



A short route to deindustrialisation?

An introduction to the UK Emissions Trading Scheme (UK ETS) and its challenges

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Introduction

The year 2022 and the Russian invasion of Ukraine in particular have brought the United Kingdom's energy supply, energy costs and costs on industry into sudden and dramatic focus. It is therefore especially important to understand the costs now faced by energy-intensive industries (EIs) in the UK.

To varying degrees, British civil society and popular opinion are beginning to ask whether some Net Zero policies, as currently configured, have moved too quickly and may come to some degree at the expense of national prosperity. As of the winter of 2022, this is beginning to become a major political issue and it is likely to remain so: while public opinion is concerned about questions like climate change and the environment in general, supply chains may be altered permanently after the Covid-19 pandemic, so we are unlikely to return a low-inflation economic environment.

This may mean that politicians will be under pressure to find ways, as far as possible, to keep down prices for industry and for the consumer. The desire to 'level-up' wide regions of the country may also lead others to ask whether environmental policies imposed on EIs, and the regions they call home, are leading to offshoring from our industrial heartlands to more polluting economies, making us reliant on imports into the bargain.

While politicians in Britain will likely maintain their commitment to Net Zero by 2050, they will also compete for votes from consumers who face higher prices and from people whose jobs in energy-intensive industries may be on the line.

Analysis is therefore beginning to ask whether energy and industrial policy is helping needlessly to render unprofitable EIs especially, a state of affairs that may lead to levelling-down instead of up. Investment and recruitment into some of our most important industries may also become harder if they continue to find it difficult to demonstrate profitability, or even the ability to stay above water, in the long-run.

The UK's Emissions Trading Scheme (ETS) is a central question in this new environment. We introduce it by way of the concept of carbon pricing and carbon markets in general.

The concepts of carbon pricing and markets

Carbon pricing

Carbon pricing is designed to capture the apparent external costs of greenhouse gas (GHG) emissions which, it is believed, society at large pays for or will pay for (this includes damage to crops, losing property from flooding, and so on). Pricing attempts to link emissions to their sources via a price, typically for carbon dioxide released. This carbon price, it is proposed, moves the apparent burden for damage from emissions to those who are 'responsible' for them and who, it is supposed, can avoid creating them.¹

¹ World Bank, 2023.

In principle, imposing a carbon price means that a government need not dictate who can emit carbon or produce goods, for instance, because the price provides a signal to emitters who may then transform the way they do business to reduce emissions – or pay. This results in the ‘internalisation’ of the suggested ‘external’ costs of climate change across economic decision-making. Thus, it is suggested, low-carbon investments will be released. And as the World Bank puts it, investors can, as a result, ‘reassess investment strategies and reallocate capital toward low-carbon or climate-resilient activities’. Carbon pricing can also provide governments with revenue.

Carbon pricing itself is taken to mean an explicit price on emissions (for example, per tonne of CO₂ equivalent (tCO₂e)). There are different forms of carbon pricing. Some countries, like Argentina, have launched carbon taxes on fuels with rates per tonne of CO₂ (generally seen as forms of indirect carbon pricing due to different carbon prices across types of fuel). But one form of this is using an emissions trading system or scheme (ETS), which, according to the World Bank, provides ‘certainty about environmental impact’ while the price itself is flexible. No claims are made about the environmental outcomes of a carbon tax, meanwhile, but the price of carbon can be guaranteed.

Under an ETS, emitters trade emission units to meet emission targets – set, it is assumed, by the state. This means that firms can (a) reduce emissions by carrying out changes to how they manufacture (although in some cases this may not be possible) or (b) buy emission units through the ‘carbon market’. A ‘market price’ for emissions is enabled through the synthetic creation of a degree of supply and demand for these emissions units.

There are two main forms of ETS, a cap-and-trade system and a baseline-and-credit system: both contain strong shades of economic planning. Under cap-and-trade, a cap, or absolute limit, is placed on emissions within the ETS. The government divides the cap into permits (allowances for a fixed volume of emissions), then auctions or allocates for free the allowances to businesses, who trade these amongst themselves in a market.

A baseline-and-credit system requires baseline emissions levels to be decided for separate regulated entities, with credits issued to entities whose emissions are reduced below this level. Credits may be sold to entities which exceed their baseline level of emissions.²

Because carbon markets may also come to provide significant annual income streams for farmers, for instance, as providers of ‘carbon sinks’, they may also create considerable dependency across the economy on their existence, as different sectors adapt themselves to the systematic redistribution of emissions credits, rather than the apparently more straightforward concerns of profitability and productivity.

Compulsory and voluntary carbon markets

Another way to understand the concept of carbon markets is to divide them into compulsory and voluntary markets. In a compulsory market, companies have a legal limit imposed upon their emissions and can buy or sell allowances with other companies (this has

² Ibid.

been compared to the old milk quotas).³ In a voluntary market, participation is optional: these will tend to be administered by an independent certification body. Companies will join these to offset emissions and may, for instance, do this by purchasing credits which are generated by carbon-sink projects.⁴

In the UK, the compulsory market is the UK Emissions Trading Scheme (UK ETS), which replaced the EU ETS of which the UK was a participant.⁵ The UK ETS is a cap-and-trade scheme in which energy-intensive industries (like steel, ceramics, chemicals and refineries) as well as aviation and electricity generation must participate. Beyond the UK ETS, small emitters are given targets instead of allowances and 'ultra-small emitters' must monitor their emissions. Firms which are covered by the scheme must have emissions measured and verified (then audited), from which a calculation for an allowance for every company is derived and held by the UK Emissions Trading Registry. This Registry also monitors the trading of allowances between emitters and holds a range of related details.⁶

³ AHDB, 2022.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

The functioning of the UK ETS

The United Kingdom Emissions Trading Scheme (UK ETS) is a cap-and-trade scheme that began operating on 1 January 2021 after the UK left the European Union. The cap is intended to be reduced in line with the UK commitment to Net Zero by 2050: as the government makes clear, '[t]he cap is reduced over time, so that total emissions must fall.'⁷

The UK ETS is a similar scheme to the EU ETS in which the UK was a participant, however there are differences, including that the UK ETS initial total cap is five per cent lower than the UK's share within the EU ETS (Phase Four). Initially, the UK ETS has been limited to energy-intensive industries, electricity generation and internal flights, but the scheme is intended to be expanded. The auction reserve price is £22 per tonne; international carbon offsetting is not allowed; and the fine for exceeding allowances is £100 per tonne.

The original UK Emissions Trading Scheme predates the EU ETS and was a voluntary scheme, established as a pilot in 2002, whose management was taken over in 2008 by the then-Department of Energy and Climate Change (DECC). This was relatively pioneering, but followed the new international consensus on the likely importance of carbon trading that was developing in line with the Kyoto Protocol. Designed to operate alongside the UK's 2001 Climate Change Levy (a *de facto* energy tax), a tax discount was available to firms which made cuts through ETS participation.

Participants could manage emissions to meet their targets or cut emissions below these targets such that their allowances could be sold, or buy allowances from other scheme participants for excess emissions. A National Audit Office review of the ETS came to the conclusion that while it led to some emissions reductions, perhaps logically, these would be greater with more demanding targets. (However, in the voluntary scheme, the 34 participating firms had been provided with an incentive fund to pay for their emissions reduction efforts.)

The UK described its own ETS in the Energy White Paper of December 2020, operating from January 2021 and replacing participation in the EU scheme. About 1,000 UK-based businesses are made to take part in the ETS, but in its Energy White Paper the Government stated that it is 'committed to exploring expanding the UK ETS to the two thirds of uncovered emissions'.⁸ The UK intends to keep using auctions as a method of allowance distribution, but in sectors like aviation, operators are eligible for free allocation.

The UK ETS applies where combustion units are in operation whose total rated thermal input exceeds 20MW (except whose main use is incinerating hazardous or municipal waste), although in Northern Ireland electricity generators remain in the EU ETS (under the Northern Ireland Protocol). In aviation, the UK ETS covers UK domestic flights, UK to Gibraltar flights, and flights by any operator from the UK to EEA destinations. Simplified provisions exist for hospitals and for installations whose emissions are under 25,000t CO₂e a

⁷ Ng, 2021.

⁸ Department for Business, Energy and Industrial Strategy, 2020.

year, and where a combustion installation's rated thermal capacity is under 35MW (these are subject to emissions 'targets'). Finally, 'ultra-small emitter' status may be acquired for installations with emissions under 2,500t CO₂e a year: these will not need a permit but must monitor emission and notify the regulator should these rise above the threshold. Significant civil penalties may be applied for any companies that fail to comply.⁹ The UK ETS is established through the Greenhouse Gas Emissions Trading Scheme Order 2020.

With the aim of making the UK ETS the 'world's first net-zero emissions trading scheme', as well as a five per cent lower cap than the UK share under the EU ETS, fines for emissions above allowances are £100 per tonne instead of €100 per tonne, with compensation to energy-intensive industries also lower. Yet, given that the market price of carbon emissions will thus be higher in the UK even than in the EU, this also appears to increase the risk of 'carbon leakage' (including business relocation to countries with less severe constraints), which, in principle, may to some degree defeat the purpose of an ETS (this is discussed below).^{10 11}

Authorities underpinning the UK ETS

The UK ETS Authority constitutes the UK Government, the Scottish and Welsh Governments and the Northern Ireland Department of Agriculture, Environment and Rural Affairs. Auctions will continue to be the primary means by which allowances are introduced onto the market, and according to the government, market participants will continue to be able to trade these in a secondary market.

The UK Emissions Trading Registry operates in a similar fashion to an online bank account and holds allowances for the UK ETS Registry as well as 'international units' for the UK Kyoto Protocol Registry (or the 'assigned amounts' agreed between developed countries). The ETS Registry is administered by the Environment Agency (EA). According to the government, the Registry's records cover:

- Allowances in Operator Holding Accounts (OHA), Aircraft Operator Holding Accounts (AOHA), Trading Accounts and Government Accounts; and
- Movement of allowances between accounts and details of verified emissions.

Meanwhile, records of the UK Kyoto Protocol Registry records cover holdings of international units in accounts and international unit transfers.¹²

⁹ Department for Business, Energy and Industrial Strategy, 2022.

¹⁰ Ng, 2021.

¹¹ Gummer and Puertas, 2022. Exemptions: The following do not constitute an 'installation' and are therefore beyond the scope of the UK ETS:

- An installation that uses only biomass as a fuel;
- An installation, or part of an installation, of which the primary purpose is research and development; and
- An installation of which the primary purpose is the incineration of hazardous or municipal waste.

¹² Department for Business, Energy and Industrial Strategy, 2022.

Free allocation functions such that the benchmarks used to calculate free allocation entitlements are identical to Phase Four of the EU ETS; free allocation is accessible for eligible aircraft operators who applied for this in 2021, but is under review.

Phases and developments in the UK ETS

The UK ETS replicates the EU ETS in that it is intended to be rolled out in phases: Phase One, between 2021 and 2025, then Phase Two from 2026 to 2030. The initial cap for the UK ETS in 2021 was 156 million allowances (five per cent less than the UK share of the EU ETS cap). But the UK ETS cap will be cut each year by c.4.2 million allowances (approximately 84 million allowances were made available for auction in 2021; c.81 million were auctioned in 2022).¹³

Within the UK's Net Zero Strategy (under which the government aims for greenhouse gas emissions of net zero in 2050 and a 78 per cent reduction on 1990 levels by 2033), the government has committed that it will 'review of the allocation of free allowances to maintain a balance between carbon leakage and incentivizing decarbonization [while the UK ETS Authority will consult] on a net-zero consistent cap' and '[c]onsult on extending the UK ETS to the two-thirds of emissions that are not currently included. This may include road transport and heating to *align with EU.*' [Our italics]. From 2021 onwards there will also be a higher annual *rate* of allowance reductions (-2.2 per cent)¹⁴ to reflect 'increased climate ambitions'. It is also notable that the EU intends to phase out free allowances completely by 2030 (with exceptions for some sectors).¹⁵

Linking the UK ETS

There is also a growing question over whether the government, or its civil servants, intend essentially to 'globalise' the UK ETS, in the sense of integrating it with other schemes. This would clearly have serious ramifications and the *de facto* tax-taking powers of the institutions which would oversee such schemes, and democratic accountability, among other concerns. Observers have stated that: '[t]here has been debate over the possibility of the UK ETS linking with the EU ETS or on an international platform. Government has previously indicated [it is] open to linking the UK ETS internationally in principle'.¹⁶

Article 6 of COP26 envisages linking ETSs globally, apparently to facilitate international transfer of carbon credits: one legal observer states that 'there is the possibility for a global ETS in the future', although it acknowledges that:

'concerns exist about how a globalized system can be established as it may mean embedding a completely new system in multiple jurisdictions [and that the] drive to establish a global ETS will largely depend on the political will of individual countries'.¹⁷

¹³ Department for Business, Energy & Industrial Strategy and Department for Energy Security & Net Zero, 2022.

¹⁴ Ares, 2021.

¹⁵ Ralston, 2021.

¹⁶ May et al, 2022.

¹⁷ Ibid.

It has also been suggested that the UK and EU could link their systems (the precedent being Switzerland linking its own ETS with the EU's in 2020). It is proposed that 'linked systems would improve liquidity in both markets [and provide] an example on [sic] how multiple cap-and-trade systems around the world can be brought into sync.' So, for example, the auction reserve price (ARP), that is, the minimum organisations pay for allowances in the UK ETS, was set at £22 per tonne of for the first auctions in 2021, but this was surpassed significantly in the first auctions, in which carbon prices reached £44, comparable to those in the EU's ETS over the same time. It is proposed that the market will become tighter if the UK declines to participate in the EU ETS.¹⁸

The evidence given for this activity includes British-based businesses paying more to emit CO₂ than EU counterparts. In 2021, British firms paid over £75 (€90) per tonne for the carbon emitted, while the same industries in the EU paid around €85 a tonne; the difference later narrowed, but then reached around €8-9 per tonne, that is, an approximately 10 per cent premium, with a smaller market with lower liquidity understood to lead to a higher price.¹⁹ However in terms of its volume cap, the UK's ETS is the fourth largest in the world (International Energy Agency (IEA) data shows that over 60 nations now have an ETS).²⁰

Complex and cumbersome compensation in the UK ETS

The government has recognised that affected sectors require some degree of compensation for the costs involved in UK ETS participation; a compensation scheme was instituted in 2013 to work alongside to the EU ETS at the time.²¹ The government states that it:

'[R]ecognises that carbon pricing through the UK ETS and CPS will have a knock-on effect on the wholesale electricity price and increase retail electricity prices in the short to medium term. A high carbon price can make electricity prices less competitive and increase the risk of carbon leakage [for] the UK's most electricity-intensive businesses, particularly those which operate in internationally competitive markets and are unable to pass these indirect emission costs through to consumers.'²²

The government is therefore compensating electricity-intensive users which are 'deemed to be exposed to a significant risk of carbon leakage due to the indirect emission costs of the UK ETS and CPS':²³ there is, however, no direct compensation to consumers (that is, the public) who by implication are paying more for energy as a result of ETS (among other policies which may have similar impacts).

While full detail of how companies can apply for compensation from government are set out by the Department for Business, Energy and Industrial Strategy (BEIS),²⁴ (now absorbed

¹⁸ Ralston, 2021.

¹⁹ Harvey, 2022.

²⁰ Ralston 2021.

²¹ Grid Beyond, 2022.

²² Ibid.

²³ Ibid.

²⁴ Department for Business, Energy and Industrial Strategy. *Compensation for the indirect costs of the UK ETS and the CPS mechanism: guidance for applicants*. Updated 12 June 2022.

into the Department for Energy Security and Net Zero) this process is complex and liable to be highly burdensome for many firms. For instance, applicants will first need to establish that they manufacture a product which falls within one of the eligible sectors in the following list:

- Preparation and spinning of cotton-type fibres;
- Manufacture of leather clothes;
- Manufacture of veneer sheets and wood-based panels;
- Manufacture of pulp;
- Manufacture of paper and paperboard;
- Manufacture of other inorganic basic chemicals;
- Manufacture of other organic basic chemicals;
- Manufacture of fertilisers and nitrogen compounds;
- Manufacture of glass fibres;
- Manufacture of basic iron and steel and of ferro-alloys;
- Aluminium production;
- Lead, zinc and tin production;
- Copper production; and
- Manufacture of batteries and accumulators.

Then, to make sure compensation is targeted properly, companies will need to pass the ‘5% test’ (to do so they will need to show their ‘indirect carbon costs amount to 5% or more of their GVA’). To pass this test, a company needs to do both of the following:

- ‘Meet the test on a mean average basis over the past 5 years concerned for which full financial accounts are available; and
- ‘Be above the 5% line for at least 3 of the 5 years.’

Furthermore, to calculate indirect costs for compensation eligibility, a firm will need to apply the following carbon price and GVA data:

- ‘Indirect carbon cost of £35.24/MWh in real 2021 prices; and
- ‘Average GVA data over the reference period (2016/17 – 2021/22) in 2021 prices. GVA is calculated as earnings before interest, taxation, depreciation and amortization (EBITDA) plus staff costs. GVA is in real terms and calculated by adjusting nominal GVA using HMT’s GDP deflator.’

A company may thus also be regarded as having passed the five per cent test if it demonstrates ‘to the satisfaction of the Secretary of State’ that either:

- ‘The business only fails the 5% test because of the inclusion of business activity which does not relate to the manufacture of the eligible product(s); or

<https://www.gov.uk/government/publications/uk-emissions-trading-scheme-and-carbon-price-support-apply-for-compensation/compensation-for-the-indirect-costs-of-the-uk-ets-and-the-cps-mechanism-guidance-for-applicants>

- 'A business which manufactures the same product in the UK has passed the 5% test and is eligible for compensation.'

Further complexity is added through the existence of Subsidy Control requirements that relate to 'ailing or insolvent economic actors' (AIEA). The government says that a 'business is eligible for compensation only if it is reasonable to assume the business would not be regarded as an AIEA.' Meanwhile, the government also states that,

'[to] ensure that the compensation schemes are aligned with the wider decarbonisation goals of the Government, we will expect all recipients of compensation to submit a plan by the end of the first year of the scheme (March 2023) setting out their decarbonisation pathway.'²⁵

²⁵ Department for Business, Energy and Industrial Strategy, 2022.

Central challenges in the UK ETS

Introduction

Beyond the variable costs imposed on industry, it is useful to understand what other challenges may be created by the UK ETS. These include concern over potential ‘carbon leakage’, the lack of a carbon border adjustment mechanism (CBAM), the action of the cost containment mechanism (CCM) and the lack of a link to the EU system.

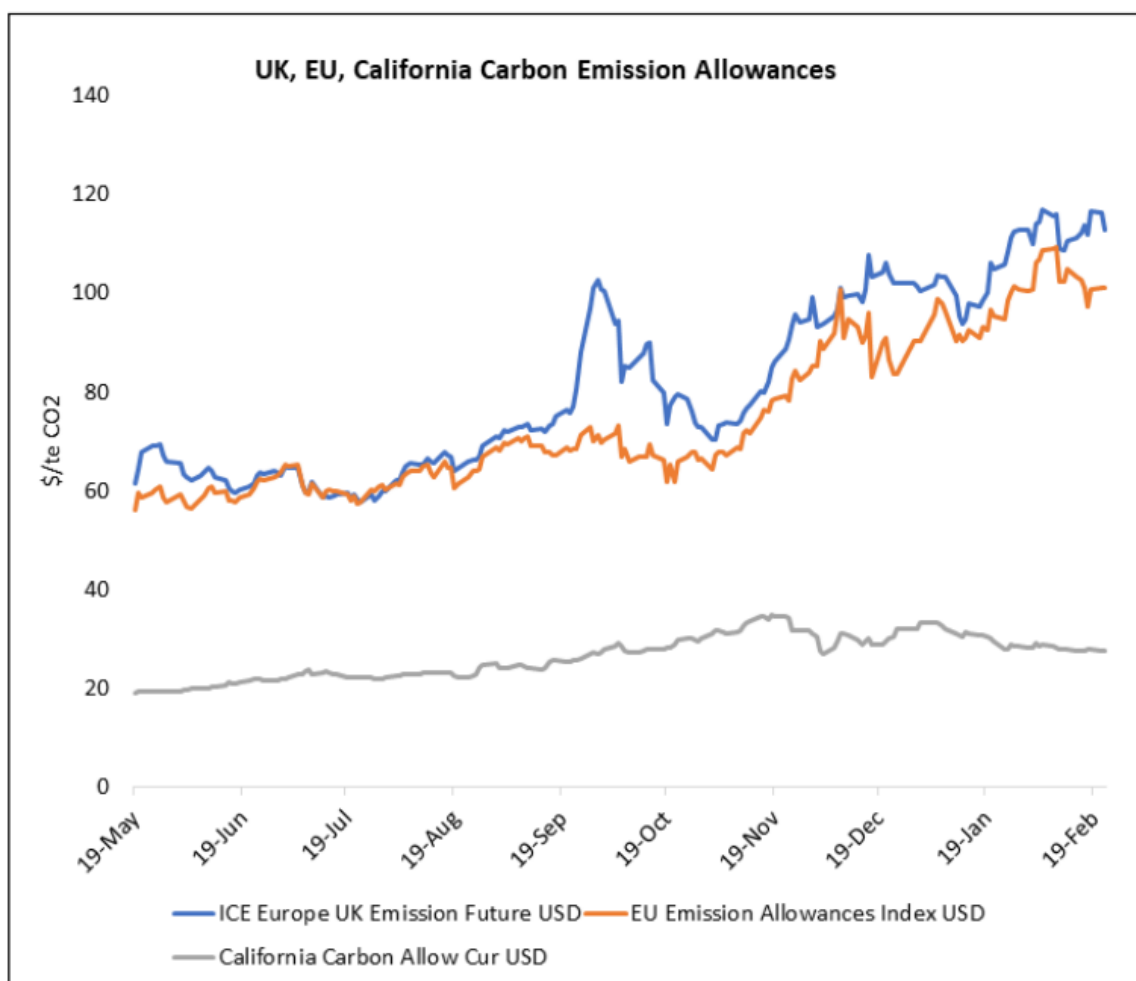
That in 2022 the UK ETS cost the steel industry, by way of just one example, an estimated £127 million in compliance costs (according to an industry consultation submission), or over half the whole sector’s annual capital investment, demonstrates why the fact that the UK ETS is adding costs for industries is now a subject of concern. Furthermore, should UK ETS costs be high enough to put industries such as refineries at a competitive disadvantage for long enough, this risks not only closing domestic industry but also increasing dependency on energy imports. Indeed, emissions costs under the UK ETS now exceed the costs faced by British-based companies’ competitors not only in the EU but on the US Gulf Coast and South Korea, for instance.²⁶ However, should British industrial facilities close as a result of these policies, domestic decarbonisation will have been achieved simply via deindustrialisation – and production is liable to move to more carbon-intensive economies, which risks rendering the suite of policies self-defeating.

In other ways, the impacts of an ETS are liable to be more complex than they have first appeared. The agenda of industrial decarbonisation is being pursued via the government’s ‘Industrial Cluster’ programme (another area with strong aspects of economic planning). There are six clusters across Humberside, Merseyside, Teesside, Grangemouth, Southampton, and South Wales. Five of these have at least one oil refinery in the area, which means that, should the refinery close, the industry which is being decarbonised in these regions is likely also to be affected. The presence of refineries in the UK also prevents dependency on more carbon-intensive refined fuels from abroad and reduces exposure to geopolitical risk and price increases (moreover, for over a decade, the UK has been ‘short’ on diesel and other fuels, and so has insufficient domestic capacity to produce for its own demand); refineries are also vital for a future hydrogen industry, which it is accepted will be needed in UK clean energy plans.

Emissions costs under the UK ETS also now demonstrably exceed those imposed even on competitors under comparable schemes, such as the European Union’s and the California CAT scheme.

²⁶ Ibid.

Figure 1: UK, EU and California carbon emissions allowances from May 2021 to February 2022



Source: Refinery industry Government consultation submissions to the Department for Business, Energy and Industrial Strategy (BEIS).

In the first nine months after the UK ETS came into force, UK allowances diverged above EU ETS allowance costs by an average \$6 per tonne and over California’s CAT scheme by \$56 per tonne. It might be noted that British-based firms also need to compete against their counterparts in regions like the US Gulf Coast, South Korea, India and Russia, which impose no emissions costs at all.

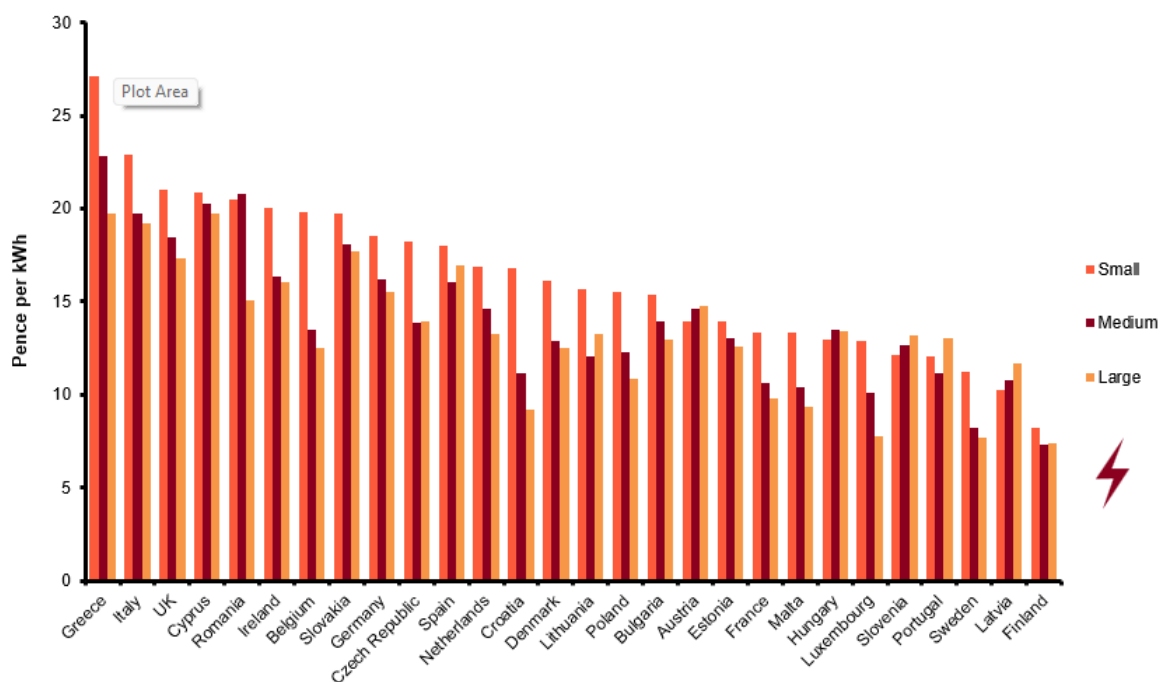
The question of carbon leakage

While government is now reviewing this risk, the question is whether this results both in direct risk – in the sense of the scheme itself being to a considerable degree self-defeating – and a risk to innovation. Carbon leakage means a situation whereby an increase in CO2 emissions in one country results from emissions reductions elsewhere with an ETS (or other climate policies). This could be caused by businesses moving manufacturing to countries without these emissions constraints, or by British consumers and industry buying cheaper

goods or supplies from lower-cost, higher-emissions economies: but either is liable to cause increased overall emissions worldwide.

This can also occur through the cost imposed on the economy as a whole. The indirect costs of emissions come through the obligation for power stations to purchase emissions allowances within the ETS. The increase in costs is passed on to the wholesale electricity market, resulting in higher electricity prices for all energy intensive industry, putting these – and all industry to varying extents – at a competitive disadvantage internationally, which may lead to carbon leakage.²⁷

Figure 2: Average industrial electricity prices in the EU27 plus the UK (including taxes)



Source: Department for Business, Energy and Industrial Strategy, 2022.²⁸

Lack of a CBAM-type mechanism

It has been suggested that the lack of a carbon border adjustment mechanism (CBAM) may compound this problem. This type of mechanism is designed to impose a cost on imports from more carbon-intensive manufacturing elsewhere, in order to address the problem of carbon leakage described above and, it is suggested, incentivise ‘greener’ manufacturing in general, including in other economies. The CBAM in particular is a mechanism on which provisional agreement has been reached in the EU; this form of mechanism has been

²⁷ Grid Beyond, 2022.

²⁸

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1119863/table_541.xlsx

criticised for being relatively crude. In the EU, this provisional agreement must be confirmed and adopted by the European Parliament and the ambassadors of EU Member States before it becomes final. The CBAM, intended to operate from October 2023, is designed to target imports of goods from carbon-intensive industries: the intention is to prevent EU attempts at emissions reductions indirectly leading to increased emissions elsewhere, including via industries relocating or via an increase in imports of carbon-intensive goods in general.

The CBAM will begin by including specific products in carbon-intensive areas: iron and steel, aluminium, hydrogen, cement, fertilisers, and electricity generation itself, plus various precursor products and a small number of downstream products. It will cover indirect emissions 'in a well-circumscribed manner'.

Under the provisional agreement, the CBAM system would begin with only reporting obligations being imposed. 'Full CBAM' will then be phased in alongside the phased removal of free allowances under the EU's ETS for relevant sectors (thus ensuring CBAM is compatible with international trade rules). The European Commission will also collect financing for its administrative expenses through the annual EU budget (before CBAM, the free allocation of ETS allowances has been intended to help reduce carbon leakage).²⁹

The Cost Containment Mechanism (CCM)

The auction reserve price for the UK ETS was set at £22, but, to control potential price escalation, the Cost Containment Mechanism (CCM) is triggered if allowance prices are higher, over three consecutive months, than twice the average price in the previous two years. The CCM allows the UK ETS Authority to take action should prices stay inflated for a sustained period: if the CCM is triggered, the UK ETS Authority must decide what, if any, intervention is needed. If agreement is not reached, HM Treasury can intervene to make a final decision.³⁰ The UK ETS Authority's decision should be based on addressing sustained price movements which do not correspond to market fundamentals. Intervention can include:

- Redistributing allowances between that current year's auctions; or
- Increasing the volume of allowances to be auctioned by:
 - Bringing forward auctioned allowances from future years;
 - Drawing allowances from the market stability mechanism account;
 - Auctioning up to 25 per cent of the remaining allowances in the New Entrants' Reserve;
 - Auctioning allowances which form part of the industry cap on free allocation to stationary installations for the current or past scheme years where the amount of free allocation is lower than the industry cap;
 - Bringing allowances into auctions from the flexible share.

As the last 18 months have played out however, the UK ETS Authority has declined repeatedly to activate the CCM. The CCM was triggered in December 2021 and again in

²⁹ Council of the European Union, 2022.

³⁰ May et al, 2022.

January 2022, when average carbon prices for the three-month period climbed over £52.88 and £56.58. But in neither case did the UK ETS Authority decide to take action to reduce prices.³¹ Carbon prices both in the EU and the UK reached record highs in November, due to increased coal burning, especially as a result of higher gas prices and, it is suggested, the German government's demanding environmental plans (suggesting that UK prices are also vulnerable to the impacts of decarbonisation plans elsewhere).³²

For example, prices temporarily reached £80.97 in December 2021,³³ a then record high, and sat at around £69.15 per tonne by December 2022.³⁴ By way of comparison, the International Monetary Fund (IMF) recorded a global average carbon price in 2020 of merely \$3 per tonne (although it is now recommending a carbon price floor of \$50-75 per tonne for developed countries).³⁵ In the round, the current measures to mitigate high carbon costs appear to need fundamental reform. The UK ETS Authority has failed to intervene on each of the occasions (December 2021 and January 2022) when the CCM was triggered, despite the UK ETS having created a demonstrable and persistent disadvantage, even compared to other countries with cap-and-trade schemes, including those under the EU ETS.

One cause of this is the methodology behind the CCM trigger point, which renders it difficult for interventions to take place; even ministers are prevented from making decisions, as CCM involves a meeting of officials who have no need to justify their decisions in detail. This means a vague and subjective decision-making process (the Authority described 'debates') which appears to need to be replaced by an objective and transparent means which is outlined in legislation and triggered by actual prices. California's scheme has these facets, preventing subjective political decision-making and creating hard limits to price surges.

Under the Californian system, elements have been designed to 'optimize cost-effectiveness', including:

- Multi-year compliance periods, which smooth year-to-year variations in emissions levels;
- Allowance banking, subject to strict holding limits, which allows participants to hold allowances and use them for compliance in a later period;
- The establishment of an Allowance Price Containment Reserve (Reserve), which allows covered entities access to allowances at set prices as a hedge against higher costs, and;
- The creation of a price ceiling to ensure robust cost containment while delivering the necessary GHG emission reductions.

In 2017, Assembly Bill 398 (AB 398) provided legislative direction to add a new price ceiling mechanism within the Program. This took effect on January 1, 2021.³⁶

³¹ Ibid.

³² Buli, 2021.

³³ EDIE, 2022.

³⁴ Ember, 2023.

³⁵ EDIE, 2022.

³⁶ California Air Resources Board, 2022.

The challenge of hydrogen and CCUS

In an apparent paradox, one of the crucial areas of the UK's Net Zero plans, the successful expansion of Carbon Capture Usage and Storage (CCUS) and low-carbon hydrogen requires the continued existence of a relatively energy-intensive sector, namely refining. Refineries will also be needed if the UK is to produce any low-carbon fuels, for instance for aviation. As discussed below, this means that a Net Zero-aligned cap that fails to work in tandem with anticipated CCUS will be self-defeating, not least if this takes the form of the proposed 50 per cent cut in the UK ETS allowance cap.

The government is planning capital and revenue subsidy schemes for CCUS Industrial Clusters, but these risk being undermined by current ETS plans, given that energy intensive industries will in turn be unable to access the 'deep decarbonisation technologies' like CCUS, which would make ETS more affordable, until the 2030s.

The Government consultation underway

Launched on 14 June 2022, the Government's 'Developing the UK ETS' consultation aimed to identify which sectors have been affected most severely by the scheme; the Government launched a separate call for evidence on the UK's use of free allocation as part of the UK ETS to incentivise emissions reduction, with a later consultation on a 'net-zero consistent cap trajectory'.³⁷

Activity levels and Covid

The UK ETS Authority plans to legislate to amend the Activity Level Changes (ALC) Regulation to let operators apply for data from the 2020 ETS year to be omitted from the 2022 process, for those installations that can demonstrate discrepancies between reductions in activity levels and emissions caused by the Covid-19 pandemic. A threshold of 15 per cent between reduction in activity and emissions between 2019 and 2020 will be needed; applicants will need to show evidence that the discrepancy was entirely or mainly due to the effects of the Covid-19 pandemic.³⁸

Some firms have described the outcome of reduced activity levels due to government-imposed health measures during the Covid-19 pandemic as 'particularly onerous', but suggest that the Government's proposed solution above is inappropriate: some industries were affected less severely, while other sectors took longer to recover due to the impacts on the workforce and planned maintenance, proposing that a fundamental revision of the rules is needed.

Resetting the industry cap for Net Zero-consistency

The UK ETS Authority has proposed a Net Zero-consistent cap with a considerable drop in range: from 156 million allowances in 2021 to only 50 million in 2030 (that is, a 50 per cent reduction between 2023 and 2024). This has the potential to undermine British industrial competitiveness, especially without effective carbon border adjustments, making companies that compete for exports face expenses their foreign competitors do not and risking their exit from the global marketplace. The proposed reduction would come in 2024, long before they would have the ability to access 'deep decarbonisation technologies' (for example, CCS and/or low-carbon hydrogen) for cost-offsetting; this is also liable to mean 'investment leakage,' whereby firms may be unable to invest in cutting emissions on-site. The proposals may risk breaking a link between compliance costs and incentivisation of emissions reductions, simply morphing into a tax on EITs which leads to deindustrialisation.

One possible alternative is a 'dual-track emissions cap,' whereby allocated free allowances are divided between activities associated with products for the domestic market and export products, allowing a carbon border for imports which meet standards required and the British exports to the emissions standards of other markets. In refining, for instance, data

³⁷ Grid Beyond, 2022.

³⁸ Department for Business, Energy and Industrial Strategy, 2022.

shows the relative energy-efficiency of the UK sector, with the UK Petroleum Industry Association (UKPIA) describing British oil refineries as ‘on average less emitting than the global average’³⁹.

The retention of unallocated allowances and/or flexible share for ‘market stability purposes’

This is liable to achieve a similar effect: all allowances should be released onto the market (creating more allowances is therefore the alternative route to stability). Conversely, retaining allowances contributes to higher prices, with a resulting inflationary impact on the British economy. Market stability may instead be better addressed by changes to the CCM along Californian lines (discussed above), in particular a CCM defined as precise actions written into legislation, including hard limits to price spikes and predictable increases to carbon prices over time-periods. The exponentially increasing CCM trigger price mechanism is also undesirable.

The risk of financialisation

The risk here appears to lie in speculators’ use of ETS allowances as sales mechanisms for funds without interests in actual decarbonisation activity. While financial intermediaries have a value, in limited-liquidity markets there is a risk of speculation driving up auction prices through high-priced trading in the futures market. The possibility is for legally-defined limits to financial intermediaries’ market activities with hard limits to price spikes for predictable carbon price increases to prevent emitters being affected by short-term speculative trades.

Expansion of ETS

A number of bodies have suggested that UK ETS be expanded to cover the entire economy: one of these is the UK Energy Systems Catapult. However, this is not yet Government policy.

The first expansion proposed by the government is that sources of methane from upstream oil and gas, as venting, cold flaring, methane slip, fugitive emissions, and other process emissions, be covered by UK ETS. Meanwhile, following the EU decision to include municipal waste incinerators under EU ETS from 2026, the UK also intends to follow suit, the ‘starting proposition’ being that

‘the UK ETS should cover the incineration of fossil waste only (e.g. plastics, certain textiles, rubber, liquid solvents, and waste oil but not waste from biological sources i.e. food waste) and assess whether carbon tax should be considered either as part of the UK ETS or a separate instrument. The aim is to support liquidity by increasing the number of market participants, to deliver more cost-effective decarbonisation across the whole economy, and encouraging residual waste to be recovered in a way which lowers overall carbon emissions, such as chemical recycling.’⁴⁰

³⁹ From consultation submissions.

⁴⁰ Department for Business, Energy and Industrial Strategy, 2022.

More details will emerge in the Government response to the consultation, including whether ETS obligations will only apply to incinerators operating above the current 20MWth threshold; additional ETS costs for businesses that they can pass through to local authorities; and that, although applying ETS may create an incentive for local government to recycle more, this would need recycling infrastructure.⁴¹

Summary of consultation

The broad proposals of the consultation would appear to exacerbate the likely economic, industrial and social impacts of the UK ETS, especially in those regions more reliant on manufacturing industries: these regions, generally the less prosperous in the UK, also rely disproportionately on high-emission industries for employment.⁴²

The UK Petroleum Industry Association (UKPIA) has stated that UK oil refineries, for instance, are ‘on average less emitting than the global average.... [t]he difference in emissions can be 35% higher if product is imported from outside the EU when considered against domestically refined product.’ Loss of UK industry could cut UK CO₂ emissions but risk increasing global emissions. It would also be an irony if the UK were to leave the EU only to put its industry and exports at a new, more serious, disadvantage.

Investors from the US, Saudi Arabia and India, for example, have already invested in energy-intensive industries in the UK to serve both the domestic and export markets: as such the UK’s economy and productivity face the results of the political decisions made up to the present day. The further uncertainty created by the consultation runs through its proposals for extension, the cap itself and free allowances (re. possible withdrawal from 2026), which are provided to a number of industries, such as refining, due to their particular risk of carbon leakage. The removal of these risks accelerating ‘deindustrialisation’.

⁴¹ Gummer and Puertas, 2022.

⁴² Christie-Miller and Luke, 2021.

Summary and recommendations

The response to the current consultation will indicate the degree to which the UK can balance the agenda of long-term Net Zero with the realities of economic growth, or will risk forcing relatively highly-skilled jobs abroad without cutting emissions globally. If even California adapted its scheme in a more realistic direction, then the United Kingdom too would be well placed to seriously reconsider its approach, in the name of economic growth, employment, stable families and greater prosperity throughout the regions.

While the majority of energy price risks over the last 18 months have been due to the increase in gas prices, not the ETS, any policy that may endanger future fuel availability also needs especially careful prior consideration.

The events of the last year have brought the UK's energy and industrial costs into a new focus. The costs now faced by energy-intensive industries in the UK are especially pressing, and opinion is beginning to question the costs of the speed of the shift towards Net Zero and whether these policies are conducive to economic productivity and national prosperity. Meanwhile, questions are beginning to be raised about the risk of offshoring from our industrial heartlands to more polluting economies, with possible dependency on imports as a result, and whether this may create a new status quo of needless and irreparable de-industrialisation.

The government is now consulting 'on extending the UK ETS to the two-thirds of emissions that are not currently included; this may include road transport and heating to *align with EU.*' Yet '[t]he cap is [also] reduced over time, so that total emissions must fall': the UK ETS cap will be cut each year by c.4.2 million allowances. From 2021 onwards there will also be a higher annual *rate* of allowance reductions (-2.2 per cent)⁴³ to reflect 'increased climate ambitions'. Article 6 of COP26 envisages linking ETSs globally, raising questions for the democratic accountability of these schemes.

After the first year of the UK ETS, British firms had been paying over £75 (€90) per tonne for carbon emitted; equivalent industries in the EU had paid around €85 a tonne, and while the difference then narrowed, it still reached around €8-9 per tonne, a c.10 per cent UK premium.⁴⁴ While government compensates electricity-intensive users 'deemed to be exposed to a significant risk of carbon leakage due to the indirect emission costs of the UK ETS and CPS', there is no direct compensation to consumers (that is, the public) who by implication pay more for energy and goods due to ETS. Moreover, companies need to calculate and pass the complex '5% test' by showing that their 'indirect carbon costs amount to 5% or more of their GVA'.

That in 2022 the UK ETS cost the steel industry, as one example, an estimated £127 million in compliance costs (according to consultation submissions; this is over half the sector's annual capital investment) suggests the degree to which UK ETS is adding to heavy

⁴³ <https://researchbriefings.files.parliament.uk/documents/CBP-9212/CBP-9212.pdf>

⁴⁴ Harvey, 2022.

industries' costs. Moreover, should the UK ETS put industries like refineries at a lengthy competitive disadvantage, this risks closures which would raise dependency on imports of fuel, for instance.

The costs of UK ETS now exceed those imposed on competitors in most jurisdictions. Should British industrial facilities close as a result, domestic decarbonisation will have been achieved via deindustrialisation, with production liable to move to more carbon-intensive economies. In the first nine months after it came into force, UK allowances diverged above EU ETS allowance costs by an average \$6 per tonne and even over California's CAT scheme by \$56 per tonne. British firms must also compete against counterparts in regions like the US Gulf Coast, South Korea, India and Russia, which impose no emissions costs at all.

The obligation for power stations to purchase emissions allowances within the ETS and pay tax on the carbon in the fossil fuels with which they generate electricity (the Carbon Price Support was introduced in Great Britain and is in addition to the Climate Change Levy) results in increased costs being passed on to the wholesale electricity market, meaning higher electricity prices.

The challenge of hydrogen and CCUS

Counter-intuitively, one important component of UK Net Zero plans, of Carbon Capture Usage and Storage (CCUS) and related low-carbon hydrogen require the continued existence and profitability of refineries, a relatively energy- and emissions-intensive sector, which are also needed for the production of low-carbon fuels such as for aviation. Among refineries meanwhile, the presence of these in the UK prevents over-dependency on more carbon-intensive imported refined fuels, reducing exposure to geopolitical risk and price rises (just as if the UK loses its refineries, it will become completely dependent on imports of jet; the UK currently has insufficient capacity to produce enough diesel, for instance).

The Cost Containment Mechanism (CCM)

The Cost Containment Mechanism (CCM) is triggered if allowance prices are higher, over three consecutive months, than twice the average price in the previous two years. In the last 18 months however, the UK ETS Authority has declined repeatedly to activate the CCM: a subjective decision-making process allows decisive action to be avoided. It appears that this needs to be replaced by an objective and transparent means, set out in legislation and triggered by actual, agreed prices. California's scheme has these provisions and is therefore more effective at preventing subjective political decision-making and imposing hard price limits. Hard limits to price spikes to ensure more predictable carbon price increases would also help prevent emitters being affected by short-term speculative trading.

Resetting the industry cap for Net Zero-consistency

In its recent consultation, the UK ETS Authority has proposed a 'Net Zero-consistent cap' involving a cut from 156 million allowances in 2021 to merely 50 million in 2030 (a 50 per cent reduction from 2023 to 2024). This stands to push British companies out of the global marketplace, especially without anti-carbon leakage provisions, while the proposal risks breaking any link between compliance and the incentivisation of emissions reductions: this

will simply become a tax on EIs, leading to deindustrialisation. One alternative is a ‘dual-track emissions cap’ in which free allowances are divided between manufacturing for products for the domestic market and for export, allowing a carbon border for imports which meet standards required and the British exports to the emissions standards of other markets (however, imposing a carbon border may protect UK industry but would be liable to drive up costs for British consumers).

Yet expansions proposed by the government to the scheme include that sources of methane from upstream oil and gas, as venting, cold flaring, methane slip, fugitive emissions, and other process emissions, be covered; and that the UK follow the EU in including municipal waste incinerators. But these would risk exacerbating the industrial and social impacts of the UK ETS, especially in those regions, generally the less prosperous in the UK, which also rely disproportionately on higher-emission industries for employment.

Recommendations

Loss of UK industry would tend to cut UK CO₂ emissions and increase global emissions, rendering UK ETS self-defeating. One of the concerns with continuing the ETS is that, even if some industries are compensated, the scheme extends state planning deep into industry and commercial life and makes entire industries dependent on the largesse or otherwise of the state. However, with the abolition of the ETS itself unlikely at this stage, the following recommendations are proposed for the immediate future:

- Beyond the consultation therefore, the Government should change the way it assesses the success of the UK ETS and approach this from the perspective of impact on *global* emissions (this does not imply the linking together of different emissions schemes).
- Even on 1 January 2021, the initial cap was already five per cent lower than the UK’s share of the EU ETS. At the least, this should be rectified and for the *status quo* to become the equivalent to the UK’s share of the EU ETS.
- The planned expansion of the UK ETS to industries beyond energy-intensive industries (EIs), electricity generation and internal flights should be put on hold due to current high carbon prices. The Net Zero-aligned cap, including the proposed 50 per cent cut in the UK ETS allowance total cap, should be paused for the same reason.
- Retention of unallocated allowances for ‘market stability purposes’, which will contribute to higher prices and have a resulting inflationary impact on the British economy, should be cancelled.
- While the government compensates electricity-intensive users ‘deemed to be exposed to a significant risk of carbon leakage due to the indirect emission costs of the UK ETS and CPS’, compensation should be expanded to all energy-intensive industries, including refineries, and the degree of compensation reviewed.
- The vague and subjective nature of the Cost Containment Mechanism (CCM) needs to be replaced by an objective and transparent means, set out in legislation and triggered by actual, agreed prices.

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In this analysis, **Dr. Jim McConalogue (CEO, Civitas)** looks at the UK's Emissions Trading Scheme (ETS) and the regulation of carbon emissions on energy intensive industries.

This new publication asks whether energy and industrial policy is helping needlessly to render unprofitable energy intensive industries. Investment and recruitment into some of our most important industries may also become harder if they continue to find it difficult to demonstrate profitability, or even the ability to stay above water, in the long-run.

Recent events have brought the UK's energy and industrial costs into a new focus. The costs now faced by energy-intensive industries in the UK are especially pressing, and opinion is beginning to question whether the costs of our energy policies are conducive to economic productivity and national prosperity.

The costs of the UK ETS now exceed those imposed on competitors in most jurisdictions. Should British industrial facilities close as a result, domestic decarbonisation will have been achieved via deindustrialisation, with production liable to move to more carbon-intensive economies.

In response McConalogue makes a series of recommendations to limit the impact of government attempts to impose controls on energy intensive industries and support economic growth.