

EU Emissions Trading System (EU ETS) and Carbon Border Adjustment Mechanism (CBAM)

Case study for:
Carbon Pricing

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Case Study: EU ETS and CBAM

European Union 

Adopted: 2005

Applies to: power, industry, aviation, maritime

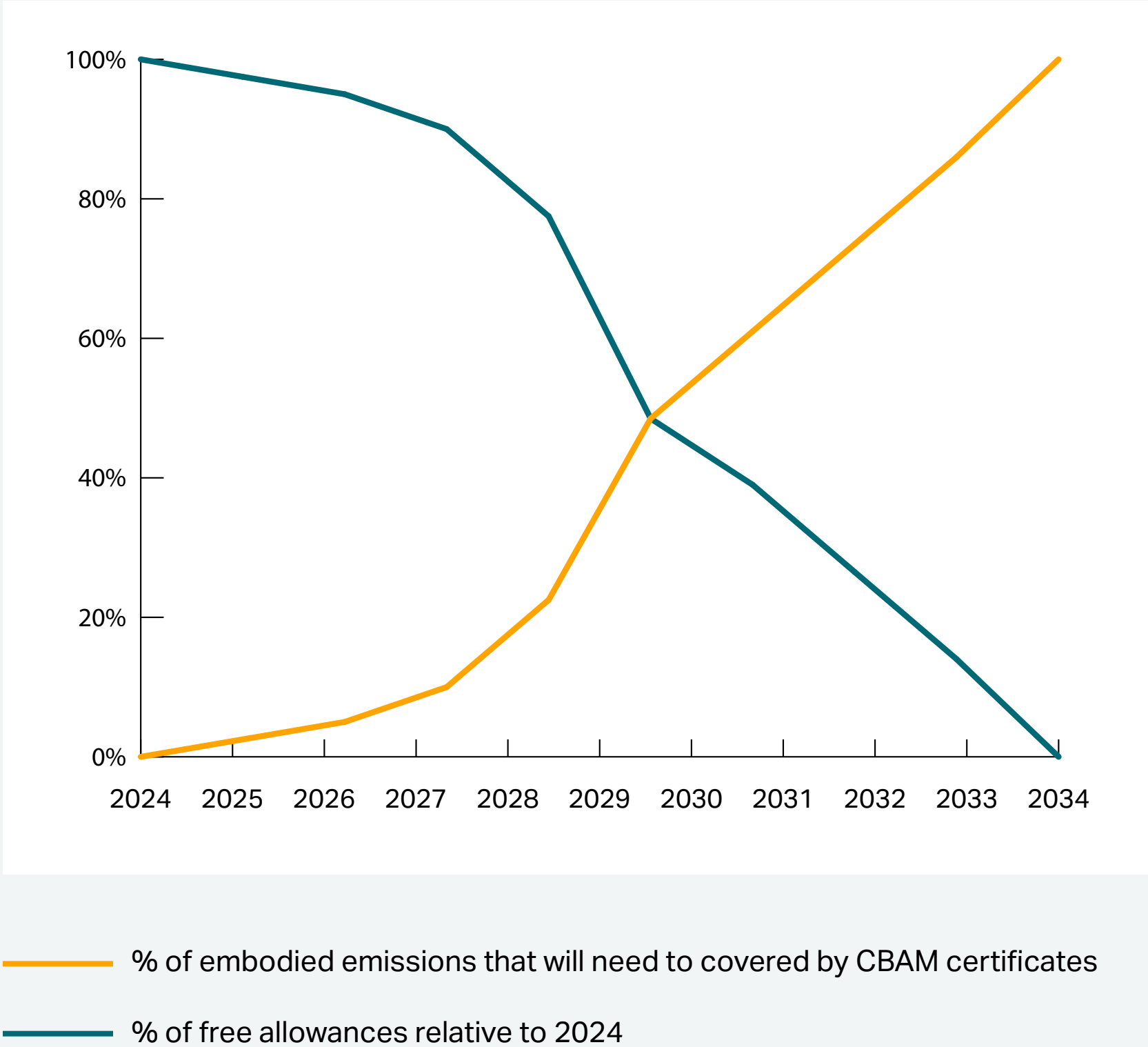
The EU ETS is the world's largest carbon pricing system. It works by issuing a capped number of emission allowances (EUAs) that represent one tonne of CO₂e emissions. These are either auctioned or given to specific emitters (e.g. in sectors deemed at risk of carbon leakage) for free - a process called free allocation. Emitters in scope of the ETS need to surrender EUAs to match their emissions. In order to incentivise increasing reductions, the number of EUAs issued is reduced over time. A share of the proceeds are used by member states and the EU to subsidise low carbon technologies (e.g. via the [Innovation Fund](#)).

The EU ETS is being tightened over time in three key ways:

- The number of **EUAs are gradually being reduced over time to limit** the emissions from the sectors in scope
- Sectors exposed to risks of carbon leakage are currently provided with free allocations. However, **free allocation will be phased out between 2026 and 2034** (currently a European Commission proposal to extend this to 2038 is under consideration), and these sectors will increasingly be exposed to the carbon price.

- **From 2026, the EU will fully implement a Carbon Border Adjustment Mechanism (CBAM).** This will require importers to the EU¹ of some goods (iron, steel, aluminium, cement, fertilisers, hydrogen and electricity) to buy and surrender CBAM certificates² to match the (scope 1, 2, and a limited share of scope 3) emissions embodied in the goods, with the equivalent value to EUAs (phased in before 2034 - see graph on the right). If importers can demonstrate a carbon price has already been levied on the relevant goods, this amount can be deducted. The EU is currently in the process of extending CBAM to a range of downstream projects (especially those with containing high volumes of steel and aluminium).
- Until 2025 a transitional period is in place, where relevant importers need to report the quantity of imports, their embedded/indirect emissions, and carbon prices already paid on goods in their country of origin.

Phase out of free allocations and phase in of CBAM



1: excluding some countries that are part of the EU ETS/have a linked ETS
2: the number of certificates needed will be phased in from 2026 to 2034
Sources: BloombergNEF (2023) [Scaling Technologies for Greening Heavy Industry](#), European Commission, [PtX Hub](#)

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Impact

- The impact of an EU ETS with no free allocation on heavy industry is yet to be seen. It may be that to effectively drive demand, carbon pricing on its own will need to be complemented with other measures like subsidies and regulations.
- Analyses¹ suggest that with sufficiently low clean energy costs (e.g. for hydrogen costs of €2-3/kg), stable carbon prices between approximately \$120/tonne to \$200/tonne and effective measures to combat carbon leakage, production of commodities such as green steel could become competitive on a cost basis with steel produced through the BF-BOF route.
- Other countries are now considering similar measures. The UK has adopted a CBAM and measures are under consideration in Australia and Canada.

Key challenges/risks

1 Potential gaps in the CBAM

Potential gaps: the initial scope of the CBAM focuses on commodities that may be at risk of carbon leakage. However, it only extends to some finished products. Although hydrogen and ammonia are covered by the CBAM, hydrogen derivatives such as e-methanol and e-kerosene are not subject to the CBAM. This will be reviewed at the end of the transitional period. The CBAM may also face challenges when accounting for upstream emissions (e.g. embodied emissions in post-consumer [metal scrap](#) are not currently included in CBAM, which may disincentivise primary production in the EU).

2 Carbon leakage risk and additionality

Some of the sectors in scope of the CBAM are currently subject to overcapacity (e.g. steel). In the case of steel, the global fleet contains both lower carbon steel plants and carbon intensive plants. This creates a risk of 'resource shuffling' where green steel that would have been used in third countries is instead sold in the EU, and displaced by carbon intensive steel. This would result in reduced EU emissions, but the reductions would not be additional. Wider adoption of carbon prices in other jurisdictions and measures to tackle carbon leakage could mitigate this.

3 Impact on developing countries

There is a risk that the CBAM impacts imports from developing countries and small companies that may not have the resources to decarbonise rapidly. Options to mitigate this could include financial support for industrial decarbonisation in developing countries.