CBAM: MARKET-BASED OR MARKET BUST?

Catherine McBride

The Global Warming Policy Foundation
Report 64

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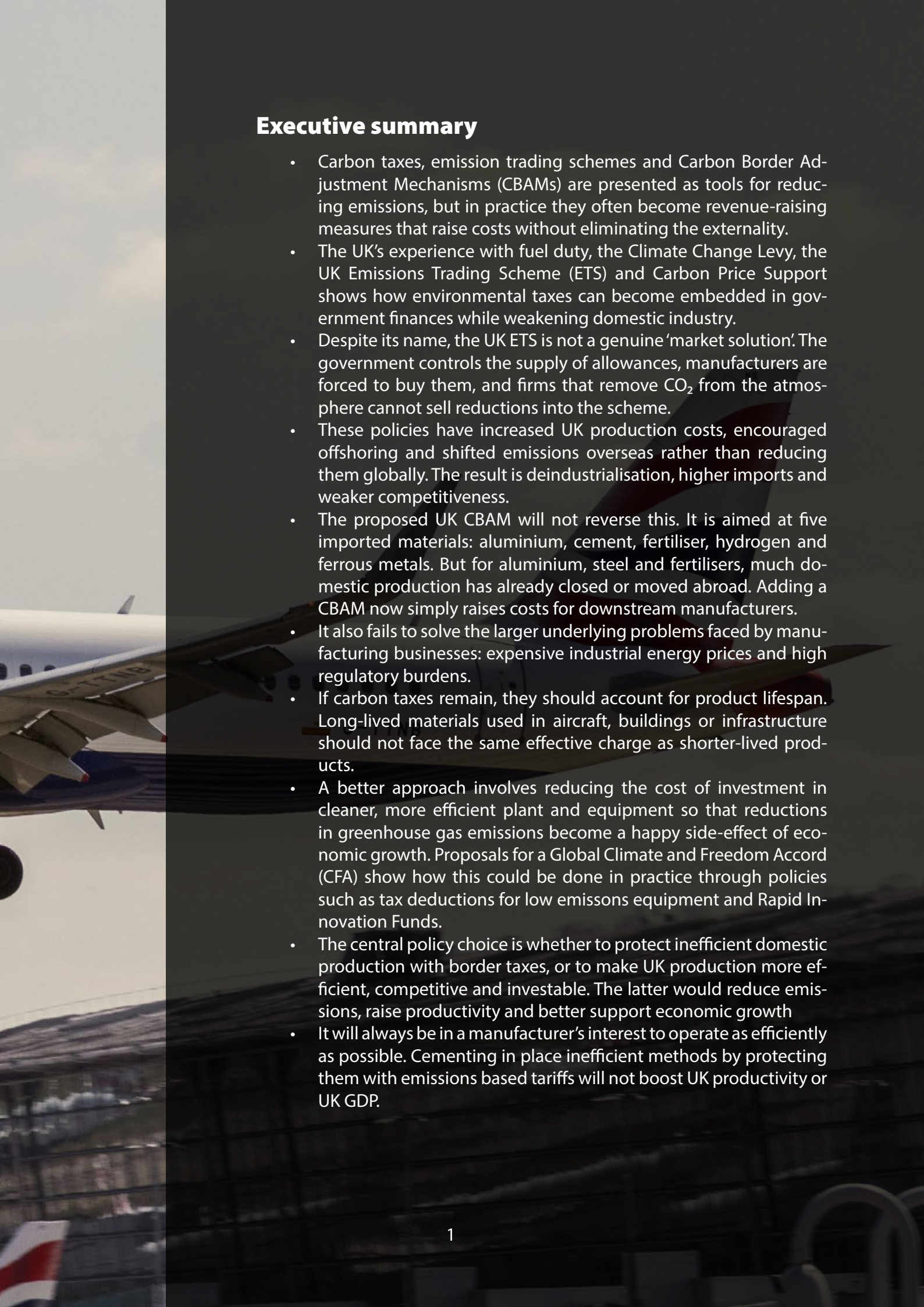
About the author

Catherine McBride OBE is the CEO of the Great British Business Council. An economist specialising in trade, she recently served on the UK's Trade and Agriculture Commission. Before this, she worked for various think tanks, writing on UK trade policy and financial services regulation, after a career trading commodity derivatives in the City of London for some of the world's largest banks and commodity houses. Catherine was a co-author of the Institute for Free Trade's paper: An Economically Sustainable Global Climate Accord.


BRITISH AIRWAYS



Executive summary

- Carbon taxes, emission trading schemes and Carbon Border Adjustment Mechanisms (CBAMs) are presented as tools for reducing emissions, but in practice they often become revenue-raising measures that raise costs without eliminating the externality.
- The UK's experience with fuel duty, the Climate Change Levy, the UK Emissions Trading Scheme (ETS) and Carbon Price Support shows how environmental taxes can become embedded in government finances while weakening domestic industry.
- Despite its name, the UK ETS is not a genuine 'market solution'. The government controls the supply of allowances, manufacturers are forced to buy them, and firms that remove CO_2 from the atmosphere cannot sell reductions into the scheme.
- These policies have increased UK production costs, encouraged offshoring and shifted emissions overseas rather than reducing them globally. The result is deindustrialisation, higher imports and weaker competitiveness.
- The proposed UK CBAM will not reverse this. It is aimed at five imported materials: aluminium, cement, fertiliser, hydrogen and ferrous metals. But for aluminium, steel and fertilisers, much domestic production has already closed or moved abroad. Adding a CBAM now simply raises costs for downstream manufacturers.
- It also fails to solve the larger underlying problems faced by manufacturing businesses: expensive industrial energy prices and high regulatory burdens.
- If carbon taxes remain, they should account for product lifespan. Long-lived materials used in aircraft, buildings or infrastructure should not face the same effective charge as shorter-lived products.
- A better approach involves reducing the cost of investment in cleaner, more efficient plant and equipment so that reductions in greenhouse gas emissions become a happy side-effect of economic growth. Proposals for a Global Climate and Freedom Accord (CFA) show how this could be done in practice through policies such as tax deductions for low emissons equipment and Rapid Innovation Funds.
- The central policy choice is whether to protect inefficient domestic production with border taxes, or to make UK production more efficient, competitive and investable. The latter would reduce emissions, raise productivity and better support economic growth
- It will always be in a manufacturer's interest to operate as efficiently as possible. Cementing in place inefficient methods by protecting them with emissions based tariffs will not boost UK productivity or UK GDP.

Introduction

This paper discusses externalities and the government policies used to mitigate them. It reviews the UK's current CBAM proposal, the previous government's proposals, and the EU's CBAM. It analyses the industries covered by the proposed CBAM and discusses more effective free-market solutions to reduce industrial GHG emissions while improving productivity through innovation and lowering CAPEX costs.

This paper does not question whether CO_2 is beneficial or detrimental to the environment. Instead, it examines whether the UK's Emissions Trading Scheme (ETS) and proposed Carbon Border Adjustment Mechanism (CBAM) represent a cost-effective way of reducing emissions or if there are better alternatives.

Most economists agree that negative externalities should be reduced but disagree on how to do so effectively. There is currently a trend toward imposing taxes on them, but this rarely deters the behaviour that caused the externality. Instead, the tax becomes useful revenue stream for governments, which become reliant on the additional income.

1. What are externalities?

An externality occurs when a market transaction affects people or communities who are not parties to the transaction. Externalities can be positive or negative, and a single externality may be positive for some people, but negative for others.

For example, a positive externality could be the eradication of a disease after most of the population has been vaccinated against it. A negative externality could be factory pollution entering a river, which prevents livestock from using the water downstream. Or a child eating too many sweets, so the state must pay for their dental care. The child enjoyed the sweets, the sweet company made money, but the state was left with the bill for the externality — cavities.

Externalities can flip from negative to positive. When a neighbouring house is being renovated, the neighbours suffer the negative externality of construction noise and traffic disruption, but they may also benefit from a positive externality when the house is finished, if the renovation increases house values on the rest of the street.

Similarly, the construction of a new airport, together with a highway or train line for air passengers to reach and depart the city, would have a positive externality for people living near the highway or train line, as they would benefit from improved connections to the city centre. However, people living under the flight path of the new airport would suffer a negative externality: increased noise pollution. Whether an externality is positive or negative often depends on the attitudes of the parties involved.

While people rarely complain about positive externalities and often take them for granted without realising they are a windfall from someone else's effort or transaction, negative externalities are rarely accepted as part of life. Negative externalities generally create a case for the government to either regulate the activity, tax it to make it more expensive, or use alternative methods to prevent it from causing the negative externality.

2. Common solutions to negative externalities

Taxes

In the UK, there are many examples of taxing activities to reduce externalities. For example, taxing drivers who drive into central London to discourage traffic congestion or taxing cigarettes to lower healthcare costs. To reduce carbon dioxide emissions, carbon taxes have been applied to electricity production. The idea is that by making electricity more expensive, people will use less of it and greenhouse gas emissions from electricity production will be lower.

At least that is the theory.

In April 2001, the UK introduced the Climate Change Levy (CCL) on businesses for gas and electricity consumption on a per-kWh basis.[1] This was supposedly to reduce CO_2 emis-

sions and encourage UK businesses to use less energy and become more efficient. The EU subsequently introduced the Emissions Trading Scheme (ETS) in 2005, and then the UK added its Carbon Price Support (CPS) carbon emission tax in 2013. All were meant to curb industrial CO_2 emissions. However, energy is essential for industry. So, while UK emissions have halved since 1990, the manufacturing share of the UK economy has too.

We shouldn't be surprised by this result. Taxes on externalities generally don't work and end up serving only as a source of government revenue. The Fuel Duty Escalator, introduced in 1993, was explicitly linked to environmental goals. Yet fuel duty has become so important to HMRC revenues that, as EV adoption grows and fuel duty receipts decline, the government is introducing a pay-per-mile road tax to replace the lost income. Although the escalator's purpose was to encourage a shift from ICE vehicles to EVs, the tax burden is being retained under a different name because the revenue has become indispensable to government finances.

The UK mandate for all new car purchases to be EVs by 2035[2,3] has been so successful that the government now needs to replace its Fuel Duty revenue with a new mileage-based tax for electric vehicles and plug-in hybrids, the Electric Vehicle Excise Duty (eVED). The duty will start in April 2028 and will be priced at 3 p per mile for EVs and 1.5 p per mile for plug-in Hybrids, and the OBR expects it to raise £1.1 billion in its first year of operation.[4] The OBR also expects the new tax to reduce EV sales by 440,000[5] vehicles by 2031. Ironically, the tax designed to discourage ICE vehicles and promote EV use is now being replaced by a new tax that is predicted to discourage EV use.

Some environmental taxes introduced to discourage activities that produce negative externalities have often generated their own externalities when people avoid paying them. For example, fly-tipping is endemic in the UK due to the costs and regulations associated with legally disposing of construction waste and other unwanted household items.[6] There were 1.15 million fly-tipping incidents in England in 2023/24, up 6% from the year before, costing local councils over £13.1 million to clear.[7]

Prohibitions

If the goal is to remove a negative externality, prohibitions are more effective than taxes when rigorously enforced. Some examples include the ban on leaded petrol, the ban on smoking in enclosed public places, and the ban on child labour. However, this imposes a cost on the government, which must enforce the ban but receives no financial benefit unless substantial fines are imposed for violations. Thus, the government tends to prefer taxes to prohibitions. Governments generally prefer the revenue stream and political gain from 'virtuous' taxation rather than the cost of enforcing regulations, even though prohibitions eliminate the externality.

Regulations

Regulations sometimes work if, like prohibitions, they are properly enforced. For example, the U.S. Environmental Protection Agency introduced greenhouse gas emissions standards for passenger vehicles and light trucks for models manufactured from 2023 to 2026. The emissions standards reduce each year from 202 g of CO_2/mile in 2023 to 161 g of CO_2/mile in 2026.[8] These are expected to prevent 3 billion tons of GHG emissions by 2050 if the limits are met.

Similarly, the American Innovation and Manufacturing Act of 2020 requires an 85% reduction in the use of hydrofluorocarbons (HFCs) by 2036.[9] HFCs are used in refrigeration, air conditioning, aerosols, fire suppression and semiconductor manufacturing. HFCs were developed as a replacement for CFCs, which had the unfortunate externality of depleting the Ozone layer. However, HFCs are synthetic greenhouse gases with high global warming potential. Thus, the solution to one externality now produces another and needs to be phased out.

Promoting alternative goods or processes

Another method of reducing negative externalities is to promote or subsidise alternative activities so that they become preferable to the activity that produces the negative externality.

Obvious examples include the subsidies available for solar panels and wind turbines, which reduce the cost to the generator of pro-

ducing renewable electricity, thereby making it more competitive with dispatchable power from gas or coal. This only encourages off-grid consumers to switch to renewable power if they have a choice between the two. However, most UK consumers don't have this choice, as the power from all sources is 'mixed' on the national grid.

The UK also subsidises by up to £3,750 the purchase of new EVs (priced under £37,000),[10] and offers preferential company car tax rates and other discounts, including reduced congestion charges and parking fees for EVs.[11] These incentives are designed to make driving an EV cheaper than an ICE vehicle. However, if electricity is more expensive than petrol, or if people lack off-street parking or access to fast charging facilities, the financial incentive to switch to an EV may not be large enough to encourage a change in consumer behaviour.

Licences, allowances and carbon tariffs

In the case of greenhouse gas emissions, several countries have adopted a superficially 'market-based' system in which companies with high CO_2 emissions can buy permits for their emissions, effectively a licence to pollute. In a true market, these emission permits would be sold only by individuals or companies that own businesses or land that sequester carbon dioxide.

In the UK and EU's Emissions Trading Systems (ETSs), the respective governments create the demand for emissions allowances and control their supply. By reducing the number of allowances available, they aim to increase carbon prices over time. They also grant free allowances to selected industries to protect them from higher costs and reduce the risk of production moving abroad. Despite these protections, many businesses have relocated manufacturing to countries without carbon taxes, where they often benefit from lower labour costs and less stringent environmental regulations.

The UK has further increased energy costs by imposing additional carbon taxes on electricity generation. Businesses must pay Climate Change Levies and purchase ETS allowances, while electricity prices also reflect the Carbon Price Support (CPS), a tax introduced in 2013 on electricity generated from fossil fuels. The CPS was intended to accelerate the phase-out of coal by guaranteeing a minimum carbon price for power generators. Although the UK's last coal-fired power station closed in 2024, the tax remains in place and is scheduled to continue until April 2028.[12] The additional burden pushes UK electricity prices higher than most other EU countries.

The offshoring of manufacturing to carbon-tax-free countries is known as carbon leakage. To combat this 'carbon leakage', the EU has introduced a new tariff on imported materials produced with high GHG emissions. This tariff is called the Carbon Border Adjustment Mechanism (CBAM).

The UK Government also proposes to introduce a CBAM from January 2027, and the Labour government have recently published a policy update of the Conservative government's proposed CBAM.[13] Both the present Labour and the former Conservative governments believe that a CBAM on imports would protect UK industries with high CO_2 emissions. These industries must purchase emission allowances on the UK's ETS market but also compete with imported goods produced in countries without carbon taxes.[14] While the current Labour Government has also proposed that the UK should join the EU's ETS and CBAM, which will be discussed in more detail in Chapter 5.[15,16]

Promoting investment in efficient equipment and innovation

The most effective method of reducing an externality is to encourage the development of innovations that eliminate it and to encourage industries and manufacturers to adopt them. This is another way of reducing externalities, but it is the opposite of taxing emissions, which reduces the money available to manufacturers for investment in research and development and new equipment. Studies show that competitive markets decarbonise faster than regulated markets because they make it easier, cheaper, and faster for competitors to deploy innovations.

For example, the average internal combustion engine car in 2025 is more than twice as fuel-efficient as one in 1975. The average fuel efficiency of a 1975 car was just 13 miles per gallon (mpg), but it is now 28 mpg.[17] This figure includes cars, SUVs and pickups. The modern ICE

car also produces 95% less CO, 90% less NOx, 99% fewer hydrocarbons and 99% fewer particulates than a 1975 car. Encouraging drivers to upgrade to the latest ICE vehicles would significantly reduce fuel consumption and harmful emissions, and may well be an easier 'sell' than EV mandates, which force drivers and company fleets to convert to EVs. Forced conversion to EVs is especially difficult if drivers regularly travel long distances or don't have off-street parking and easy access to cheap, fast charging.

Encouraging upgrades to modern ICE cars has the added benefit of not placing excessive strain on the UK's electricity grid. The recent week of record temperatures in June 2026 forced the UK to increase its gas electricity generation to cope with increased air conditioning use, partially offsetting the CO_2 reduction from drivers converting to EVs. If all UK drivers had converted to EVs overnight the country would have been brought to a standstill. Fuel efficient ICE cars would not put this additional pressure on the electricity grid. To cope with the extra demand, NESO was forced to pay 20 times the price for imported electricity than it paid in June 2025.[18]

Similarly, industrial machinery, plant, and equipment have become more fuel-efficient and safer, and produce fewer emissions. Innovation drives energy efficiency, which lowers costs and serendipitously lowers emissions. Reducing business costs is key to both improving competitiveness and accelerating innovation.

One way to encourage this is by tax deductions or tax rate cuts for investments in the latest, most efficient plant and equipment, accelerating innovation and decarbonisation simultaneously. Much of the UK's lack of industrial competitiveness stems from its outdated factories, old blast furnaces, smelters, refineries, and power plants. High carbon taxes and high industrial electricity and fuel costs have left UK companies with insufficient cash flow to invest in upgrades; replacing the taxes with tax rate cuts for new equipment investments would reduce emissions while boosting GDP.

It will always be in a manufacturer's interest to operate as efficiently as possible. And it will always be in a country's interest to have efficient industries.

Encouraging innovation and investment in new, more efficient plant and equipment is an effective way to lower emissions and is likely to yield better results than protecting inefficient equipment and production methods with carbon tariffs on imported materials. Especially carbon taxes on imported materials that are necessary inputs used by downstream industries.

Investment in new plant and equipment can be further enhanced by offering investors tax-free returns on investment funds specifically used to lend money to companies investing in new plant and equipment or to finance research and development. Some of these programs, such as Rapid Innovation Funds, are discussed in detail in Chapter 7.

Balancing economic activity and externality solutions

Apart from complete prohibition, the methods of dealing with externalities listed above don't prevent externalities from occurring, although some reduce them. However, unless an alternative process or method is readily available, prohibition would also prevent consumers from benefiting from the activity, thereby creating another externality. Examples of effective prohibitions: banning leaded petrol, smoking indoors, and child labour all worked because effective alternatives were available: unleaded petrol, smoking outdoors, and mechanised production.

However, the government cannot prohibit all CO_2 emissions, as this would prohibit: most manufacturing industries; 34% of UK electricity production; 78% of UK domestic heating; 80% of UK cars; 96% of UK vans; 99% of UK trucks; and almost all nitrogen-based fertilisers. So, the negative externality to the UK population of lost goods and services and lost jobs and incomes would be immense, far exceeding the cost of the externality. This is why reducing CO_2 emissions has been so difficult.

The economy cannot function without hydrocarbon-based energy, manufacturing, food production, transport, and heating; therefore, we cannot simply ban greenhouse gas emissions. But taxing emissions and emissions trading schemes haven't worked either. At least they haven't worked if the intention was

to lower global emissions (see Graph 1, below), but they have pushed up UK prices of energy, manufactured goods, food production, transport, and heating, and have helped industrialise China and other developing Asian economies. Although unintended, the development and rising incomes in Asian countries have done more 'good' than cutting CO_2 emissions would have achieved.

Unfortunately, much of the purported emissions reduction has merely shifted emissions from the developed world to the less developed world, as is evident in Figure 1 below. There has also been considerable greenwashing, with companies in developed countries purchasing 'carbon credits' from purported owners of fictional forests in South America.

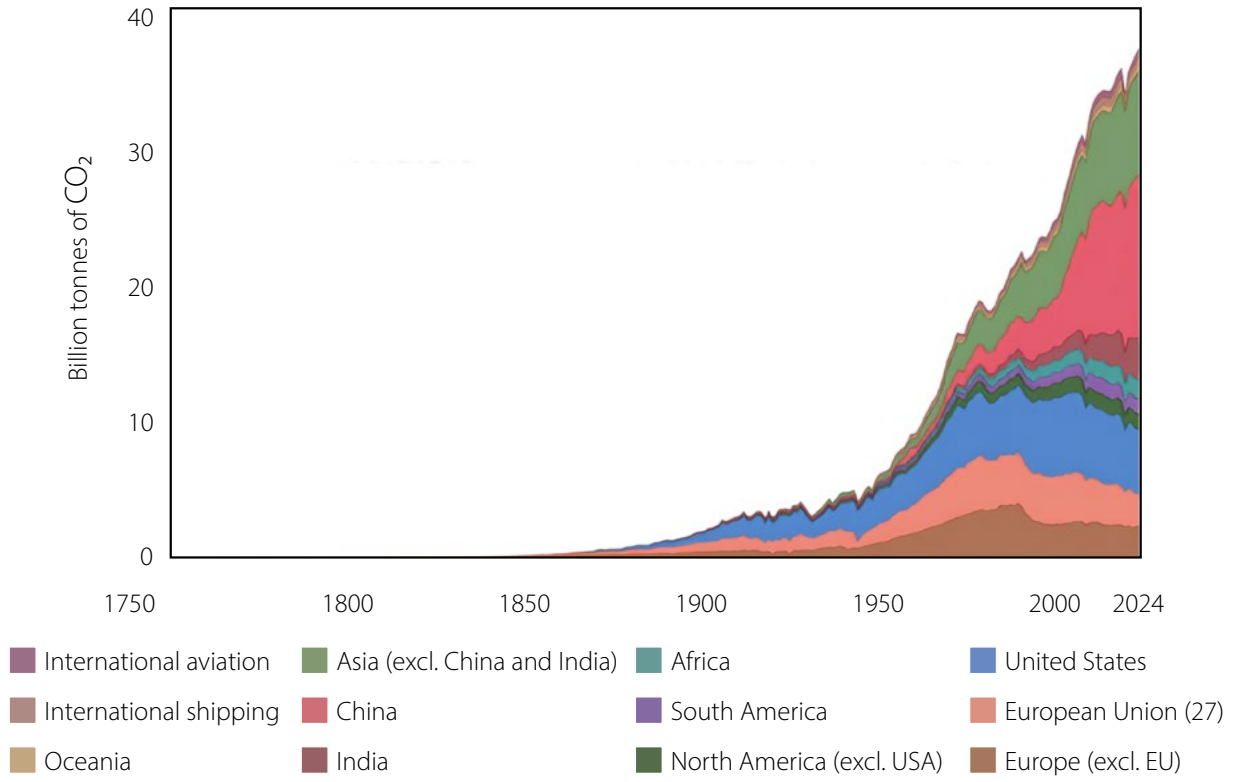


Figure 1: Global CO_2 emissions
Source: Our World in Data.

3. Market solutions to negative externalities

Pseudo-market versus genuine market solutions

If low-emission technologies become cheaper, more productive, and more reliable than existing alternatives, businesses and consumers will adopt them voluntarily. The principal policy objective should therefore be to reduce the cost of innovation and investment while increasing the rewards for successful emissions-reducing technologies.

Broadly defined, 'market-based' policies include many coercive instruments which use pseudo-market mechanisms to pursue government-defined objectives. For example, an emissions trading scheme (ETS) in which the government creates demand for emission allowances through regulation and controls the supply of allowances issued, thereby influencing the price.

A genuine free-market solution, by contrast, seeks to reduce externalities by strengthening property rights, encouraging innovation, allowing prices to reflect real costs and benefits,

promoting voluntary exchange, and removing barriers to investment and technological development. Rather than forcing behavioural change, free-market approaches focus on creating the conditions in which cleaner and more efficient technologies emerge because they are economically superior.

This perspective sees sustainable environmental improvements as being most likely to come from innovation, economic growth, and capital investment rather than from coercive restrictions on production and consumption. In short, it holds that competition and innovation, rather than coercion, are the best way to lower emissions.

An alternative framework to reduce emissions

The Climate and Freedom Accord (CFA) proposal as outlined by the Institute for Free Trade[19] provides an alternative framework for reducing market distortions as well as emissions through free-market principles. It argues that conventional climate policies such as emissions trading schemes and renewable energy subsidies have distorted international markets by increasing costs for domestic producers, reducing their international competitiveness, encouraging the offshoring of production, and shifting emissions geographically rather than significantly reducing global emissions.

The CFA framework envisages the development of a system of positive incentives designed to accelerate innovation and investment. In this way, reductions of GHG emissions become a happy side-effect of growth, rather than something that has to be traded off against modern lifestyles as is currently being proposed by the UK government.

Trade liberalisation and international co-operation

Climate policy has increasingly become associated with trade restrictions, carbon tariffs, and border adjustment measures. Such policies reduce competitiveness, raise consumer prices, and impede the spread of new technologies. The EU has added carbon emissions allowances to maritime transport, which has increased costs for most imported goods; this is in addition to any CBAM they apply to base materials.

The CFA addresses one of the central weaknesses of existing climate policy: the tendency for emissions-intensive industries to relocate from countries with strict climate policies to countries with less restrictive regimes. Instead of merely shifting emissions geographically, we should encourage cleaner production everywhere by making innovation and investment cheaper globally. Simply removing the carbon taxes would level the international playing field, but there would be no additional incentive to tip the balance to domestic production through innovation and upgrading equipment to the most efficient available options.

The CFA therefore proposes reciprocal reductions in tariffs, regulatory barriers, and restrictions on international investment among participating countries. Under this framework, countries would gain economic benefits from participation through improved market access, lower trade barriers, and increased investment opportunities. Emissions reduction would therefore be based on mutual economic advantage rather than penalties and transfer payments.

4. Emissions trading schemes are not market solutions

What are emissions trading schemes?

Emissions trading schemes are systems in which firms that emit CO_2 or other greenhouse gases during production are required by their governments to purchase allowances for each tonne of CO_2 they emit, either through a government-run auction or in a secondary market. The government caps total emissions by limiting the number of CO_2 allowances it issues each year.

Any firm whose production is covered by the emissions trading scheme (ETS) must measure and report its greenhouse gas emissions for the year. An independent auditor must verify this. Then the firm must surrender allowances equal to its actual emissions. Each allowance is equal to 1 tonne of CO_2e (carbon dioxide equivalent). If firms do not surrender sufficient allowances, they will be fined and must purchase the

required allowances in the market. This imposes considerable costs on companies, not only for purchasing allowances but also for measuring, reporting, and auditing their emissions.

Who gets the money raised by an ETS?

Some ETS schemes require that the proceeds from the sale of emission allowances be used for environmental purposes. For example, an EU directive requires that 100% of auction revenue from allowances be allocated to low-carbon or energy-efficiency purposes. This was increased from 50% in 2023. EU directives are not regulations, but EU member states are required to transpose them into their domestic legislation in a way that achieves the directives' objectives and complies with them. The money raised by the ETS auctions in the EU is collected by the member states, who get to keep about 90% of it, with the rest paid to EU funds.[20] The EU allocates 43% of its allowances free of charge to industries at risk of carbon leakage, such as chemicals, cement, steel, aviation, and aluminium. These free allowances have been replaced by the EU's Carbon Border Adjustment Mechanism from 2026.

By contrast, revenue from the UK's ETS auctions goes into the UK Treasury's general funds. There is no legal obligation to allocate the funds to climate programs. However, the UK ETS scheme only raised £2.2 billion in 2023/24 and is forecast to raise £3.6 billion in 2024/25. The UK gave away about 38% of its ETS allowances for free in 2023 to support carbon-intensive industries. The UK government currently subsidises environmental initiatives by much more than the ETS raises.[21] The UK spends between £45 and £50 billion per year on environmental and Net Zero-related schemes,[22] ranging from new nuclear and renewable electricity subsidies to the Warm Home Plan.[23]

Which industries must buy emissions allowances?

Not all industries and activities are covered by ETS schemes. Emissions from energy use and industrial processes are generally covered, whereas emissions from administrative, office, and general business operations are not. Power generation from coal, gas, oil and biomass plants is covered by ETS, as are emissions from the production of steel, cement, ceramics, chemicals, pulp and paper, and aluminium. However, energy-intensive industries (EIIs) that produce steel, aluminium, cement, glass, chemicals, fertilisers, paper, plastics, ceramics and industrial gases receive partial compensation for the indirect ETS and Carbon Price Support (CPS) costs that are passed on through their electricity costs.

EIIs can also receive a 92% discount on the main CCL rate if they have signed up to a Climate Change Agreement (CCA), which requires companies to have an auditable emission reduction target. But EII status does not exempt companies from paying their ETS, CPS, or CCL for their direct emissions.

To apply for compensation, EII companies must manufacture in an eligible product sector, and the price impact of the UK ETS and CPS on the business's electricity costs, as a proportion of its GVA over a five-year average, must be more than 5%.[24]

In the EU, domestic and intra-EEA flights, as well as flights to the UK and Switzerland, are covered by the ETS; in the UK, domestic flights and flights to EEA countries are covered by the ETS. The EU ETS now also covers domestic and international shipping, while the UK ETS will cover domestic shipping for vessels over 5,000 gross tonnes from July 2026, but not international shipping.

ETS schemes do not cover service industries, but the electricity and heating they use in production are subject to ETS payments. The associated costs are then passed on to consumers.

Being subject to an ETS is costly for businesses, not only in the cost of buying allowances, but also in the costs of measuring, monitoring, and auditing production emissions. The cost of compliance is as significant for many small and medium-sized enterprises as the direct cost of the ETS allowances.

Most ETS schemes only consider the emissions from the initial production of a good and not its potential life span, so the emissions from aluminium that could be used in a building that will last for 50 years, or in a plane that will last for 30 years, are charged the same ETS per tonne as the emissions from making an aluminium drinks can that may last for a few months at most.

Similarly, an aluminium can recycled a doz-

en times will be charged for the emissions generated by each recycling process, even though recycling saves resources and is generally considered to be good for the environment.[25] Primary aluminium emissions are about 10 tonnes of CO_2 per tonne of primary aluminium produced, compared to only about 1 tonne for recycled aluminium.[26]

Air travel – a slightly more 'market-based' emissions market

The UK ETS applies to domestic flights and to flights from the UK to the EU, EEA, and EFTA countries (Norway, Iceland, Liechtenstein, and Switzerland). Return flights to the UK are subject to the EU ETS. Airlines operating UK-EU routes must monitor their emissions and purchase allowances from the UK and the EU.

Long-haul flights between the UK and non-EU routes are not subject to UK ETS obligations, although they may be subject to CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) requirements.[27] This is a carbon-emission offsetting scheme administered by the International Civil Aviation Organisation (ICAO), which requires airlines to offset growth in their emissions against their 2019 baseline.

The scheme is enforced by national regulators. For example, in the UK, monitoring is done by the UK Environment Agency. CORSIA requires airlines to calculate the difference between their current emissions and their 2019 emissions and buy offsetting carbon credits from approved offset programmes, such as the UN Clean Development Mechanism (which allows industrial countries to fund emission-reduction projects in developing nations to earn carbon credits),[28] VERRA (Verified Carbon Standard),[29] Gold Standard (founded by the WWF)[30] or the American Carbon Registry (US non-profit) and Plan VIVO (UK NGO).[31]

Other international emission schemes

There is no federal ETS in the US. The US federal system relies on Environmental Protection Agency (EPA) regulations and subsidies for environmental initiatives.[32] However, California has implemented its own cap-and-trade system since 2013, which covers power plants, large industrial facilities, and fuel distributors. In total, this accounts for about 85% of California's emissions. California gives away about half of its allowances to utilities and industry, and the other half is auctioned. 35% of California's cap-and-trade revenues must benefit disadvantaged communities, with the remaining 65% allocated to clean transportation and energy efficiency.

Washington state has also launched a cap-and-trade system modelled on California's. Twelve northeastern and mid-Atlantic states have formed a Regional Greenhouse Gas Initiative (RGGI) to cover CO_2 emissions from large power plants.[33] The RGGI auctions almost all its allowances.[34]

Other countries also have ETS schemes of a sort, but the allowances are mainly free. This somewhat defeats the purpose of an emissions trading scheme, although it does require companies to measure and monitor their emissions, which adds costs to production. For example, China has introduced an ETS, but almost all its allowances are allocated for free; it plans to gradually shift to an auction system. South Korea's ETS has about 90% free allowances. New Zealand has also introduced an ETS but provides free allowances to emissions-intensive, trade-exposed industries.

The UK versus the EU's emissions trading scheme

In March 2002, the Blair government launched a voluntary national UK emissions trading scheme and played a pivotal role in designing the EU-wide mandatory scheme launched in 2005. As a member, the UK adopted the same ETS as other member states but established its own scheme after leaving the EU in 2021.[35]

The UK's new ETS is smaller, covering fewer than 600 industrial sites. Of these, 385 received some number of free allowances[36] — those judged to be facing international competition from manufacturers based in countries with less stringent emissions regulations. 95 received no free allowance in 2026 but have in the past, while UK electricity generators, and some waste incinerators, combined heat and power units and industrial boilers have never qualified for free emission allowances.

The UK's total allowances are capped at 77.4 million tonnes of CO_2 equivalent ($MtCO_2e$) in

2026, down from 92 in 2024. The first allocation period, 2021–2026, had a total cap of 712 Mt-CO_2e, but for the 2027 to 2030 period, the total allocation has been reduced to just 224 MtCO_2e.

The UK's ETS auction price on 26 November 2025 was £57.03 per tonne. Since leaving the EU and establishing its own ETS, the UK price has generally been lower than the EU prices. This reflects the UK's deindustrialisation since the introduction of the Climate Change Act in 2007. However, since the announcement that the UK could join the EU scheme, the UK's ETS price has increased from an average of £45.78 per tonne in April 2025 to £57.42 per tonne in November 2025, and to a high of £68.26 per tonne in January 2026.[37] The current December 2026 futures price has fallen back to £55.53 per tonne by June 2026.[38] ETS auctions require UK companies to pay HMRC between £200 and £280 million each month, reducing their capital for investment and disrupting their cash flows.

In contrast, the EU ETS covers over 16,000 stationary industrial sites in the EU and the EEA, 1,600 aircraft operators and 2,600 maritime operators.[39] The EU issued 934.5 million allowances for stationary installations, maritime and aviation allowances. This is the number after the reduction for unused allowances still in circulation and the Market Stability Reserve's automatic supply adjustment.[40] The EU issued no free allowances for maritime and aviation operators in 2026, but issued 481 million free allowances in 2025 to stationary installations (the most recent published numbers). Consequently, the EU's ETS price was over €90 per tonne in January 2026, but fell back to €76.94 per tonne on 5 June 2026.

EU member states allocate their free allowances to their industries in accordance with EU regulations.[41] Free allowances may be granted to industries susceptible to import competition from countries without an ETS or with a lower ETS price. The industries covered include steel, cement, and chemicals, which receive 100% free allowances, whereas less-exposed sectors receive a smaller proportion of allowances, down to 30% in 2026, and this will fall to zero in 2030. The EU is phasing out its free allowances from 2026 to 2034.

5. Carbon emission tariffs — CBAM

A Carbon Border Adjustment Mechanism (CBAM) is a tax imposed on imported goods to equalise the carbon price paid by domestic producers with those from overseas. This is done to ensure that a country's domestic industries are not undercut by carbon-tax free imported goods and to discourage 'carbon leakage', whereby domestic manufacturers move their production out of the ETS area.

If a CBAM is to achieve its intended purpose of discouraging carbon leakage, it should take effect as soon as the ETS scheme begins, as the two must operate in tandem. Implementing a CBAM many years after the ETS creates the problem that the EU and the UK now face: their domestic industries have already moved outside the ETS, leaving domestic consumers with little choice but to purchase imported goods and materials, regardless of their emissions intensity.

CBAM payments are based on the ETS price per tonne of emissions that would have been produced had the imported good been manufactured domestically, but they do not compensate for other environmental regulations that also increase domestic production costs. In many cases, these regulations have played a greater role in closing UK manufacturing than the ETS, which will be discussed later in this chapter.

The Conservative and Labour CBAM proposals

The previous Conservative government proposed introducing a CBAM in 2027 on seven products: iron and steel; aluminium; cement; glass; ceramics; fertiliser; and hydrogen. The current Labour government has revised the proposed CBAM, which will still be introduced in 2027 but will apply only to five commodities: aluminium, cement, fertilisers, hydrogen, and iron and steel.[42] Both proposals plan to exempt small importers, but all companies that import these goods will need to record the weight, country of origin, and production method of all their CBAM imports to be able to demon-

strate to HMRC that the value of the imported goods is below the £50,000 threshold. This type of compliance incurs costs in itself, which are often overlooked by bureaucrats who impose complex taxes.

Although the production of these commodities can emit substantial greenhouse gases, unless there are competitive domestic producers that are subject to the UK's ETS, there is little point in applying a CBAM to imported products. Several of the proposed CBAM products have experienced a decline in UK production following the introduction of the ETS, CPS, and CCL, as well as other environmental regulations. At best, the application of a CBAM increases the costs borne by downstream users of imported input materials, who pass these costs on to consumers, as neither group can avoid the CBAM.

There are also other products that must purchase ETS allowances but are not on the CBAM list. As a result, they are not protected from competing goods made in countries without ETS or carbon taxes. In general, these will be complex products with many components, often produced in multiple countries and by various methods, making it difficult, if not impossible, to calculate the end product's total emissions and to determine whether those emissions occurred in countries with carbon taxes. This is why the government is not proposing to apply a CBAM to complex products. However, without a CBAM to offset the impact of ETS costs on domestically produced goods, these manufacturers may also be driven out of business in the UK, as many other companies have been.

UK production of the sectors covered by the UK's CBAM proposals

Aluminium

The UK has almost no primary aluminium smelting capacity left and produces only 5% of the aluminium it uses domestically.[43] UK aluminium imports were primarily rolled aluminium used in the manufacture of vehicle and aircraft parts.[44] The UK's aluminium exports consist of 60% scrap and 25% unwrought aluminium. It is therefore too late to add a CBAM to imported aluminium. This will only increase the cost of downstream producers of the UK's most valuable export, machinery and transport equipment.

In 2000, the UK produced 320,000 tonnes of aluminium from three smelters. In 2009, the Anglesey Aluminium smelter in Holyhead, which produced 142,000 tonnes of aluminium per year, closed because its cheap electricity contract with the Wylfa nuclear reactor expired, and EU state-aid rules blocked the contract's renewal. In 2012, Britain's largest smelter, Lynemouth in Northumberland, which produced 178,000 tonnes of aluminium a year, closed due to rising energy costs and the EU's environmental directives, including the Large Combustion Plant Directive, which limits emissions from coal-fired power plants.

The UK now has one remaining smelter, Lochaber in Fort William, Scotland. It produces just 48,000 tonnes of aluminium a year but has its own dedicated hydroelectric power supply. The UK imports all its bauxite and alumina; converting bauxite into alumina also requires substantial power, yet alumina is not on the CBAM list. The only value added in the UK is the electricity required to turn bauxite into alumina and then into aluminium.

Adding a CBAM to aluminium imports now, after the UK's largest producers have closed, would be a case of shutting the stable door after the horse has bolted. The UK imported over a million tonnes of aluminium in 2024 for use in its aircraft parts manufacturing industry, its car manufacturers and for aluminium drink cans, among other things.[45] The first two are the UK's largest export industries; taxing the imported aluminium they use would also raise the cost of the end products without lowering global emissions. While the imposition of a CBAM may help Lochaber Aluminium compete with imported aluminium, Lochaber Aluminium accounts for only about 5% of the UK's annual aluminium demand.

Adding a CBAM on aluminium imported to produce drinks cans just imposes a tax upon a tax. The use of aluminium for cans has increased following the UK's introduction this year of Extended Producer Responsibility (EPR) packaging fees and the Plastic Packaging Tax (PPT) introduced in 2022. These taxes were introduced to mitigate the externalities of waste in general,

and plastic waste in particular.

The EPR fee is based on the weight of packaging placed on the market and is intended to reflect the cost to local authorities of managing waste. Aluminium's EPR is £266 per tonne and is considerably lower than plastic's EPR of £423. (If the plastic is more than 30% recyclable, it will also incur a PPT of £223.69). The EPR externality tax was designed to make aluminium the preferred material for consumer drink containers because it is lightweight, thereby attracting the lowest EPR per container. Adding a CBAM to the aluminium imported to make cans would undermine the purpose of the EPR and make the preferred, lighter, and more recyclable aluminium containers more expensive and less attractive to drink producers.

Joining the EU's CBAM to protect UK exports to the EU would be just as misguided as adding a CBAM to imported aluminium. The UK's main aluminium export to the EU is scrap aluminium for recycling, exporting about 850,000 tonnes in 2024.[46] (Aluminium is infinitely recyclable, and recycling aluminium requires approximately 5% of the energy used to produce virgin aluminium.) While any UK aluminium produced in the Lochaber hydroelectrically powered smelter would be exempt from the EU's higher CBAM because its CO_2 emissions are minimal. So, in the case of aluminium emissions, it would be pointless for the UK to join the EU's ETS and CBAM.

In 2024, the UK imported 1.21 million tonnes of aluminium products. The UK's proposed CBAM will cover all imports for industrial uses but exclude consumer/household items and scrap aluminium. The UK doesn't export much of either, so 1.08 tonnes of imported aluminium, from plate and sheet to tubes and pipes, will be subject to a CBAM charge. This will increase the costs for UK manufacturers that use these products to produce the UK's complex goods, such as aircraft parts and cars, the UK's largest export sector. Export goods must remain internationally competitive; increasing the price of their base materials will have the opposite effect.

The UK imports aluminium plates, strips, structures, bars, and rods to manufacture higher-value products, which are mainly exported. The UK's leading aluminium suppliers are Germany, China, and France. However, Germany has no bauxite mines and must import bauxite from Guinea, China and Guyana to make aluminium.

Aluminium production is energy-intensive and produces 15 tonnes of CO_2 for every tonne of new aluminium produced. That said, it is readily recyclable, so this emission should be amortised across multiple product generations. Just as aluminium used in vehicles and aircraft should pay an ETS dividend by the expected lifespan of the product.

But the demise of the UK's aluminium smelters is not solely due to the imposition of an ETS. The UK's industrial electricity is more than three times as expensive as the average US industrial electricity, and more than five times as expensive as industrial electricity in the US states of Louisiana, New Mexico, Oklahoma and Texas, which have the lowest industrial electricity costs in the US.[47] Without access to bauxite or cheap power, the UK will remain reliant on importing primary aluminium.

Cement

The latest UK CBAM proposal covers imports of: White Portland cement; other Portland cement; aluminous cement; other hydraulic cements; cement clinkers; and other kaolinic clays.

The UK currently produces approximately 7.3 million tonnes of cement per year (2024), roughly half the level in 2000. Production has steadily declined due to high energy costs, environmental regulations, and rising imports, leaving output at its lowest level since the 1950s.[48]

UK cement imports have nearly tripled since 2008, rising from 12% of sales to 32% in 2024. However, the UK still produces over two-thirds of the cement it uses domestically. The low point for UK cement imports was in 2012 when they fell to just 1.183 million tonnes, but after CPS was introduced in 2013, imports have increased every year, reaching a high of 3.65 million tonnes in 2022.[49] Cement is a commodity that could theoretically benefit from applying a UK CBAM on imports from the EU, which provides 100% of UK cement clinker imports, 75% of UK cement (excl. Portland cement) imports, and about 85% of UK imports of aluminous cement.[50] Joining the EU's ETS and CBAM will not protect UK producers from EU imports that benefit from lower energy costs.[51] This is discussed in greater detail in the next chapter.

Traditionally, cement producers used coal as the primary fuel in cement kilns to generate the 1,450°C thermal energy required to convert the calcium carbonate found in limestone to calcium oxide, which is then combined with various oxides to make clinker materials; coal has been increasingly replaced by gas, which has lower CO_2 emissions per tonne of clinker. However, gas is more expensive than coal, so the savings on emissions allowances are partially offset by the higher gas price. Many producers have turned to refuse-derived fuels (RDF) and biomass.[52] The clinkers are then cooled and ground using electricity to make cement powder.

Almost two-thirds of the emissions arise from the calcination process, which releases one CO_2 molecule for each CaO molecule, regardless of the heating process employed, although producers typically use coal, gas, or RDF to achieve the required heat input. Approximately 30% of the emissions come from the heat-source fuels, and less than 10% from the electricity used for factory equipment, such as grinders, fans, and conveyor belts.

Cement production is highly carbon-intensive, producing up to 0.9 tonnes of CO_2 per tonne of cement. Producers must purchase UK ETS allowances to cover their direct emissions and pay the Climate Change Levy, which is added to their electricity bills. But producers must also pay the indirect Carbon Price Support (CPS) and ETS costs of their power suppliers, which are passed on in higher wholesale electricity prices. Cement production is classified as an electricity-intensive industry (EII), so it receives compensation for indirect CPS costs and partial compensation for indirect ETS costs and receives a 92% discount on the CCL rate. But as the UK has the highest industrial electricity prices in the developed world, this still leaves producers in an uncompetitive position.

However, concrete typically lasts 50 to 100 years and can be substantially longer. The Pantheon in Rome is primarily constructed of concrete and remains standing after approximately 2000 years. And although Roman cement is slightly different from today's cement, Eddystone Lighthouse in Cornwall, built in 1759 using hydraulic lime concrete, is still standing, as is the Thames Tunnel, built in 1843 using Portland cement.

It is wrong for the UK's CBAM to consider only the CO_2 emitted during cement production, without accounting for the material's longevity. A product that lasts for 50 or more years for example, could be charged 2% of the production emissions costs to reflect its likely lifespan.

In addition to the UK Emissions Trading Scheme (ETS), cement producers face several environmental taxes and regulatory obligations: the Climate Change Levy (CCL) on energy use, the Aggregates Levy on rock, sand and gravel used in concrete, the landfill tax on cement plant waste, strict environmental permitting regulations limiting emissions of NOx, SO_2, particulates and dust emissions, and compliance with the UK's Net Zero 2050 targets.

Cement producers are also under pressure to adopt carbon capture and storage (CCS) and to use alternative fuels to meet Net Zero targets. All these taxes and regulations are designed to raise costs and push the industry toward decarbonisation, but neither of the UK's proposed CBAMs nor the EU's CBAM will compensate producers for these costs; the CBAMs will only compensate for the differential between domestic and imported ETS costs.

The UK imported 4.14 million tonnes of cement covered by the UK's proposed CBAM in 2024. For context, we exported less than 700,000 tonnes of the same products.

Fertilisers

The latest UK CBAM proposal covers imports of fertilisers including nitric acid; sulphonitric acids; ammonia, anhydrous or in aqueous solution; nitrates of potassium; mineral or chemical fertilisers, nitrogenous; mineral or chemical fertilisers containing three fertilising elements — nitrogen, phosphorus and potassium; and mineral or chemical fertilisers containing two fertilising elements.[53]

The UK produces less than 30% of the fertiliser it uses each year. The UK still blends and granulates fertiliser, but it relies on imported raw ingredients, most importantly ammonia.[54] CF Fertilisers' Billingham plant ceased ammonia production permanently in July 2023 after being temporarily idled in August 2022. This was the UK's last major ammonia producer. Adding a CBAM to imported ammonia and imported

nitric acid made from it would increase costs for fertiliser mixers, which would be passed on to farmers and eventually raise the price of domestically produced food.

It is inexplicable that sulphonitric acids, nitrates of potassium and mineral or chemical fertilisers containing either 2 or 3 fertilising elements are on the UK's CBAM list of products in scope, when they are not currently produced on a large scale in the UK. Fertilisers containing 2 and 3 fertilising elements were made at the CF Fertilisers Ince site, which was closed in 2023. Adding a CBAM to imported products when there is no alternative domestic supplier will necessarily increase agricultural production prices.

In 2025, the UK produced around 1.2–1.3 million tonnes of mineral fertilisers annually, dominated by nitrogen-based products (ammonium nitrate, urea, NPK blends). Domestic production of phosphate and potash fertilisers has largely ceased, with the UK now reliant on imports.[55] Domestic production now accounts for less than half of the UK's fertiliser demand, with the remainder imported from the EU, North Africa and North America.[56]

Compared to 2000, UK fertiliser output has halved, and the product mix has shifted away from broad-spectrum fertilisers toward nitrogen-only and imported blends, driven by plant closures, energy costs, environmental regulation, and global market restructuring. UK fertiliser use has fallen by 19.3% in the ten years up to 2024.

CF Fertilisers closed its plant in Ince, Cheshire, in 2022, when European gas prices spiked.[57] Fertiliser production is gas-intensive, so fertiliser production has moved to regions with cheaper gas. UK ETS allowances, as well as strict nitrogen-emissions regulations, have made domestic fertiliser production less competitive with imported fertiliser. The CF Fertilisers plant was one of the dominant industries in Ince, employing hundreds of people directly and many more indirectly.[58]

Most fertilisers are made from ammonia (NH_3) using natural gas as a feedstock. It takes about 0.9 tonnes of natural gas (methane, CH_4) to produce 1 tonne of ammonia. The process requires high temperatures (400–500°C) and pressures (>100 bar), typically generated by coal or gas combustion, although it can also be powered by electricity. Conventional production emits about 2–3 tonnes of CO_2 per tonne of nitrogen fertiliser, plus nitrous oxide (N_2O) emissions from nitric acid production, which can add another 0.2–2 tonnes of CO_2-equivalent (CO_2e) per tonne, depending on abatement technology.

In the UK, fertiliser use typically increases arable crop yields by 30–50% and grassland productivity by 40–60% compared to unfertilised systems. Without fertiliser, most soils cannot supply sufficient nitrogen, phosphate, and potash to sustain high yields; therefore, fertiliser is critical for both food security and livestock forage production.[59] Making fertiliser more expensive than it needs to be, through the addition of an ETS or a CBAM, makes UK-produced foods more expensive.

Unlike cement and aluminium, which last for many years, fertilisers are applied annually to land; therefore, it may be appropriate to include a CBAM on imported fertilisers if farmers had an alternative domestic supplier available that is competitive in all respects except the cost of ETS allowances. However, only nitrogen fertiliser production remains in the UK; it is understandable that the government seeks to protect this remaining production by applying a CBAM to imported nitrogen fertilisers, but not on the imported ammonia needed to make nitrogen fertilisers.

In 2024, the UK imported 3.22 million tonnes of the fertilisers covered by the latest update to the UK's proposed CBAM.[60] Almost all of which will be charged for their CO_2 and nitrous oxide emissions. This will add to the cost of food production.

Most of the UK's ammonia imports come from the US, but they are not cheaper than UK-produced ammonia due to differences in ETS costs. The biggest price differential comes from natural gas prices and the UK's additional CPS and CCL charges on the energy used to make ammonia. The UK should be an efficient producer of ammonia, but instead we import it from the US, where gas prices are a third to a quarter of those in the UK.

Almost all ammonia ($2NH_3$) is produced using the Haber-Bosch process, which uses natural gas and air at high pressure and medium

industrial temperature to produce ammonia.

Instead of adding a CBAM to imports that the UK no longer makes, the UK would be better to encourage UK gas production and exploration in the North Sea, allow hydraulic fracturing for gas, and remove the additional 38% 'Windfall Tax' on gas production, thereby lowering the cost of the UK's domestic feedstock for fertiliser production.

There is already an ETS on the energy used in combustion, and an ETS charged on the production of ammonia and nitric acid, as well as the CPS and CCL. This is triple taxation, which adds to the UK's high gas prices, making UK fertiliser uncompetitive with imported fertiliser. Removing these additional energy costs would reduce the cost of an essential input for food production and food security.

There is no need to impose a CBAM on fertiliser or ammonia used to make fertiliser because there are no longer any UK producers to protect. However, if we compare the UK's revised CBAM with that of the EU, shown in Figures 2 and 3 below, it is clear that the UK's CBAM is intended to protect the EU's fertiliser producers from cheaper international producers, even though the EU has almost no gas feedstock of its own. UK farmers will have to pay higher costs to protect EU firms.

CN code and description	Greenhouse gases
2808 00 00 — Nitric acid; sulphonitric acids	Carbon dioxide and nitrous oxide
2814 — Ammonia, anhydrous or in aqueous solution	Carbon dioxide
2834 21 00 — Nitrates of potassium	Carbon dioxide and nitrous oxide
3102 — Mineral or chemical fertilisers, nitrogenous	Carbon dioxide and nitrous oxide
3105 — Mineral or chemical fertilisers containing 2 or 3 of the fertilising elements nitrogen, phosphorus and potassium; other fertilisers; goods of this chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg	Carbon dioxide and nitrous oxide
Except: 3105 60 00 — Mineral or chemical fertilisers containing the 2 fertilising elements phosphorus and potassium	Not applicable

Figure 2: Products covered by the UK CBAM on fertilisers.
Source: UK Government.

CN code and description	Greenhouse gases
2808 00 00 — Nitric acid; sulphonitric acids	Carbon dioxide and nitrous oxide
2814 — Ammonia, anhydrous or in aqueous solution	Carbon dioxide
2834 21 00 — Nitrates of potassium	Carbon dioxide and nitrous oxide
3102 — Mineral or chemical fertilisers, nitrogenous	Carbon dioxide and nitrous oxide
3105 — Mineral or chemical fertilisers containing 2 or 3 of the fertilising elements nitrogen, phosphorus and potassium; other fertilisers; goods of this chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg	Carbon dioxide and nitrous oxide
Except: 3105 60 00 — Mineral or chemical fertilisers containing the 2 fertilising elements phosphorus and potassium	Not applicable

Figure 3: Products covered by the EU CBAM on fertilisers.
Source: European Parliament and Council of the European Union.

Hydrogen

The UK currently produces almost all the hydrogen it uses domestically because UK hydrogen demand is very small. That said, the UK does import some hydrogen, and the domestic industry would benefit from the introduction of a CBAM to protect it from the EU, which provides over 60% of the UK's hydrogen imports, as this industry is expected to grow.

Although the UK does not currently produce hydrogen in quantity, there are several plants under construction.[61] In 2025, the UK produced approximately 27 TWh, equivalent to about 0.8 million tonnes of hydrogen. Most of this, 25 TWh, or 0.75 million tonnes, was generated from natural gas using steam methane reforming without emissions capture. This is known as *grey hydrogen*. The UK also made a small amount, 1–1.5 TWh (30 to 40 kt), of hydrogen using electrolysis powered by renewables, which is known as *green hydrogen*.[62,63] And an even smaller amount, 0.5 TWh or 15 kt, of hydrogen from natural gas, where the CO_2 emissions are captured. This is known as *blue hydrogen*.[64]

There is currently 2 GW of low-carbon hydrogen plant under construction, including 1 GW of *green hydrogen* and 1 GW of *blue hydrogen*. The government plans to develop 10 GW of low-carbon hydrogen capacity by 2030, with at least half of it generated by renewable-powered electrolysis.

Grey hydrogen is produced by combining methane, CH_4, with steam, H_2O, at temperatures between 700°C and 1,100°C. The furnaces use natural gas to generate the required heat, thereby producing CO_2 that contributes to the chemical reaction's total CO_2 emissions. The CO_2 emitted by the steam methane reforming (SMR) plant must be offset by the purchases of ETS allowances for the CO_2 emitted during hydrogen production. The process emits roughly 10 tonnes of CO_2 for every tonne of hydrogen produced plus the upstream emissions from the natural gas supply.

Grey hydrogen production is not subject to CPS or CCL on its gas feedstock, as natural gas supplied as a feedstock to produce hydrogen is listed as a qualifying non-fuel use and is therefore exempt from the main CCL rates.[65]

The UK's energy companies make hydrogen, as it is used in refining, fertilisers, ammonia and methanol production, and some bus transport. The UK's Wrightbus Hydroliner runs on hydrogen and is in use in London, Belfast, Birmingham and Aberdeen.[66] However, only the Aberdeen buses are refuelled with green hydrogen produced using renewable electricity; the others primarily use grey hydrogen. JCB[67] has also developed a hydrogen combustion engine for construction and agricultural equipment.[68]

However, because hydrogen is expensive to store and transport, and because almost all UK hydrogen is *grey hydrogen*, it is surprising that hydrogen is on the UK's CBAM list. Hydrogen is generally transported by converting it to ammonia or methanol. In 2024, the UK imported just 537 tonnes of hydrogen. Almost all of it is from the Netherlands or other EU countries, with only 5 tonnes imported from the US.

As hydrogen is only being used to run buses and machinery to help the UK meet its Net Zero targets, imposing carbon taxes on UK production and a CBAM on imports seems counterproductive. Surely making hydrogen production cheaper by reducing the taxes on UK oil and gas companies and using Decarbonisation Tax Credits (DTCs) to encourage innovative hydrogen use would be a better approach.

Iron and steel

The UK's proposed CBAM covers processed iron ores used to make steel, as well as all basic iron and steel imports (under the HS72 tariff code). Scrap and waste iron and steel imports are excluded from CBAM, although the UK is generally an exporter of both due to its high electricity costs, which limit electric arc furnace (EAF) steel recycling. The UK exported 8 million tonnes of scrap iron and steel in 2015, but only imported 200,000 tonnes, three-quarters of which came from Ireland. Imports of scrap from Ireland will use UK ports as a gateway to recyclers in Turkey, Egypt, Morocco, Pakistan and India. The UK will also apply a CBAM to products made of iron and steel under HS codes 7301 to 7311, 7318, and 7326.

The UK's revised CBAM product list replicates the EU's CBAM list of products. The UK has aligned with the EU without the need for a 'reset.' This will protect EU producers to the detriment of UK steel users. For example, the inclu-

sion of HS7318 illustrates how joining the EU's ETS would be used to protect EU producers. HS7318 covers screws, bolts, nuts, rivets, washers, and similar items. The UK imports over £1 billion worth of these items each year. Its largest suppliers are China, the US and Taiwan. Together, these three countries supply over half of the UK's imports. However, under the new UK/EU CBAM scheme, imports from these countries will incur CBAM, benefiting imports from the UK's 4th- and 5th-largest suppliers – Germany and Italy.

The UK produces none of the iron ore or metallurgical coal it uses in its two remaining blast furnaces, and there are currently plans to close them. After which time, all virgin steel used in the UK will be imported. There is therefore no benefit to be gained from adding a CBAM to agglomerated iron ore concentrates or virgin steel imports; however, a CBAM would increase the costs of the EAF furnaces remaining in the UK that reshape imported steel, as well as the costs of production for UK vehicle and machinery manufacturers. As mentioned earlier, *machinery and transport equipment* is the UK's largest export sector, accounting for 42% of total UK goods exports in 2024.[69]

Despite this, the UK government is now proposing to add a CBAM to: agglomerated iron ores and concentrates; all iron and steel, except for some iron alloys that use critical metals and scrap iron and steel; and 13 of the 26 HS73 four-digit codes for articles made with iron and steel.[70] This list includes many of the UK's most imported iron and steel products, such as *HS7308 structures, scaffolding, pit propping, towers, and lattice masts*; *HS7306 tubes, pipes, hollow profiles, and cross sections*; and *HS7318 threaded screws and bolts*.

Adding a CBAM to imported iron ore, iron and steel and articles made of iron and steel is the ultimate case of shutting the stable door after the horse has bolted. The UK's steel-making capacity has dropped to next to nothing over the last 20 years. There are several reasons for this, including outdated blast furnaces and electric arc furnaces and low consumer demand, but the UK's high cost of industrial electricity and its ETS costs are the primary causes of these closures.[71] Even UK electric arc furnaces that recycle steel and so have much lower emissions than blast furnaces, have had trouble competing unless they receive government subsidies or have a contract to supply steel to the UK's defence department.[72]

There are many incongruities in the policy, most obviously that the government saved the UK's last remaining blast furnaces from closure in 2025, but now the government is proposing to join the EU's more expensive ETS markets and even add a CBAM to imported iron ore concentrate, the principal ingredient for making virgin steel in a blast furnace. Adding a CBAM to a necessary import can only be viewed as a revenue-raising exercise. There is no alternative to iron ore in the production of steel.

Who has gone?

The Redcar site owned by SSI UK was one of Europe's largest blast furnaces and produced 3 to 4 million tonnes of steel a year, but closed in 2015 due to high UK operating costs and a global oversupply of steel.[73] An electric arc furnace (EAF) was proposed for the site and received planning permission in 2024 but was never built.[74]

Liberty Steel, based in Rotherham and Stocksbridge, produced roughly 1 million tonnes a year of EAF steel for engineering and speciality steels. It was mothballed in 2020 and had been effectively insolvent since 2023. High UK industrial electricity and ETS costs made this small electricity-dependent steel recycler uncompetitive with global steel.[75]

Port Talbot (Tata Steel UK) was the UK's largest blast furnace steel producer. It produced 4 to 5 million tonnes a year, but it closed in 2024. It produced slab and strip steel for downstream mills. The blast furnace will be replaced by an electric arc furnace that will recycle domestic scrap steel. It is expected that the EAF mill will come into production by 2028, but its capacity will be reduced to 1.5 to 2 million tonnes, roughly a third of the old blast furnace capacity.[76,77]

Many other small EAF and remelting producers of speciality steels closed between 2005 and 2025 due to global competition and high UK energy costs. Some were bought by larger groups, but most went out of business.[78]

Who is left?

Scunthorpe-based British Steel has the capacity to produce 3-4 million tonnes of steel annually but is currently incurring losses of about £700,000 per day.[79] British Steel stated in March 2025:

> The blast furnaces and steelmaking operations are no longer financially sustainable due to highly challenging market conditions, the imposition of tariffs, and higher environmental costs relating to the production of high-carbon steel.

British Steel's Chinese owners, Jingye, tried to close Scunthorpe, but it was 'saved' and effectively nationalised in April 2025 by the current government to keep the blast furnaces operating. The government was trying to sell the company to another operator, but the UK's emissions taxes and the need to import both iron ore and coking coal make it a very uncompetitive steel producer globally[80]. The government is now proposing to merge British Steel with the insolvent Liberty Speciality Steels EAF in Rotherham to keep the supply of steel for downstream steel producers and close Scunthorpe's loss-making blast furnaces.[81]

Cardiff-based Celsa Steel UK, a small EAF steel recycler, producing about 1.2 million tonnes of mainly rebar for construction. It has survived by focusing on a single product and market: the domestic rebar market.

Outokumpu Stainless – Sheffield, is another EAF producing 0.7 to 1 million tonnes annually of stainless steel and high-alloy grade steel. It survives because it produces high-value stainless products for UK high-tech and high-value engineering firms and for export. The company is part of a large Finnish multinational with diversified operations.

Sheffield Forgemasters is another small EAF producing less than 0.3 million tonnes annually for the UK's defence and nuclear industries.[82] It is owned by the UK Ministry of Defence, which acquired it in 2021 to secure critical defence supply chains. This state backing shields it from both market forces and energy cost considerations.

In total, UK steel production capacity has dropped from 15 million tonnes in 2015 to just 6 million in the last ten years, while actual production has fallen further. See Figure 4 below.

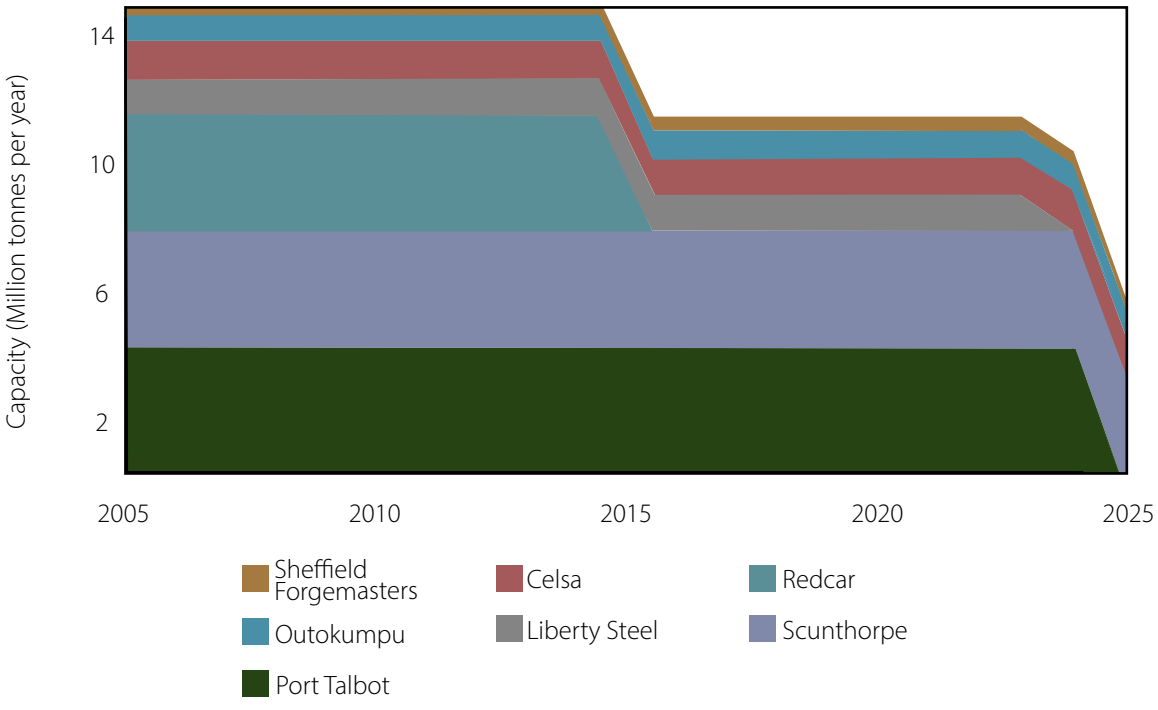


Figure 4: UK steelmaking capacity.
Source: UK Steel.

Carbon taxes prevent EAFs, and CBAM prevents lower-cost imported materials

Although the UK's proposed EAFs are intended to replace some of this lost capacity, the UK's high electricity and carbon costs will make it difficult for domestically recycled steel to compete.[83] Converting more of the UK's steel production to EAF will also have other problems. Recycled steel is often of poor quality due to contamination with waste materials from its previous use, or if it was originally low-grade steel. It is typically used for rebar in reinforced concrete construction. Many of the UK's downstream steel users need very pure, high-quality steel to produce their vehicles, aircraft engines, parts and precision instruments.

The UK presently exports its scrap steel to India, Turkey, Egypt, and other countries with less expensive electricity, lower or no carbon pricing, and much larger, more modern EAFs.

To add a CBAM to imported steel now that the UK's ability to produce steel domestically has almost disappeared would only penalise the UK's other export industries that use steel to make higher-value products: for example, the UK's makers of cars, vans, trucks, aircraft parts and engines, gas turbines, mining and construction equipment, and other precision engineering products. Adding a CBAM to their imported materials would make their products less competitive in their main export markets.

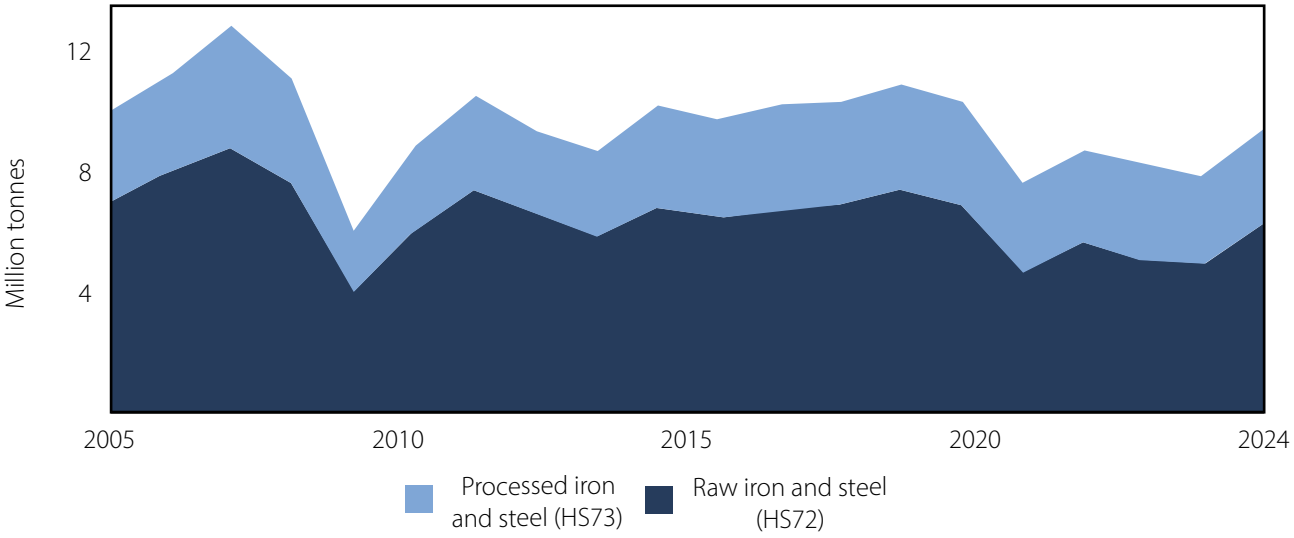


Figure 5: UK imports of steel and steel products.
Source: ITC Trademap.

We can see in *Figure 5* above that while UK steel capacity has halved, steel and steel product imports have remained flat. This fall in demand reflects the deindustrialisation of the UK that has taken place since the UK introduced the Climate Change Levy (CCL) on business energy use in 2001, then joined the EU's ETS scheme in 2005 and finally added the UK's Carbon Price Support on carbon emissions from electricity producers in 2013. This additional carbon tax was intended to ensure a minimum carbon price, as the EU's ETS prices were considered too low by the coalition government.[84] However, it increased electricity prices for intensive users such as steel and chemical production, as well as increasing their emission taxes.

The indirect ETS and CPS taxes embedded in electricity costs were partially rebated to eligible sectors, but the process required applications, audits, and cash-flow problems because rebates were paid months after electricity payments. The UK replaced the EU's ETS with its own ETS in 2021.

However, direct ETS and CPS emission taxes were not rebated. Competitors in the EU steel and chemical sectors did not have to pay this additional CPS tax, allowing them to undercut UK producers and drive many out of business.

Adding a CBAM to imported steel would also increase the cost of domestic infrastructure,

including rail, bridges, tunnels, wind turbines, structural beams and columns, and electricity pylons and substations. Although the UK builds very little infrastructure, a CBAM will increase the cost of the infrastructure that it does build.

The UK's deindustrialisation and low infrastructure investment are more apparent when actual steel production and steel imports are combined, as shown in Figure 6 below. Steel production has declined by 80% since 2005, from 13–14 million tonnes per year to 2.5 million tonnes in 2025, of which only 1.5–1.7 million tonnes were virgin steel produced in blast furnaces using coal and iron ore. The government has published a steel strategy to address the future of UK steel production.[85]

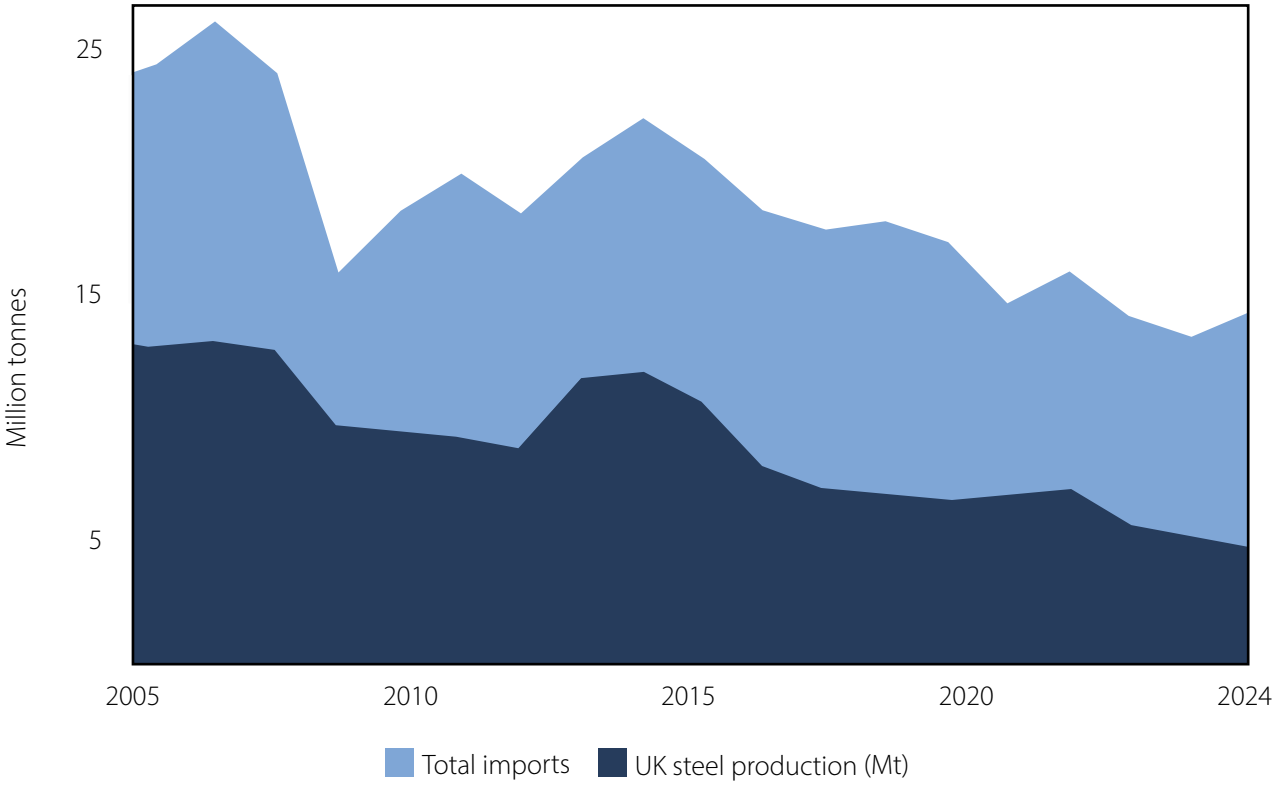


Figure 6: UK steel demand – UK production and total imports.
Source: UK Steel.

The UK's total steel imports have been relatively stable but are now twice the tonnage of domestic production (see Figure 6). While many people believe the culprit for declining UK production is China, the UK imports two and a half times as much HS 72 iron and steel from Germany as from China. China is only the UK's ninth-largest supplier of basic steel by value. Germany, Spain, the Netherlands, France and Belgium all export a greater value of steel to the UK. And these countries also have ETS schemes. In general, they receive greater protection: EU steel receives free allowances for benchmark products such as coke, sinter, hot metal, and EAF steel.[86]

EU member state governments, especially those of Germany, France and Spain, subsidise industrial electricity more than the UK does. While thirteen mostly former Soviet bloc EU steelmakers have received support from the EU's Innovation and Modernisation Funds, enabling them to upgrade their plants and make substantial investments in EAFs.[87,88] EU steelmakers also benefit from infrastructure demand, as producers in China and the US do.

In contrast, the UK's demand for steel has fallen due to its deindustrialisation, complex construction regulations, and delays to infrastructure projects, thereby reducing the UK steel mills' ability to benefit from economies of scale. That said, the BSSA claims that the EU steel industry is in crisis, production is far below

historic levels, and UK steel mills are operating at 60% capacity.[89]

EU steelmakers can export steel to the UK profitably because they receive far more ETS protection, energy subsidies, and investment support than UK mills — and although EU steel is also struggling, its scale and state backing keep it competitive while the UK industry collapses.[90],[91]

The major steel producers in the EU do not add ETS or carbon taxes directly onto their industrial electricity prices, and many compensate their industries for any ETS-related electricity costs. This is one of the main reasons that UK EAF steel is uncompetitive. *Figure 7* below shows that even the UK's very large companies are paying more for their electricity than small companies in the other major EU steel producers.

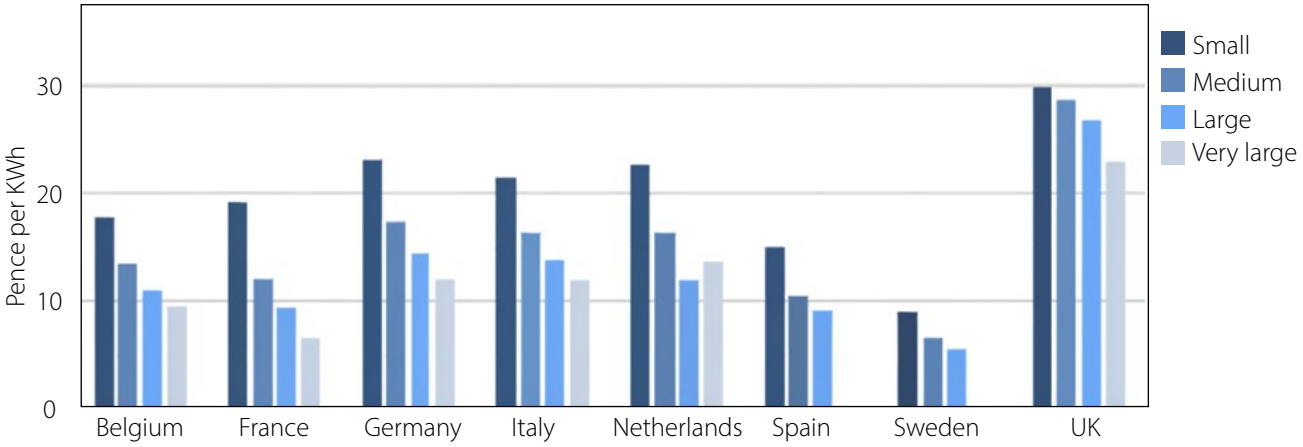


Figure 7: 2024 industrial electricity prices by size of company and country.
Source: UK Government.

Under EU ETS rules, member states may refund a large proportion of indirect ETS costs to energy-intensive industries such as steel, aluminium, cement, chemicals and fertilisers; this is called indirect cost compensation (ICC). The EU's goal is to keep its energy-intensive industries competitive as it decarbonises and prevent companies from moving their production to countries with lower carbon taxes and regulations. Each EU country has slightly different ways of doing this.[92] Despite the EU's faux abhorrence of state aid, 13 of the 27 member states run state aid schemes to compensate energy-intensive industries for ETS costs passed through in electricity prices.

In Germany, industrial users are exempt from most electricity surcharges and receive rebates on renewable levies and 75%-85% refunds of indirect ETS costs for eligible industries. France provides large rebates and has heavily regulated and subsidised industrial electricity. Spain has one of the most generous compensation schemes in the EU, with a €2.9 billion scheme to compensate energy-intensive industries for indirect ETS costs.[93] The Netherlands both compensates for indirect ETS costs and caps industrial electricity taxes. Belgium provides rebates and exemptions for energy-intensive users, and Italy also compensates indirect ETS costs.[94]

Major EU steel-producing countries do not add ETS or carbon taxes to industrial electricity — instead, they compensate or exempt steelmakers from these costs, while the UK does not, which is why EU steel remains more competitive despite higher headline carbon prices.

When the UK left the EU, it established its own ETS market.[95] The UK ETS also has reducing

ETS free allocation[96] and compensation rules,[97] even as EU countries continue to operate large compensation schemes, thereby increasing UK industry's relative disadvantage.[98] UK indirect ETS compensation is lower, and its industrial electricity prices are higher, as seen in Figure 8; UK steelmakers pay a larger share of the carbon cost in their electricity bills and receive lower rebates than their EU competitors. Liberty Steel, an EAF producer, explicitly attributes its collapse to the UK's high electricity prices and ETS costs.

The UK and EU followed the same ETS rules, but EU countries chose to give far more generous compensation for electricityrelated carbon costs. In contrast, the UK adopted a smaller scheme and imposed additional carbon taxes, leaving UK energy-intensive industries at a structural disadvantage.There is also a cash-flow disadvantage, as the CPS and ETS costs embedded in their electricity bills must be paid before they receive any government compensation. Companies must apply for compensation and verify the electricity they have used and their eligibility under the compensation scheme.[99] Payments are annual or periodic rather than monthly, which can lead to cash flow problems.[100]

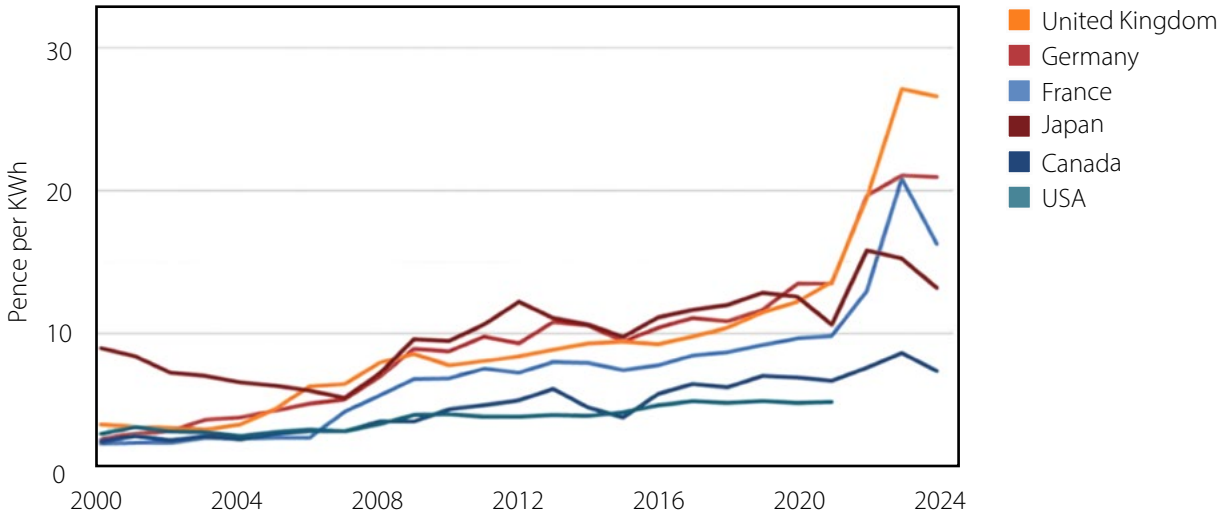


Figure 8: Industrial electricity prices including taxes by country.
Source: DESNZ.

Lower UK production and high energy prices for recycling steel have, in turn, destroyed the UK's steel export industry (as seen in Figure 9 overleaf), except for the export of scrap steel, which has increased from 41% of UK steel exports by weight in 2007 to 78% in 2025.

Approximately 75% of the UK's basic steel exports in 2024, by tonnage, and 45% by value, are made up of scrap steel. Excluding scrap, about 8% of the UK's HS72 steel exports, by value, go to the US. For *articles of iron and steel* (HS73), the export percentage is higher at 10%, but in this case, the US was the UK's second-largest market in 2024. In total, UK exports of both iron and steel and products made with iron and steel were only $14.4 billion in 2024, of which approximately 7.4% was exported to the US.

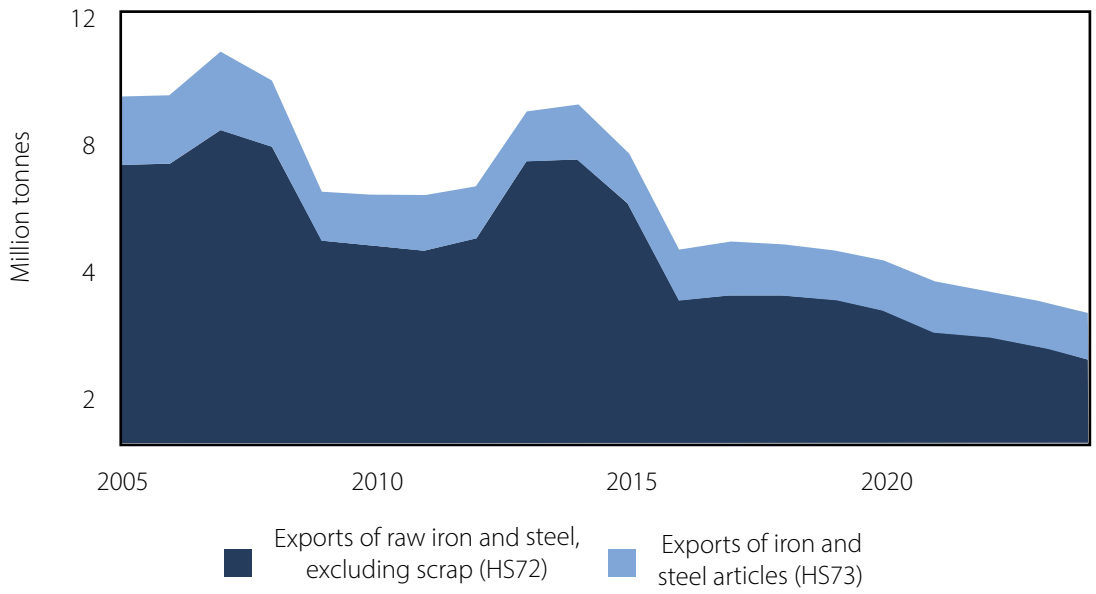


Figure 9: UK steel exports, excluding scrap steel.
Source: ITC TradeMap.

Currently, the UK imports most of its basic iron and steel from Germany, Spain, the Netherlands, France, and Belgium, which together provide about 40% of the UK's elemental iron and steel (HS72), while India, South Korea, Turkey, Vietnam, Brazil, and Taiwan account for 25%. China supplies approximately 4%, and the US contributes only 1.3%.

UK security of steel supplies

The UK's steel supply from European allies is not secure, as most of these countries rely on imported iron ore, coking coal, or both. Germany imports both. In 2021, Russia supplied almost half of Germany's coking coal, even as Russia occupied Crimea and conducted military exercises with Belarus involving 200,000 troops, 760 armoured vehicles, and 80 aircraft. Admittedly, German coking coal imports from Russia have fallen dramatically since 2022, from 8.8 million tonnes to fewer than 100,000 tonnes in 2024. This stark reduction underscores the need for the UK to have alternative, reliable supply chains. Relying on Russian coking coal for steel production and on Russian gas to power its industry was neither a strategically nor a militarily sound move by Germany.

Germany also imports iron ore supplies from Canada, South Africa, Brazil, Sweden, the US, and Ukraine. This highlights the need for diversified and reliable supply chains. Following Russia's 2022 invasion, German imports of Ukrainian iron ore declined by two-thirds. Germany relied on the aggressor for coal and on the victim for iron ore. Both sources are equally susceptible to invasion, as are the UK's finished steel imports from Germany.

Like the US, the UK should be concerned about supply chain security, as it has recently announced a major rearmament program that will require substantial quantities of steel and aluminium. Relying on China, a potential adversary, for the steel or aluminium needed to replace any aircraft, drones, ships, or submarines is not a sensible strategy.

Like Germany, the UK needs to import both iron ore and coking coal for its remaining (Chinese-owned) blast furnaces. The UK's largest suppliers of iron ore were Sweden, the US, Brazil, Canada and Norway in 2024, while the UK's largest suppliers of coking coal were Colombia, South Africa, the US, Venezuela, Australia and Spain. The UK could supply its own coking coal, but the current government abandoned plans to open a new mine to help the UK meet its Net Zero commitments.

The UK has a significant trade deficit with China, amounting to $2.3 billion in HS73 Articles of iron and steel, and a smaller trade surplus with China of $194 million in HS72 Iron and

Steel.

UK iron and steel production has suffered enormously due to the UK's adherence to the false market of emission taxes and allowances. UK exports of energy-intensive goods fell, and imports increased more than 20 years ago, as production shifted from the UK, the US, and the EU to Asia.

Better UK government policy could save what is left of UK industry, but only if the UK remains outside the EU and sets its own regulations. The current ETS system imposes taxes and compliance costs on domestic producers and imposes additional taxes and compliance costs on imports, even on products that are no longer made in the UK. A true market-based solution would reduce the emission and compliance costs on businesses by removing emissions taxes and accelerating investment in carbon-reducing innovation, plant and equipment with tax-free investment allowances and 'Rapid Innovation Funds.' These ideas are discussed further in Chapter 7.

6. The UK's CBAM versus the EU's CBAM

The EU Commission fully launched its commercial CBAM in January 2026, having published its CBAM benchmarks and default values for carbon charges. The EU's CBAM began in Oct 2023, but importers were not required to purchase and surrender CBAM certificates; they were only required to begin monitoring, recording, and reporting their import emissions.[101] The EU's CBAM includes indirect emissions from the electricity used to produce some products. The EU will also begin phasing out its ETS free allowances from 2026 to 2034.

The EU CBAM will cover only simple goods made from: iron and steel, aluminium, cement, fertilisers, hydrogen, and electricity used in their production. It will exclude complex goods for now and has set an import threshold of 50 tonnes of CBAM goods. Small importers who import less than this amount do not need to pay the CBAM, but they must verify the amount imported, which will require compliance costs and record-keeping.

The CBAM charge will be the EU ETS price multiplied by the embedded emissions, less the carbon taxes, ETS or carbon levies paid in the manufacturing country. Embedded emissions are either the actual verified emissions or the default emissions for each product and country. The default values will increase by 10% each year, starting at 110% in 2026, then 120% in 2027, and 130% in 2028. This is meant to encourage importers to use actual verified emissions rather than default values.

The country-specific default values have been published [102] and vary by 8-digit HS code (the internationally recognised code used to classify traded goods) and by country of production. There is a substantial difference between the default values for various countries based on how the product is typically manufactured in each country, the energy source typically used, and the associated emissions.

Country	HRC	CRC	HDG	Slab
India	4.28	4.28	4.28	4.27
Indonesia	8.23	8.25	8.25	8.23
China	3.187	3.205	3.205	3.167
Japan	2.1	2.143	2.13	2.1
South Korea	2.118	2.144	2.144	2.118
Turkey	2.428	2.51	2.51	2.309
Vietnam	2.35	2.37	2.37	2.35
Brazil	1.62	1.73	1.73	1.61

Figure 10: Estimates of CBAM costs by country and product (tCO_2e/tonne of steel produced).

Source: European Commission data.

Figure 10 is a table compiled by *Eurometal* of the default values for four commonly imported steel products from various countries: hot-rolled coil, cold-rolled coil, hot-dip galvanised coil, and slab steel produced in a blast furnace. Using the EU's December 2025 ETS price, they calculated that the CBAM default would add €541 per tonne to Indonesian BOF slab steel imports but only €22.5 per tonne to Brazilian BOF slab steel. It is likely that such high CBAM costs will divert trade away from Asian producers and disrupt supply chains. It will also push up prices for downstream steel users.

The EU has introduced an extension to HS product codes used to calculate import tariffs. The first 4, 6, or 8 digits are the standard HS code, and the last two digits are EU-specific subdivisions for CBAM calculations.[103]

If importers cannot verify the actual emissions data associated with their imports, then the EU will apply a default emissions value for the product, its production process and its country of manufacture. Where actual emissions data is available and verified, it can be used to determine the specific embedded emissions for a given import. If not, default values —often set at the higher end of the range —apply.

This default-value system applies to all CBAM goods except electricity, and provides a harmonised, country-specific, and product-specific framework for calculating embedded emissions for customs declarations.

For example, steel products will depend on whether they were produced in a blast furnace-basic oxygen furnace (BF/BOF), by direct reduced iron/electric-arc furnace (DRI/EAF), or from scrap in an electric-arc furnace (EAF). The benchmark is expressed in tonnes of CO_2 equivalent (tCO_2e) per tonne of steel produced, with separate values for different production methods reflecting the differing carbon footprints of each process, and for each country of production.

The UK's current and previous CBAM proposals

The previous Conservative government proposed a CBAM on aluminium, cement, ceramics, fertiliser, glass, hydrogen, and iron and steel. The current Labour government recently published a policy update.[104] Its CBAM proposal excludes ceramics and glass; two important UK energy-intensive industries in which the UK remains a competitive producer.

While it can be argued that UK ceramics and glass producers would benefit from CBAM protection against cheaper imports from countries without carbon taxes, it would be more helpful if the UK removed its carbon taxes on these industries and on UK fuel more broadly.

Since 2022, at least six major UK ceramics manufacturers have entered administration or liquidation: Wade Ceramics; Johnson Tiles; Heraldic Pottery; Royal Stafford; Moorcroft Pottery; and Denby Pottery. The overwhelmingly cited reason for these closures was energy costs. Ceramic kilns are highly energy-intensive, and gas accounts for about 85% of their energy use. Competition from cheaper imports was also cited as a problem, but imports are often cheaper because their energy is cheaper. If the UK also had cheaper energy, UK companies would find it easier to compete.

Despite this, the government has decided to apply CBAM charges to imports of goods from industries where the UK is uncompetitive, where many producers have closed or moved out of the UK, and/or where the UK is a major importer of their products, because the UK's high ETS, CPS, and Climate Change Levy have driven UK producers out of business.

The UK government, in its desperation to align with the EU, seems to have forgotten that the purpose of CBAM is to create a level playing field between the carbon taxes applied to UK industries and those applied to imported goods in their home market. If domestic production is negligible or very small, as is the case in the UK for aluminium and steel, there is no need to impose a CBAM on imports. The EU is in a different position to the UK, because it still has large producers of its CBAM products: aluminium, cement, fertilisers, hydrogen and iron and steel. The UK does not.

The UK's CBAM charge will include direct emissions related to the CBAM goods' production process, and indirect emissions related to the carbon charges on the electricity consumed during production and on the precursor goods

used in the production of complex CBAM goods.

The precursor CBAM will also apply to non-CBAM goods that were made using CBAM goods as a precursor. This will not apply where the precursor goods were produced in the UK and then exported and reimported as part of a CBAM good; in that case, the emissions attributable to the UK-produced precursor can be deducted from the total embodied emissions of the imported CBAM good. While this will give importers some respite from CBAM costs, it will greatly increase the compliance costs and records required, which will distract management from its core business.

CBAM charges will be collected at the border, along with any applicable import duties. There will be a minimum annual registration threshold of £50,000, but all importers must calculate and record the value of their CBAM imports to verify to HMRC (HM Revenue & Customs) that they have not imported more than this amount of CBAM goods. Once imports exceed the threshold, companies must register with HMRC, keep records of the goods they import, submit CBAM returns, and pay any CBAM liability due.

This will be an administrative burden for all companies, but especially for small and micro companies without a compliance department. It is likely that fulfilment companies specialising in CBAM calculations will be employed instead, adding to an import company's costs.

The UK's proposed CBAM registration threshold of £50,000 is calculated on the value of the imported products, not the value of the CBAM payments. This seems counterintuitive, as it would penalise high-value imports that may have lower emissions relative to cheaper ones that may have higher emissions associated with their production.

As with the EU's CBAM, importers will need to either provide verified data on the emissions embodied in a CBAM good, or use the government's default emissions values. HM Treasury will set default emissions from January 1, 2027, and, according to the updated policy paper, there will be a single CBAM rate for each CBAM product sector. Imported CBAM goods will need to be weighed to determine the CO_2-equivalent emissions per tonne. Emissions accreditation agencies will undoubtedly flourish under this regime.

The UK's CBAM price will reflect the UK's effective carbon price, referencing both the ETS and the CPS, which applies to fossil fuels used to generate electricity in Great Britain. The CBAM rate will be reduced to account for free allowances available to each domestic sector. CBAM rates will be calculated and published at the beginning of each quarter, beginning in January 2027. The government has announced that it will remove the CPS carbon tax, but not until April 2028, 15 months after the introduction of CBAM.

CBAM, ETS, and the EU Reset

Despite the November 2025 publication of the CBAM policy update, other government ministers have announced that the UK will join the EU's CBAM and ETS. One reason the EU's ETS price is higher than the UK's is because there are 10 times as many industrial companies in the EU. The EU's ETS also covers domestic and international maritime transport, as well as domestic and international aviation.

The UK added domestic maritime transport to its ETS coverage in January 2026 but does not charge the ETS on international maritime transport. As an island, the UK imports most goods by sea. If the government agrees to follow the EU's ETS rules, it will increase import costs before any CBAM is added. This is important because, unlike the EU, the UK does not have alternative road and rail routes for imports other than to exclusively import goods from the EU.

The EU's agreement regarding the UK joining its ETS includes 'domestic and international aviation', but at present both the UK and the EU just charge ETS on domestic flights, flights between the EU, UK, EEA and Switzerland, but not on international flights to other destinations, which are covered by CORSIA. The EU's inclusion of 'international aviation' in its Reset documentation implies that it will be charging ETS in the future rather than relying on CORSIA. CORSIA charges are substantially lower than the EU's or UK's charges measured per tonne of CO_2 emissions. On average, CORSIA charges are less than10% of the EU's and UK's ETS charges if compared on a passenger mile basis, as CORSIA only offsets the emissions growth above 85% of the 2019 baseline and only applies to interna-

tional flights between participating states.[105]

Additionally, unless the UK drops all its additional CPS and CCL charges, UK companies would be left with the worst of both worlds: paying higher electricity prices than their competitors in the EU, paying additional carbon taxes, while also paying the EU's higher ETS prices. This situation would drive the last manufacturing companies out of business in the UK.

7. Alternatives to CBAM

Territorial emissions versus consumption emissions

Many developed nations have deindustrialised due to high taxes on carbon emissions and now import emission-intensive goods produced in developing nations. Doing so has allowed Western nations to claim that they have cut their emissions, when they have just outsourced them. This has been great for international development, and many previously impoverished countries are now middle-income, according to World Bank GDP per capita measures. But this has not changed global emissions; it has simply changed which country produces them. If CO_2 is the problem, outsourcing emissions will not solve it.

The carbon price should reflect the lifespan of the product

Aluminium and steel used in car and aircraft production, which have a 25- to 30-year lifespan, should have their production emissions divided by 25 or 30, respectively. In contrast, aluminium used to make drink cans or steel used to make food cans should have ETS payments based on production-related emissions. Steel beams used in buildings or bridges should have their production emissions divided by 50 or 100, as the product will last for 50 to 100 years. This simple alteration to the calculation of carbon emissions would reduce the carbon taxes applied to the production costs of the developed world's most useful and durable materials – steel, aluminium, cement, ceramics and glass.

This may not result in the on-shoring of production, as many developing countries now have the newest, most efficient facilities, along with low wages and employment costs, but it might stop the exodus of the remaining domestic production, at least to meet domestic demand. International demand is predominantly in the developing world, where it will remain while these countries build infrastructure and housing.

Rebate carbon taxes on imported materials for export goods production

Many of the products the government intends to subject to a carbon import tax, such as imported steel and aluminium, are essential inputs in the production of high-value export products such as cars and aircraft engines. Increasing their production costs by adding a CBAM charge will make the end products less competitive internationally. At the very least, the government should rebate any CBAM charges when the goods made with the imported materials are exported. Although a better solution would obviously be not to charge a CBAM on goods that are not produced in the UK at the six-digit Harmonised System tariff code level. The government's current proposed blanket CBAM on almost all aluminium, iron and steel covers many metal shapes and thicknesses that are no longer produced in the UK. The system appears designed to force UK manufacturers to import goods only from EU manufacturers.

Creating a true carbon market between emitters and sequestrators

All carbon markets must become true markets; governments must cease issuing pollution permits (emissions allowances), except for industries of national importance, such as the defence industry. All other emission allowances should be sold only by businesses engaged in CO_2 sequestration, such as forestry, farming, or physical carbon capture. This would encourage farmers to plant winter cover crops by providing a revenue stream from the sale of carbon credits. To participate in this market, farmers should have their soil carbon measured annually and be able to sell any increase in stored carbon in their local carbon credit market. Forestry busi-

nesses could sell carbon credits sequestered through the replanting of harvested timber, thereby providing a revenue stream as their future assets grow. Even local councils could sell the carbon credits from carbon sequestered by tree-lined streets and local parks.

This would create an actual 'Net Zero' emissions certificate for emission-intensive products, for which consumers may be happy to pay a higher price. Carbon credit sales should be limited to domestic sequestration to prevent fraud or, worse, prevent industrialised nations from paying farmers in developing countries to remain underdeveloped, as is currently occurring.

Innovation and efficient production

It would be better to encourage innovation and more efficient products and production methods, with less environmental regulation and tax incentives for the adoption of new, more efficient plant and equipment. Free markets naturally accelerate innovation and decarbonization, as it is always in a company's interest to be more efficient, unless hampered by environmental regulatory complexities. For example, improvements to the internal combustion engine have reduced total emissions by 60% to 80% over the 30 years from 1990 to 2020, despite the increase in the number and type of cars on the road and the increase in mileage driven.[106]

Companies will invest in innovation if they are sufficiently incentivised to do so. Porsche invested more than $100 million in developing a synthetic petrol alternative called e-fuel. E-fuel does not mean ethanol added to petrol; E-fuels are carbon-neutral synthetic fuels designed to keep internal-combustion engines running after 2035. They are produced using electricity, water, and captured CO_2, and behave almost identically to petrol or diesel.[107]

Two ways to encourage supply-side innovation have been proposed by the Global Climate & Freedom Accord (CFA). The CFA proposed reducing the financial costs of emissions abatement through tax deductions for investment in efficient production methods, Decarbonisation Tax Cuts (DTC), and tax-exempt debt for capital and conservation investments, Rapid Innovation Funds (RIF).[108]

RIFs avoid governments 'picking winners' because they allow tax-exempt debt for all capital expenditures (property, plant, and equipment), recognising that lowering the cost of capital expenditure results in the faster adoption of the latest technologies, which drives broad decarbonisation.

The UK government currently subsidises low-emission innovation, such as the Net Zero Teesside project, which is building electricity production with Carbon capture.[109] While this project may be considered commendable by many, government subsidies are giving this technology and this location an advantage over other companies and other potential technologies. Instead, investment funds could have been raised for these types of investments using Rapid Innovation Funds, full expensing for research and development, and for the installation of more efficient equipment.

RIFs and DTCs have the advantage of being technology-neutral and allowing market forces to determine which technologies are most useful and efficient, as they will be the ones most widely adopted and will consequently attract the most investment. This is an important feature of the CFA plan, as it takes into consideration the track records of most Western Governments in not predicting innovation.

The Accord also proposed encouraging international investment in innovation and cross-border capital flows as an alternative to imposing a carbon tax on imported goods, as the CBAM proposes. Allowing free trade, market competition and international investment to incentivise and accelerate decarbonisation.

Another proposal it highlighted were Game Changer Tax exemptions (GCTE), under which companies that deliver breakthrough technologies that lower emissions or reduce waste could receive a 15-year tax exemption on profits from their inventions. This is another positive incentive to encourage innovation rather than the growth destroying imposition of taxes, regulations and enforced adoption of suboptimal technology.

Economic freedom and competition

Lightly regulated open markets and free trade should be given equal weight to supply-side tax and investment policies, such as DTCs, RIFs and GCTEs, as an alternative path to decarboni-

zation without CBAM's economic downside of deindustrialisation and lower living standards.

Market competition is important. Competitive markets drive down costs, give innovators easier access to markets, and enable consumers to demand cleaner, cheaper, and more reliable electricity. By contrast, monopolies have no economic incentive to innovate, care about consumer preferences, or cut costs. A recent study by the Pacific Research Institute, comparing competitive and monopoly US power markets, found that competitive power markets are decarbonising 66% faster than uncompetitive ones.[110]

Countries with higher levels of economic freedom tend to have higher levels of environmental performance. This is demonstrated by a strong positive correlation between the Economic Freedom Index developed by the Fraser Institute[111] and the Environmental Performance Index of Yale University[112]. The Economic Freedom Index rates the degree to which a country's policies and institutions encourage voluntary exchanges, the freedom to participate and compete in markets, and the upholding of the rule of law and private property rights. The Environmental Performance Index is a comprehensive sustainability measurement, based on 58 indicators and presented in ratings ranging from 0 to 100 points. From the two indices, we can conclude that countries with a more intensive capitalist model also have higher scores in air quality, drinking water, waste management, and other indicators related to environmental preservation and climate impact mitigation.

This result is not surprising. When individuals own and directly manage resources, they have a much stronger motivation to preserve and improve them, while avoiding overexploitation and the inefficient conflicts typical of communal ownership and management. Competition drives investors and producers to develop cleaner technologies and more efficient processes. They do so because this improves productivity (leading to lower cost per unit) and, as an unintended consequence, mitigates their carbon footprint on natural environments. Hence, more liberalised economies exhibit higher levels of investment in research and development, facilitating the creation of greener and more sustainable technologies.

Economic growth, derived from economic freedom, provides the resources necessary to invest continuously in improved environmental protection. Mitigation and adaptation are as necessary as they are expensive. Therefore, richer countries can afford to implement some environmental regulations whose implementation costs would be unaffordable in less prosperous economies. Richer nations also have the capacity to fund ecological initiatives that favour conservation, such as modern water treatment and waste management systems found in the developed world. Additionally, there are social preferences, as people from more prosperous societies tend to prioritise environmental protection when their basic needs are adequately met.

When new investments become cheaper and face fewer government-imposed barriers, the latest, cleanest, most efficient technologies are deployed faster and in greater numbers. Freedom accelerates the pace of innovation, decarbonisation and technology transition, simply by reducing costs and burdens. Many developed countries have ignored this factor. For example, the UK's EV mandate enforces existing lithium-battery technology, even though more efficient technologies, such as combustion-engine e-fuels, hybrids, or improved battery technology, could be better long-term solutions.

8. Conclusions

While CBAM is a measure to address carbon leakage and prevent companies from offshoring production to avoid carbon taxes, it will not help if emission-intensive industries have already offshored their production or closed, as is the case with the UK's aluminium, steel and fertiliser industry.

CBAM will not bring industry back to the UK because companies relocate production for other reasons as well, such as environmental regulations, water pollution regulations, and regulations that limit access to raw materials. Sometimes companies are enticed to move their production by grants from the govern-

ment of their new location. For example, environmental regulations governing the refining of critical minerals and rare earths in the US and Australia have driven these industries to China, where environmental regulations are fewer, and many manufacturers that use these products have followed suit. Similarly in the UK, restrictions on opening new oil wells have driven UK oil companies and oil refineries out of business, as well as other downstream industries, such as chemical and plastics manufacturers. A CBAM won't onshore these industries, as it doesn't compensate for or even address these other costs.

Nor will a CBAM help if most domestic manufacturers have gone out of business, as has happened in the UK for aluminium and steel production. Adding a CBAM to imported steel or aluminium used to produce high-value goods will only increase the costs of UK downstream producers. It will not bring back blast furnaces and aluminium smelters. However, if the UK is to keep high value-add downstream production in the UK, it is imperative that the UK does not increase their material input costs by adding a CBAM to them. Transport machinery and equipment, large users of steel and aluminium, are the UK's largest goods export industry, so their products must remain competitive internationally. CBAM charges on imported raw materials will have the opposite effect.

However, if the government is determined to add a CBAM to imported products or an ETS to domestically produced products, these charges should be divided by the expected lifespan of the goods: the ETS charge on the aluminium used in a plane or EV will have a much greater lifespan than the aluminium used in a drink can. However, even if spread over the product's lifespan, such charges will still make UK goods more expensive for domestic consumers and less competitive globally if their export competitors do not have to pay similar taxes.

Creating a real market for CO_2 emissions between emitters and sequestrators would at least achieve Net Zero emissions among market participants. And it could be a real market solution if the government does not force companies to participate; it would not, however, address other production externalities. This solution would be less cumbersome to administer than the present system, thereby benefiting the economy.

However, the best solution is to encourage companies to install the most efficient plant and equipment through reduced regulation, Rapid Investment Funds, and tax incentives, yielding greater environmental benefits and reducing compliance and enforcement costs. Encouraging manufacturers to update their plant and equipment to the most efficient available would lower energy use, reduce pollution, save money, and help maintain employment and value-added industries in the country.[113]

Notes

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