

## 20+ MW

net heat excess  
installations must  
participate in EU ETS

## £18.08<sub>CO<sub>2</sub></sub>

UK Government  
Carbon Price Floor

## The Carbon Market: An Overview

### The EU Emissions Trading Scheme (ETS)

The EU ETS is a greenhouse gas emissions trading scheme. Factories, power stations and other industrial installations with a net heat excess of 20MW must all participate in the scheme. The scheme requires participants monitor and report their CO<sub>2</sub> emissions and accrue enough carbon allowances, or permits, to cover their annual emission levels.

A certain number of allowances are allocated for free, but participants then need to purchase more allowances should their emissions exceed this level. Conversely, should a participant perform at reducing their emissions, they can sell left over allowances. Auctions, through which allowances can be traded, are held on a weekly basis throughout Europe- this is the Carbon market (Figure 1).

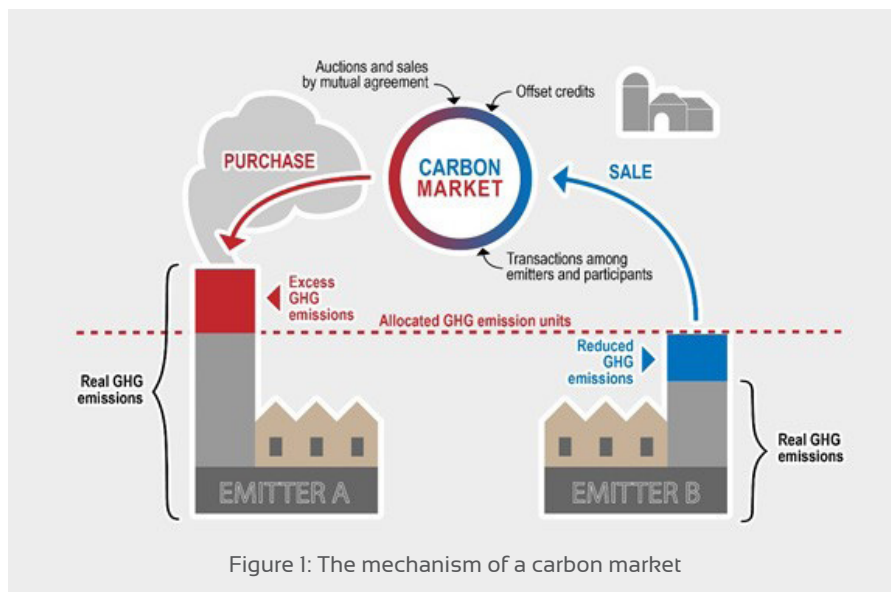


Figure 1: The mechanism of a carbon market

For each tonne of CO<sub>2</sub> emitted, EU ETS participants currently pay the ETS allowance price (i.e. the carbon market price) which is currently circa €21.50/t CO<sub>2</sub>e. The UK government has also set a carbon price floor (CPF) of just over £18/t/CO<sub>2</sub>e. If the EU ETS carbon price falls below this, UK participants must pay the UK treasury the difference between the carbon market price and the CPF.

### Quick Facts

UK remains part of EU ETS during Brexit transition period

From 2021, the government has announced plans to set up a UK ETS, perhaps linked to the EU ETS

Carbon price a key driver of power prices as generators using fossil fuels must buy allowances to off-set carbon emissions

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## The UKs Exit from the European Union

The EU ETS is a major part of EU energy policy. As part of the UK's exit deal, ratified by the EU on 30th January this year, the UK remains part of the scheme until the end of 2020. This was the preferable outcome for the carbon market; had the UK crashed out with no deal, a sell-off of allowances would likely have been triggered, as UK participants would no longer require permits for future compliance, resulting in significant carbon price decreases.

## Future of UK Emissions Trading after 2020

In June 2020, the UK government published its plans for UK carbon pricing from 2021. The government will seek to establish a UK ETS with the first phase planned to run from 2021-2030. The scheme would apply to energy intensive industries, power generators and aviation with a total rated thermal input of 20 MW. The scheme could run as standalone system or could link into the EU ETS.

This would be a similar approach to Switzerland. Their domestic ETS linked with the EU ETS at the beginning of 2020. This means that despite running as 2 separate systems, with separate auctions, Swiss ETS participants can use allowances from the EU ETS for compliance, and vice versa. In theory, more linked international carbon markets should increase cost-effectiveness and liquidity, whilst decreasing overall compliance costs and improving co-operation between nations on emissions reduction targets.

Interestingly, the UK government set out plans, in its 2020 budget, to consult on the design of a 'Carbon Emissions Tax' to ensure emissions charges remain in place in every scenario. Whatever the future scenario is for emissions trading in the UK, a robust approach will be key to meeting the 2050 net-zero target.

## The Role of Free Allocated Allowances to Prevent Carbon Leakage

As with the EU ETS, the government plans to introduce allowances to the UK ETS market via auctions. They will also allocate a certain number of free allowances. The availability of free allowances is seen as key in reducing carbon leakage.

Carbon leakage refers to emissions decreasing in countries with stricter policies whilst increasing in other countries, perhaps with more relaxed climate policies. In practise, this may be because emissions policy in one country raises production costs, so production is moved to a country where such policies are not in place. Similarly, if policies increase the price of certain fuels, demand for those fuels will reduce and consequently the price will fall. Uptake of the fuel type in countries with more relaxed policies could then increase outweighing the benefit.

## COVID-19 IMPACT

The global economic impact of COVID-19 sent equity and oil markets plummeting, and the carbon market was not immune. As economies shrink and production slows down, emissions fall and the demand for allowances drops. Figure 2 shows a marked drop in expected EU Emissions for 2020. With falling demand, the market can become over supplied with allowances. This was seen following the 2009 financial crisis.

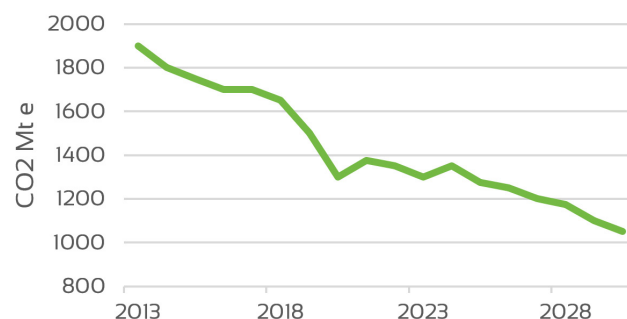


Figure 2: Actual and forecast emissions from EU ETS Participants, including power generation and industry, to 2030

To protect the carbon market from surplus allowances, the Market Stability Reserve was set up in 2019. This allows some permits to be transferred away from the market, reducing the number in circulation. Whilst removing allowances from the market could help with some of COVID-19 impact, it likely will not be enough to fully balance the market.

As Europe begins to reopen and industry and power demand has begun to rise, Carbon prices have begun to recover (Figure 3). With the economic impacts of COVID-19 expected to last well into 2021, the pace and sustainability of the recovery remains in question.



Figure 3: EU ETS carbon price 2019-2020

## What does this mean for UK energy markets?

On the simplest level, if carbon prices are high, the cost to European generators increases, as it costs more to off-set emissions. The result is higher power prices.

The profitability of coal and gas fired power stations is measured by the Dark (coal) and Spark (gas) spreads. The higher the spread, the more profitable the power station. In Europe, the word 'Clean' is often included to account for the cost of carbon permits. Coal power stations are more profitable than gas, until the associated carbon allowances are considered. However, coal generation emits two times the amount of CO<sub>2</sub> than gas, so coal fired plants need to buy more carbon allowances per kWh generated. When carbon prices increase, coal becomes even less profitable, therefore, generators, with a portfolio of generating assets, will keep a close eye on both fuel costs (coal & gas) and carbon prices when deciding which assets are the most profitable to run.

Europe is currently oversupplied with gas resulting in some of the lowest gas spot-prices in history, making gas generation more attractive. The price effect is amplified by the requirement to buy less carbon allowances. This has resulted in significant fuel switching from coal to gas, particularly in coal heavy economies such as Germany. This of course decreases demand for allowances pressuring carbon, and thus power, prices.

Carbon prices, and consequently UK power prices, will continue to be driven by demand, based on the profitability of different generating fuels once carbon allowances are accounted for. The macroeconomic effects of the COVID-19 outbreak will also continue to drive the market. The outcome of the UK governments consultation on carbon price is increasingly important as it will determine generator profit margin, and thus the price of electricity, beyond 2020.



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