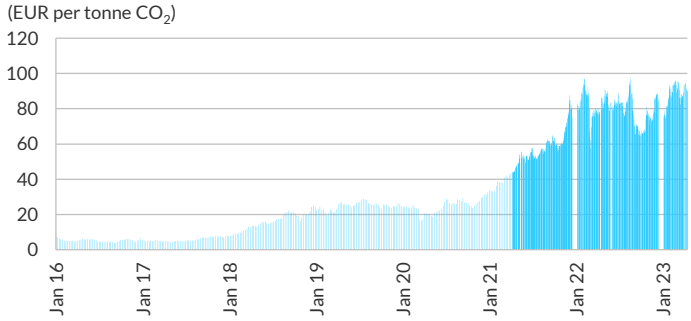
EU Fit for 55 to Boost Carbon Costs and Prices

Limited Medium-Term Impact on Steel, Aluminium and Fertiliser Producers

Carbon Price, EU ETS



Source: Fitch Ratings, EEX

The EU's approved 'Fit for 55' climate package will increase the carbon costs of EU producers and exporters, although this will likely be offset by increasing prices once the Carbon Border Adjustment Mechanism (CBAM) is levied from 2026. The EU reached an agreement on the key carbon legislation on 25 April, including changes to the Emissions Trading System (ETS) and the implementation of CBAM.

The framework will incentivise decarbonisation as carbon-free products will benefit from large premiums. However, substantial investment is needed to meet the ambitious climate targets, particularly in the steel industry.

Most countries exporting into the EU have high carbon footprints, so producers might face high carbon costs. However, lower operating cost bases will allow them to absorb such costs in the medium term.

Changes in carbon costs might shift trade flows, with high-emitting exporters redirecting their exports to markets that lack carbon protection, while low-emitting exporters increasing their focus on the EU.

Carbon Costs to Equalise

CBAM will apply to the imports of certain products into the EU from 1 October 2023. It is part of the EU Green Deal, which aims to reduce greenhouse gas (GHG) emissions by 55% by 2030 compared to 1990 levels, on the path to carbon neutrality by 2050.

CBAM will mirror the carbon costs of domestic producers under the ETS net of free allowances allocation to incentivise decarbonisation of operations and to avoid carbon leakage from imports. CBAM will initially apply to hard-to-abate polluting sectors such as cement, iron and steel, aluminium, certain fertilisers, electricity and hydrogen. When fully passed in, CBAM will cover more than 50% of emissions in ETS sectors.

CBAM will be in transitional phase from 4Q23, only requiring the reporting of the direct and indirect GHG footprint of imports as well as the carbon price paid abroad. The requirement to purchase a CBAM certificate to cover carbon footprints will come into force in 2026.

CBAM will be implemented in parallel with the phasing out of free allocations under the ETS in 2026-2034. It will be applied in direct proportion to the reduction of free allowances allocated under the ETS, equalising the amounts paid for carbon by domestic producers and exporters. The Green Deal envisages that free allocations will gradually decline from 2026 and be entirely phased out by 2034.

The scope of attributable emissions includes only direct emissions for steel and aluminium but direct and indirect emissions for fertilisers.

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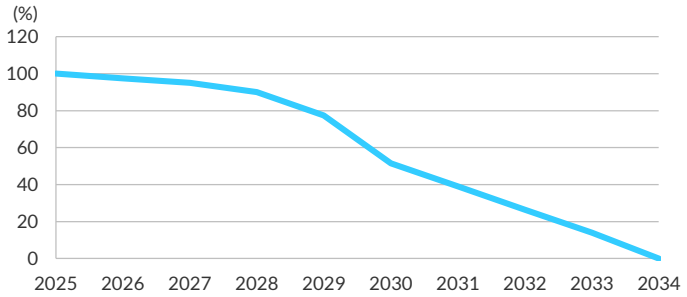
Phasing Out of Free Allocations



Source: Fitch Ratings, EU regulation 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a CBAM

Actual payments related to CBAM will start in 2027 to retrospectively cover 2026, and companies may start purchasing certificates in advance.

If a carbon price is paid in the goods' country of origin, then this same amount will be deducted from the total CBAM price to be paid.

The allocations of free allowances will be subject to more stringent criteria. Allocation of free allowances to the 20% most polluting installations will be conditional on them setting up and implementing carbon-neutrality plans. Also, top 10% lowest-emitting installations will be excluded, incentivising innovation.

Carbon Price Will Continue Rising

The cost of emissions allowances has been on the rise since 2018 due to a decreasing number of free allowances on the market, plans for a steeper reduction in their availability, rising energy costs and a partial switch in the power sector from gas to coal. The amount of free allocations in the market stability reserve will be fixed at the lower threshold level.

The median price of one tonne (t) of carbon emission allowance was EUR80/t in 2020. This has risen to EUR90/t as of May 2023 while the maximum bid price has already exceeded EUR100/t. A steeper reduction in the share of free allocations suggests that structurally higher prices of carbon are here to stay and we expect prices to continue rising in the medium-to-long term.

CRU forecasts that Fit for 55 policies will push the cost of carbon permits to more than USD150/t CO_2 (in real terms) by 2030 on tighter market balances. CRU expects that the price will rise above USD200/t by 2050 to incentivise the decarbonisation of hard-to-abate sectors with the use of hydrogen technology.

Short-term price volatility is possible in the meantime, but the new regulation provides ways to minimise fluctuations. For example, in case of price hikes, there are mechanisms to reduce prices through the release of a certain number of allowances from the market stability reserve.

Limited Impact in the Medium Term

The introduction of CBAM and phasing out of free allocations will push up carbon costs for domestic producers and exporters. We expect that this increase will be largely mitigated by higher prices for respective commodities on the European market.

However, the profit margins of European producers will likely be affected during the transition period as well as post 2026, because carbon costs will only partly be covered by free allocations, and the pace and magnitude reaction of prices to the new levy remains uncertain. The precise impact on profit margins will depend on the carbon intensity of production routes and relative cost of carbon compared to the product price.

We expect only a limited medium-term impact given that 75%-80% of carbon costs will remain covered by free allocations and some producers have already accumulated allocations. In the longer run, when free allocations are nullified, the cost of carbon will become a significant component of cost profiles, largely defining competitiveness, and the lowest emitters will benefit from large premiums.

Steel

Steel is produced via two routes. The most common is the integrated route, which involves blast furnaces (BFs) and basic oxygen furnaces (BOFs) and uses metallurgical coal for iron ore reduction. CRU estimates that 1.8t-2.8t of CO_2 per tonne of crude steel is emitted (scope 1, 2 and 3 emissions) during BF-BOF production.

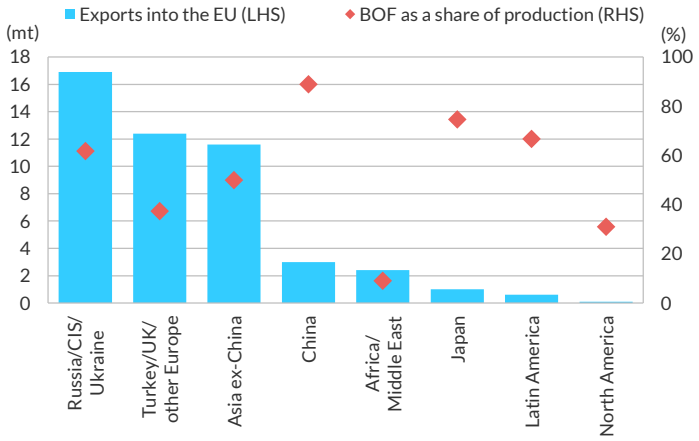
The second route is electric arc furnace which uses either scrap or direct reduced iron (DRI) as a raw material and natural gas as a reducing agent. EAF route emits 0.2t-1.5t of CO2 per tonne of crude steel (based on Scopes 1-3). The EAF process is easier to decarbonise since most of emissions come from the electricity source that powers the furnace and process emissions are lower than by BF-BOF.

Currently more than 60% of steel in Europe is produced through the BF-BOF route, but this will gradually decline as more electric arc furnace (EAF) and direct reduced iron (DRI) projects come on stream and replace integrated facilities.

Most Imports Are High-Carbon

The EU is a net importer of steel, importing 48.1 million tonnes (mt) of crude and finished steel in 2021, according to the table "Major importers and exporters of steel 2021", in 2022 World Steel in Figures" published by the World Steel Association. The key exporters are Turkey, Russia, Ukraine, South Korea, Taiwan, Vietnam, China, the Middle East and Brazil. Exports from Russia and Ukraine have declined in the past year due to Russia's invasion of Ukraine, with volumes replaced by Brazil, China and India.

Key Steel Exporters into the EU and Share of BOF



Source: Fitch Ratings, World Steel Association

Exporters from the CIS, Ukraine, China, South-East Asia and India have higher emissions than producers in other regions due to the dominance of integrated steelmaking facilities and higher process emissions. This will be reflected by higher carbon costs on exports to the EU once CBAM is implemented.

Turkish producers mainly use the EAF route. The exception is Eregli Demir ve Celik Fabrikalari T.A.S. – the country's largest producer accounting for around 30% of domestic capacity – which operates BF-BOF facilities but sells most of its products domestically for further processing.

Middle Eastern producers will benefit in the long run as they operate low emission gas-based scrap or DRI-EAF facilities. We therefore expect export volumes into the EU from producers such as Oman-based Jindal Shadeed Iron and Steel to increase.

We do not expect any impact on exporters in the medium term given that CBAM will only be levied from 2026 and only gradually come into force. Furthermore, higher carbon costs will likely be absorbed by low-cost positions during the roll-out phase and be mitigated by higher steel prices.

Impact on European Producers

We expect that pressure on European BF-BOF producers' margins will continue to intensify as carbon costs rise (as free allocations subside) and on stricter criteria regarding free allowances distribution. EAF producers will be less affected because of 3x-4x lower production emissions.

European BF-BOF producers are currently subject to carbon costs of around USD40 per tonne of steel at current prices and approximately 80% of free allowances. Exporters will be subject to equal average carbon costs once CBAM is levied from 2026. The cost of carbon for BF-BOF producers and equally exporters will go up to USD170/t at the current carbon price by 2034, when free allowances are fully abandoned.

However, the marginal costs of European producers reflect the full cost of carbon, while those of exporters are equal to the average cost net of free allocations. This will remain the case until free allocations are phased out.

We expect that the operating costs of BF-BOF-focused European steel producers such as ArcelorMittal S.A. and thyssenkrupp AG (BB-/Stable) will continue to rise, squeezing profit margins. We expect that once CBAM is levied the cost of carbon will be reflected in European steel prices, which will mitigate the impact of high carbon costs. Furthermore, low carbon steel will benefit from a price premium, supporting margins.

European producers have ambitious decarbonisation targets that require substantial investment and sufficient financial flexibility. EUROFER has estimated that a 30% reduction in emissions by 2030 will require EUR25 billion of investment in clean technologies. It has also calculated that the phasing out of free allocations will increase carbon costs by around EUR8.4 billion in 2030.

CRU estimates replacing 98mt of integrated capacities with EAF-DRI facilities (the likely decarbonisation route) will cost more than USD105 billion total, or more than USD5.3 billion a year, if completed within 20 years.

Some European producers have announced plans to move into DRI-EAF steelmaking. ArcelorMittal plans to develop more than 10mt of DRI capacity in Europe, and will use its EAF capacity in Dunkirk to replace three of five blast furnaces in France from 2027. Producers like SSAB and Salzgitter will also focus on the EAF route.

In contrast, thyssenkrupp plans to send DRI to a submerged arc furnace (SAF) for the melting stage before sending it on to a BOF (existing facilities).

European producers anticipate that their decarbonisation programs will be co-funded by specially dedicated funds like the Innovation Fund and Modernisation Fund, which are in turn funded by proceeds from CBAM and ETS. In addition, the shift to a carbon-free economy will result in greater demand for steel for renewables applications and infrastructure, supporting demand.

Companies involved in the circular economy, such as scrap recycler Derichebourg S.A. (BB+/Stable), are likely to benefit from tighter carbon regulation as the use of scrap increases. Demand for scrap is supported by the fact that any increase in its proportion in a facility is one of the quickest ways to reduce direct emissions in BF-BOF production. Furthermore, the growing share of EAF facilities in the longer run will also require more scrap.

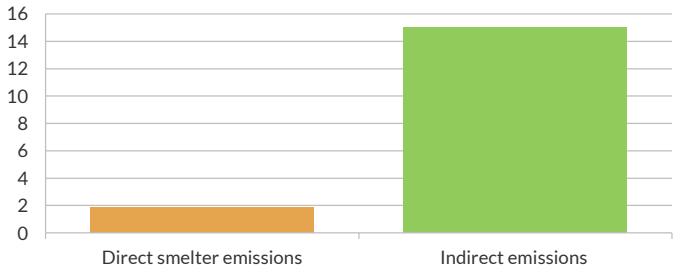
Aluminium

Aluminium production entails process emissions and emissions related to energy requirements. Direct smelter emissions are around 1.9t CO_2 per tonne of aluminium produced, with only limited reduction potential based on available technologies. The highest share of emissions comes from the electricity source, ranging from zero emissions from renewable-powered facilities to 15t CO_2 from gas-powered facilities, according to CRU.

The ETS only covers direct smelter emissions, limiting the impact on domestic and exporting aluminium producers. The cost of carbon including free allocations is currently less than 2% of the aluminium price. If free allocations were phased out at the current carbon price, the cost of carbon will be around 8.5% of the Fitch-forecasted long-term aluminium price of USD2,000/t.

Emissions from Aluminium Production

(CO_2 per tonne)



Source: Fitch Ratings, CRU

As with steel, we expect that post-CBAM prices will rise to reflect the carbon premium for the aluminium price, which will offset the impact of rising carbon costs. We expect that the cost of carbon, as long as only smelter emissions are taxed, will continue to have only a small impact on producers.

A key challenge for European aluminium producers has been high energy costs, affecting domestic smelters. Around 50% of primary aluminium capacities remain idled. Capacities that remain operational are low-cost due to favourable agreements on electricity supplies. Some operating European assets, including those in Norway and Iceland, are covered by ETS and have access to renewable power.

Major aluminium exporters to the EU include Russia, the Middle East, Canada, India, Mozambique and China. Russian and Indian producers have the highest direct emissions. Nevertheless, we do not expect material shifts in trade flows given that direct emissions do not translate into high carbon costs and the producers in question have low-cost operations. In the longer run, when free allocations are phased out and CBAM has been levied, carbon costs may rise but will likely be offset by a higher domestic aluminium price.

Domestic price premiums for aluminium may further incentivise the development of zero-carbon smelting technologies like inert anode, as developed by Rio Tinto (A/Stable), or HalZero, as tested by Hydro.

Rio Tinto Plc and Alcoa Corporation (BBB-/Stable) have several aluminium smelters in Norway and Iceland, and Alcoa plans to restart operations at its aluminium smelter in Spain in 2024.

Fertilisers

Nitrogen Fertilisers Most Exposed

Nitrogen fertiliser producers will feel the greatest impact from the introduction of CBAM and phase out of free allowances. All nitrogen fertilisers and some phosphate and potassium fertilisers require ammonia as an intermediary, typically entailing a carbon-intensive production process. Emissions vary by plant, but around two tonnes of CO_2 are produced per tonne of ammonia from a gas-based ammonia plant. Ammonia is used to produce nitrate fertilisers and urea, as well as ammoniated phosphates and some compound fertilisers. ETS and CBAM levy carbon tax on both direct and indirect emissions for fertiliser producers.

European Fertiliser Prices to Rise

Ammonia producers currently receive a free allowance of CO_2 emissions per plant, which equates to an average of just under 1.6 tonnes of CO_2 per tonne of ammonia. As the allowances are phased out from 2026 to 2034 and CBAM begins taxing the CO_2 emissions of imported nitrogen fertilisers above the free allowance, we expect European prices of ammonia and downstream nitrogen fertilisers in Europe to rise to incorporate the additional cost of CO_2 emissions. The regional price premium will depend on future CO_2 prices, which remain highly uncertain.

Ammonia is a relatively low-value commodity with high CO_2 emissions, so the impact of taxing these emissions will be significant on producers' costs and subsequently on prices. Until the phase out of free EU allowances completes in 2034, regional producers will face higher CO_2 costs than import volumes as the marginal tonne is fully exposed to CO_2 taxes under the design of the existing ETS. Under CBAM, imports will only be taxed on the CO_2 emissions above the free EU allowance unit equivalent.

Low Carbon Capacity May Benefit

The prospect of ammonia's use as a fuel and hydrogen carrier is supporting technological efforts to decarbonise the production process. During gas-based ammonia production, a large portion of the CO_2 produced in the gas-reforming process is captured and used for downstream urea production at integrated plants or other industrial uses, but storage of this CO_2 is still in its infancy.

Some commercial-scale ammonia plants with carbon capture and storage (CCS) are beginning to enter service, mostly in the US where the recently passed Inflation Reduction Act offers tax incentives to offset the additional CCS costs. This low-carbon ammonia, known as blue ammonia, will likely target markets with a CO_2 emissions tax, including Europe, in order to benefit from developing price premiums while incurring lower CO_2 import taxes than traditional products.

It is possible that the European price premium may not fully incorporate the additional cost of CO_2 if large volumes of low-carbon ammonia began to be imported into Europe. However, we do not expect significant volumes of Europe's ammonia imports to be replaced with low-carbon ammonia in the near future.

Uncertain Impact on Producers

The impact on producers will depend on how ammonia and fertiliser prices in Europe develop following the rollout of CBAM and phase-out of free EU allowances. Despite our expectation that prices in Europe will increase to reflect the incremental cost of CO_2 emissions, we expect some pressure on European producers' margins during the phase-out of allowances while CO_2 emissions from marginal tonnes are fully taxed under the ETS.

Inland producers with limited competition from imports and some local pricing power, such as Nitrogenmuvek Zrt (B-/Stable), are likely to be less affected. Nevertheless, Nitrogenmuvek's position as a high-cost, marginal producer will continue to challenge its profitability. While we assume European ammonia and fertiliser prices will rise to incorporate carbon costs, it is likely that this will be met by resistance from farmers, as their costs rise, and from consumers, as food prices rise to incorporate higher input costs.

Rather than being incentivised to invest in low-carbon production in Europe, international producers are building low-carbon capacity in low-cost regions elsewhere. OCI N.V. (BBB-/Stable) is constructing 1.1mt of blue ammonia capacity in Texas, which will benefit from the US's Inflation Reduction Act tax credits for CCS. The company is also expanding its ammonia import capacity in Europe, which will allow it to import blue ammonia and benefit from future price premiums in Europe. The additional margin that this should generate will be dependent on CO_2 prices in Europe as well as CCS costs and tax credits in the US.

Fertiglobe Plc (BBB-/Stable) is investing in the TA'ZIZ blue ammonia project in Abu Dhabi and exploring opportunities in zero-carbon 'green' ammonia. These investments will allow Fertiglobe to benefit from future low-carbon ammonia markets. The direct impact of CBAM on ammoniated phosphate producers OCP S.A. (BB+/Stable) and ICL Group Ltd. (BBB-/Stable) is less than that on nitrogen producers, although we expect OCP and ICL to adjust trade flows and consider low-carbon ammonia feedstock to minimise the impact on earnings and support proprietary sustainability goals.

Exporters in markets with no CO_2 taxes may have little incentive to invest in low-carbon ammonia capacity if their volumes can be directed away from Europe to other regions. As countries begin taxing CO_2 emissions outside of Europe and new CO_2 markets develop, it is likely that trade flows will shift and prices will alter as markets adjust for different levels of CO_2 taxes globally.

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