paris in December 2015](#).

**Figure 1: carbon markets worldwide**



Source: [World Bank](#), May 2014

After an introductory phase (2005-07), the second phase (2008-12) of the ETS was characterised by the allocation of allowances to industry by Member States, and the possibility to make use of international carbon credits.<sup>4</sup>

In the third phase (2013-20), more of the allowances are auctioned, the ETS covers more emissions, and a central registry and common auction platform have been introduced to increase transparency and prevent fraud. Moreover, the use of international credits has been restricted. Member States are to use at least half of the auction revenue for combating climate change in Europe and worldwide.

The fourth ETS phase, starting in 2021, will be subject to the same rules as the third phase unless the legislation is reformed before then.

One EU allowance (EUA) gives its owner the right to emit one tonne of CO<sub>2</sub>e. A fixed number of allowances are sold in regular auctions, or allocated to industry. By 30 April of each year, each installation must report its emissions for the preceding year and surrender the corresponding number of EUAs or equivalent [international emissions credits](#). Any unused allowances remain valid and can be used in subsequent years.

The system encourages companies to invest in emissions-reducing technology if the cost of reducing emissions is lower than the market price of emission allowances. If companies find that the cost of reducing emissions is higher than the carbon price, they can buy allowances to cover their emissions. Rational economic actors will thus find the lowest-cost ways to reduce overall emissions.

## Recent developments in the EU carbon market

### Development of the carbon price

After having traded at almost €30 in 2008, the EUA price fell below €3 in 2013, and now trades around €5-7.

A number of factors have contributed, to various degrees, to the imbalance in supply and demand, including:

- lower energy use, due to the economic crisis, reduced the demand for allowances, while their supply remained fixed;
- generous national allocations of free allowances in the previous trading periods (see box on 'Carbon leakage');
- use of cheap international emissions reductions credits instead of EUAs;
- emissions-reducing effects of complementary policies, such as efficiency standards and targets for renewable energy sources;
- the sale of 300 million allowances from the New Entrants Reserve by the European Investment Bank;<sup>5</sup> and
- expectations of market participants about future EU climate and energy policies.

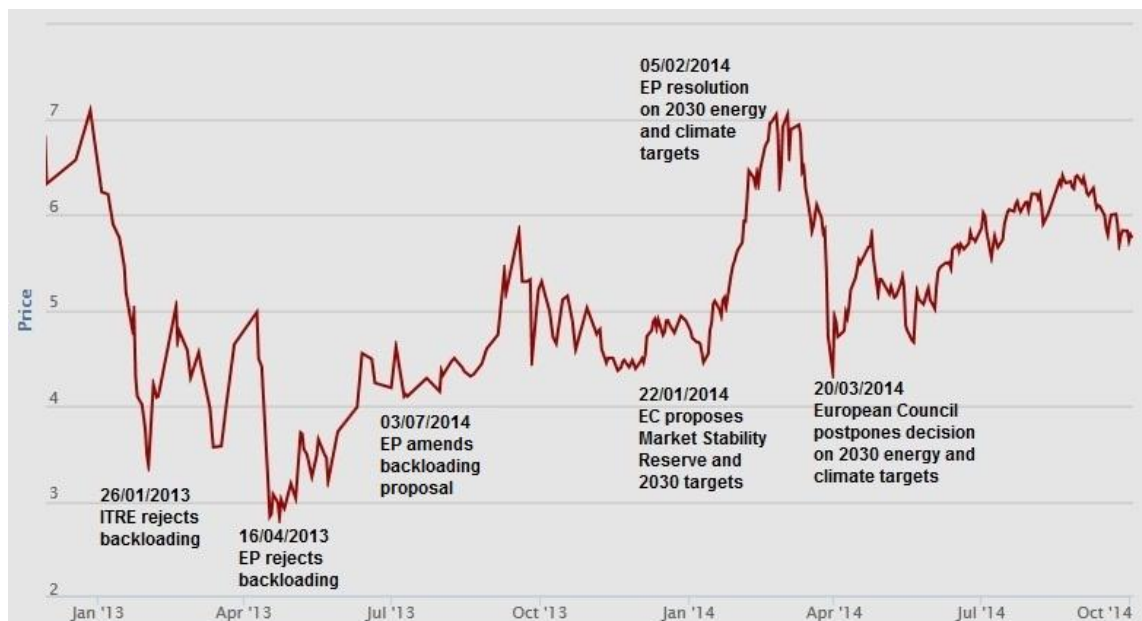
### Carbon leakage

If carbon emissions are priced in the EU while they are free (or cheaper) in other regions, European industry will be at a cost disadvantage. In such a situation, carbon-intensive industrial production is likely to move outside the EU, with the effect that income and jobs are lost in Europe, while global carbon emissions are not reduced. To prevent such a scenario, certain carbon-intensive industries, listed in a carbon leakage list, are given free emission allowances.

In May 2014, the Commission sent its proposal for a 2015-19 [carbon leakage list](#) to the Climate Change Committee (of national experts from the Member States), which approved the list in July. On 24 September, the EP's Environment Committee voted in favour of the proposed list. As a hypothetical EUA price of €30 was used in drawing up the carbon leakage list, it has been criticised as giving free hand-outs to industry, given the current price of EUAs, which have traded below €10 since 2011.

From May to July 2014, the Commission carried out a public [consultation](#) on possible post-2020 carbon leakage provisions.

Figure 2: EUA price 2013-14, in euros

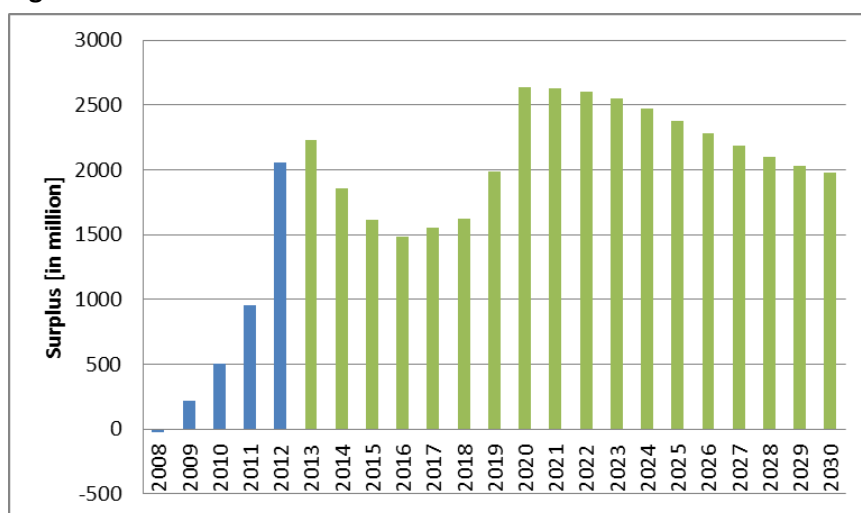


Data source: [EEX](#)

While there is agreement that lower demand and international credits are important factors, the effect of complementary policies on the carbon market is more controversial.

By the end of 2013, there was a surplus of over 2.1 billion allowances, more than double the level in 2011. Without ETS reform, the Commission expects a surplus of 2.6 billion allowances in 2020. The surplus is either held by market participants (to cover future emissions, or for speculation) or used to cover past emissions. The surplus allowances are, however, not on the open market. That means they cannot be cancelled directly, but only by reducing the number of allowances issued in the future.

Figure 3: EUAs in circulation



Source: [European Commission](#) (actual numbers until 2012, estimates from 2013 onwards)

A low carbon price makes 'clean' investments unattractive. At current carbon prices, carbon capture and storage (CCS)<sup>6</sup> projects are not viable without government support. The currently low EUA price has led to a switch from gas to cheaper, but more carbon-intensive, coal for electricity production. The [International Energy Agency](#) has warned that investments in carbon-intensive infrastructure today may lock in high emissions for many years to come.

In April 2013, the United Kingdom introduced a national [carbon price floor](#) for the generation of electricity from fossil fuels.

### Backloading

In response to an over-supply of emissions allowances, the auctioning timetable for the third ETS trading period was adapted to allow for the delayed auctioning of allowances (backloading). Some 900 million allowances will be removed from the auction in 2014-16, but will be released back on the market towards the end of the third ETS phase in 2019-20. Since the backloading measure does not reduce the total supply of allowances, the decision has had little effect on the EUA price – as predicted by analysts.

The backloading measure was controversial. Some stakeholders considered it an unjustified intervention in the market, while others consider it as ineffective, because it does not reduce the total number of allowances to be issued in the third trading period.

The Parliament initially rejected the [backloading proposal](#) in plenary in April 2013, but decided in July 2013 to amend it to allow only a single backloading operation limited to 900 million allowances.

### Proposed energy and climate targets for 2030

In order to provide more certainty for future investments in energy infrastructure, and to fix European contributions to the on-going international climate negotiations, the Commission proposed, in January 2014, a [policy framework for climate and energy](#) for the 2020-30 period. It proposes a binding GHG reduction target of 40% and a binding target of 27% for the EU-wide market share of renewable energy sources. In July 2014, the Commission [proposed](#) a 30% target for energy efficiency by 2030. The European Council has said it will decide on the new climate and energy framework by October 2014.

The GHG reduction target for 2030 would be implemented by tightening the supply of emission allowances. According to the Commission, a linear reduction factor of 2.2% per year (compared with 1.74% up to 2020) would be needed from 2021 to achieve a 40% GHG reduction by 2030.

### Proposal for a market stability reserve

#### Commission proposal

In January 2014, the Commission put forward a [legislative proposal](#) to introduce a market stability reserve (MSR) in the ETS, in order to avoid excessive supply or shortages of allowances. Starting from 2021, with the fourth ETS trading period, 12% of the allowances in circulation would be placed in a reserve if the number of allowances in circulation two years earlier exceeds 833 million. For example, if at the end of 2024 there were 2 billion allowances in circulation, 240 000 allowances would be placed in the reserve in 2026.

#### Aviation

Emissions from aviation have been included in the ETS since January 2012, for flights inside the European Economic Area (EEA) as well as flights from and to EEA countries.

However, some countries, including China, India, Russia and the US have objected to the inclusion of international flights in the ETS, and even prohibited airlines from participating. Following a commitment by the International Civil Aviation Organisation (ICAO) to develop a global market-based mechanism for aviation emissions by 2016, the Commission [proposed](#) to 'stop the clock' and exclude flights to and from non-European countries until the start of 2017, thus averting the risk of a trade war, with possible negative consequences for EU aircraft manufacturers. The proposal was [adopted](#) in April 2014 after Parliament's approval.

Allowances in the reserve would be carried over from one year to the next, and 100 million allowances will be released when there are fewer than 400 million allowances in circulation. Allowances would also be released in the case of a strong rise in the EAU price.<sup>7</sup> The mechanism would be completely automatic and predictable, without the need for any political decisions. It can be implemented in the existing framework without a need for new institutions or new data. A review of the key parameters is foreseen in 2026.

The European Commission points out that a start in 2021 preserves regulatory certainty during the third ETS phase and gives market participants time to prepare. The proposed mechanism captures all changes in demand, including those due to interactions with complementary policies, such as energy efficiency or renewable energy sources.

While the MSR mechanism will reduce the number of allowances in circulation for the period after 2020, it will not reduce the total number of allowances that will be issued in the long term. According to the Commission's [impact assessment](#), placing allowances into the reserve should result in a medium-term increase in the carbon price, while longer-term prices will be determined by the cap.<sup>8</sup>

### **Expert and stakeholder views**

The Commission held an [expert meeting](#) on ETS structural reform on 25 June 2014 during which the projected effects of the proposed MSR mechanism and possible modifications were discussed. While most experts consider the MSR as a step in the right direction, some worry that it could introduce instability in the market under certain conditions. Most experts agree that non-discretionary, simple, clear rules are needed and that the number of allowances in circulation is a useful basis. Support was expressed for earlier implementation and/or placing the backloaded allowances straight into the reserve.

[Research](#) suggests that the proposed stability reserve could lead to greater fluctuation in the carbon price and become a source of instability. [Industry analysts](#) warn that state support for renewables may weaken the ETS.

[CDC Climat Research](#) is of the opinion that the MSR will have only a temporary effect, while its impact is hard to assess because of interactions with complementary policies (renewables, energy efficiency). They consider that ambitions for long-term reduction will have more impact on carbon price. According to a [multi-criteria analysis](#) carried out by CDC Climat with a panel of experts, the MSR is the preferred option if institutional feasibility is taken into account, although other policy options are considered to be more effective in reducing CO<sub>2</sub> emissions and politico-economic efficiency. The analysis indicates that certainty and automation are preferred over ambiguity and discretionary action.

To enhance the confidence of market participants, considered as critical to the success of the ETS, [Bruegel](#) proposes that a public bank sells guarantees for repurchase of allowances at a later date for a fixed price. In the example given, the European Investment Bank would buy back one billion allowances in 2030 for €40 each. Such a mechanism should provide immediate revenues from the auctioning of the guarantees, and discourage future policy-makers from adopting policies that would increase the supply of allowances.

[CEP](#) considers it not a problem that the amount of allowances is fixed, and believes that the MSR mechanism will not have a long-term effect on EUA supply or prices, and therefore concludes that the MSR 'fails to solve a problem that does not exist'.

Andrei Marcu, head of [CEPS carbon market forum](#), proposes introducing the MSR as soon as possible, considering that the benefits of early introduction largely outweigh the disadvantages. Moreover, he suggests combining a rule-based system with some flexibility in governance, in order to be able to cope better with unforeseen developments.

[Sandbag](#), an NGO, wants the MSR to start as soon as possible, and calls for permanent cancellation of the 900 backloaded allowances. In addition, they propose different parameters and a faster response time for the MSR. [Carbon Market Watch](#), an NGO, calls for an earlier start of the MSR, the permanent cancellation of at least 1.6 billion surplus allowances, and a tightening of the cap. On the other hand, the [Bellona Foundation](#) is sceptical about the impact of the MSR, and proposes instead the permanent cancellation of allowances in cases where the EUA price falls below a certain threshold, to be regulated by a 'European Central Bank of Carbon'.

The [European Economic and Social Committee](#) supports the MSR proposal, but points out the need to support energy-intensive manufacturing industries.

The [International Emissions Trading Association](#) (IETA) welcomes the MSR proposal because it is market-based, transparent and predictable. It favours an earlier start and a transfer of the backloaded allowances into the reserve. A [majority of surveyed IETA members](#) consider that an ambitious GHG reduction target for 2030 and corresponding tightening of the cap are more critical to the success of the ETS than the MSR. [Eurelectric](#), representing the European electricity industry, support the MSR proposal and a tightening of the cap. They advocate a 2017 start for the MSR, a review in 2022, and the immediate transfer of the 900 million backloaded allowances to the reserve. Hans-Joachim Reck, CEO of the [German Association of Local Utilities](#), considers the MSR as an interesting proposal, but also calls for the permanent removal of at least 2 billion allowances from the market.

### **Member States' positions**

A large majority of Member States [expressed support](#) for the MSR proposal. [Germany](#) calls for the early launch of the mechanism, in 2017, with the backloaded allowances moved to the reserve instead of being auctioned. Several Member States, including France, Denmark, Latvia, Slovenia, and Sweden reportedly support the proposal. [France](#) also proposed adjustments of the parameters, and the establishment of an independent advisory board to assess developments in the carbon market. Poland opposes the MSR, which is considered as a distortion of the market to increase prices artificially.

### **European Parliament**

The [EP resolution of 5 February 2014](#) on the 2030 framework for climate and energy policies calls for urgent structural reform of the ETS, insisting that the system remains fully market-based. It also calls for a tightening of the ETS cap in line with the GHG reduction targets for 2050. In addition to ETS reform, the EP supports complementary policies, calling for at least 30% market share and binding national targets for renewables, and a 40% improvement in energy efficiency. The EP supports the establishment of a predictable regulatory framework to encourage and facilitate investment, in particular in renewable energy. The EP [resolution of 23 October 2013](#) on the climate



change conference in Warsaw calls for linking the EU ETS with other carbon markets around the world. The EP [resolution of 14 January 2014](#) calls on the Commission and Member States to encourage the deployment of carbon capture and storage technologies.

On 10 July 2014, the Environment Committee appointed Ivo Belet (EPP, Belgium) as rapporteur for the [MSR proposal](#). A workshop on the MSR proposal is due to be held in November 2014.

## Conclusion

Opinions about the effectiveness of the ETS are mixed. On the one hand, the ETS has achieved its aim of [reducing GHG emissions](#), although in part due to weak demand during the economic crisis. [Research](#) indicates that the EU ETS has brought small but real emission reductions and had limited but positive impact on investment decisions and innovation. On the other hand, it has not succeeded in providing a price signal that incentivises the substitution of gas for coal, or investments in low-carbon technologies such as renewable energy sources or carbon capture and storage. There are concerns that the currently low carbon price leads to investment decisions that are inefficient in the longer term.

Complementary policies in support of renewable energy sources and energy efficiency have therefore been put in place, but they also weaken demand in the carbon market. The Commission President-elect, Jean-Claude Juncker, considers renewable energy sources not only as a matter of responsible climate policies, but also of industrial policy and aims to make the EU the world leader in this sector. It remains to be seen what role the ETS has to play in achieving this objective.

Finally, the question arises of whether there is a right price for carbon emissions. Economists suggest that the price should reflect the current and future cost of carbon emissions (impacts of climate change) to society.<sup>9</sup> However, estimating this 'social cost of carbon' in integrated physical-economic assessment models is difficult given the scientific uncertainties, and depends strongly on a number of assumptions, including the discount rate. [Recent research](#) suggests that the 'social cost' value used by the US [Environmental Protection Agency](#) (US\$37 per tonne in 2014) is probably too low, but still considered useful to guide decisions.

In principle, both a system based on cost and a system based on emission quantities can be effective, but getting the details and parameters right is an ongoing challenge, as the experience with the EU ETS has shown.

## Main references

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[The market stability reserve in perspective](#) / Andrei Marcu, CEPS special report No 92, October 2014

## Endnotes

<sup>1</sup> National targets are set in the Effort-sharing Decision [406/2009/EC](#).

<sup>2</sup> [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; [Directive 2009/29/EC](#) of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community.

<sup>3</sup> 'The word 'carbon' is used here informally to mean all greenhouse gases, of which CO<sub>2</sub> is the most important. 'Carbon price' is used to refer to the price of emission allowances.

<sup>4</sup> From the environmental perspective, it does not matter whether emissions are reduced in Europe or elsewhere. Hence it makes sense to reduce emissions wherever it can be done at the lowest cost. International emission credits arising from projects in other regions can therefore be used, within certain limits, to meet European obligations. Operators may use certified emission reductions (CERs) since 2005 and emission reduction units (ERUs) since 2008, as laid down in the [Linking Directive](#).

<sup>5</sup> The European Commission has [mandated](#) the European Investment Bank to sell 300 million allowances from the New Entrants' Reserve. €1.1 billion of auction revenue will be used to fund innovative low-carbon energy demonstration projects, including carbon capture and storage.

<sup>6</sup> Storage of CO<sub>2</sub> in underground reservoirs, for example depleted gas wells.

<sup>7</sup> If for more than six consecutive months the carbon price is more than three times the average carbon price during the two preceding years, 100 million allowances are automatically released from the reserve.

<sup>8</sup> The Commission's impact assessment acknowledges that it is not possible to make a detailed annual assessment of the impact on prices.

<sup>9</sup> In economic terminology, the costs of carbon emissions to society are 'externalities', which are to be 'internalised' by making the emitter pay for them.

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