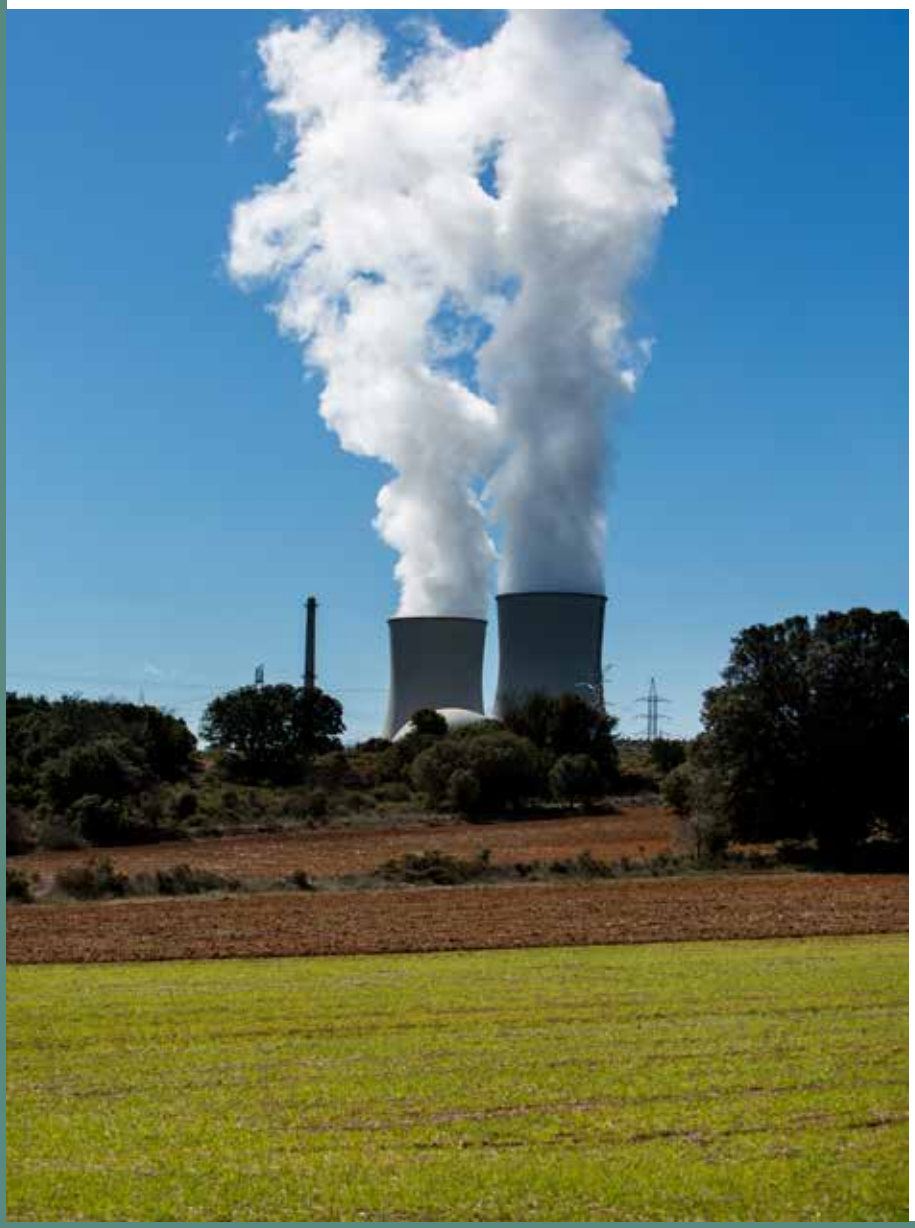
CAN ETS FREE ALLOCATION BE USED AS INNOVATION AID TO TRANSFORM INDUSTRY?



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CEPS Policy Brief

No 2022-01 / January 2022

MISTRA CARBON EXIT

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Abstract

The EU may distribute free ETS allowances worth hundreds of billions of euros over the next two decades. This policy brief proposes an addition to free allocation rules, so that the free ETS allowances given to industry can be turned into innovation aid for very low-carbon producers, thereby helping companies transition to climate neutrality. Free allowances exist to mitigate carbon leakage risk, but current rules can put innovative climate neutral producers at a disadvantage *vis-à-vis* the carbon-intensive incumbents with which they need to compete.

While the EU's proposed carbon border adjustment mechanism would gradually reduce free allocation, many sectors may be excluded from this new mechanism at first, while transitional periods also result in continued free allocation to large industry sectors. Therefore, ensuring that free allocation (to the extent that it continues) benefits, and not harms, very low-carbon producers is important.

In summary, the key points and recommendations discussed within this policy brief are:

- ETS free allocation could in part actively support low- and zero-carbon production by introducing a new 'zero-carbon' benchmark.
- The zero-carbon benchmark would reward zero-carbon producers with additional free EU ETS allowances (EUAs), to (partly) cover their investment costs. The zero-carbon benchmarks can then be defined by applying a multiplication factor to existing benchmark values (e.g. 1.5 or 2.0). Every tonne of climate-neutral goods a producer puts on the market would be rewarded by this higher benchmark.
- No additional free allowances are needed (the existing cross-sectoral correction factor would still apply). The available supply of EUAs would simply be redistributed in such a way that it benefits very low-carbon producers, so long as they produce climate neutral goods.

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To reach the EU's ambitious climate neutrality objective, a new zero-carbon[1] industry[2] needs to emerge in Europe, in line with the Green Deal as a tangible growth strategy and the EU's new industrial strategy. This is vital for European international competitiveness in the long term: in the run-up to COP26, industrialised economies in the G20 (as well as several other emerging or developing economies) committed to climate neutrality. Global industry will inevitably have to have a low-carbon footprint in the future. The competition for capturing market share of this climate-neutral industry will likewise grow and become increasingly fierce.

Transforming industry requires the increasing deployment – and the sustained large-scale investment – of low-carbon technologies, which in many cases have been demonstrated at small scale already[3]. Today, the EU attracts only 6.9 % of global growth capital for investment in clean technologies[4]. To increase the flow of private growth capital and expand the low-carbon industrial economy, the EU will need to commit significant financial resources, much of it public, to grow nascent climate-neutral production capacity (i.e. to go beyond R&D).

Going beyond 'first-of-a-kind' investment

The EU has long provided public support for the early stages of innovation, i.e. R&D and demonstration. As technological readiness advances, deployment of low-carbon technology moves to new installations beyond their first demonstration ("Nth of a kind"), where learning effects and cost reductions play an important role in making new technologies commercially competitive (i.e. to move up the innovation S-curve). For these later stages of innovation – which may also be called the 'scale-up' or 'deployment' phase – some degree of public support to trigger private investment will be needed, provided that cost-effectiveness and competition are fostered.

Today, the EU already commits significant resources to industrial production: industrial sectors in the emissions trading system (ETS) receive a large share of their allowances for free, to mitigate the risk of carbon leakage. Around EUR 350 billion in allowances will be handed out up to 2030. As the ETS price rises, so does the value of free allocation to industry.

[1] Zero-carbon, carbon-neutral etc. refers only to CO2 and other GHG emissions, not to carbon in general, which is intrinsic in certain industrial goods. 'Zero-carbon', 'climate-neutral' etc. can be read as short-hand for as close to 100 % emission reduction as possible, so that the technology is in principle considered suitable for use after 2050 when the EU can no longer have net emissions of greenhouse gases.

[2] Industrial sectors are responsible for about a quarter of greenhouse gas (GHG) emissions in the EU, most of which are covered by the EU emissions trading system (ETS).

[3] As part of the CEPS Taskforce on Industrial Policy, the following CEPS Report examined the industrial dimension of the European Green Deal

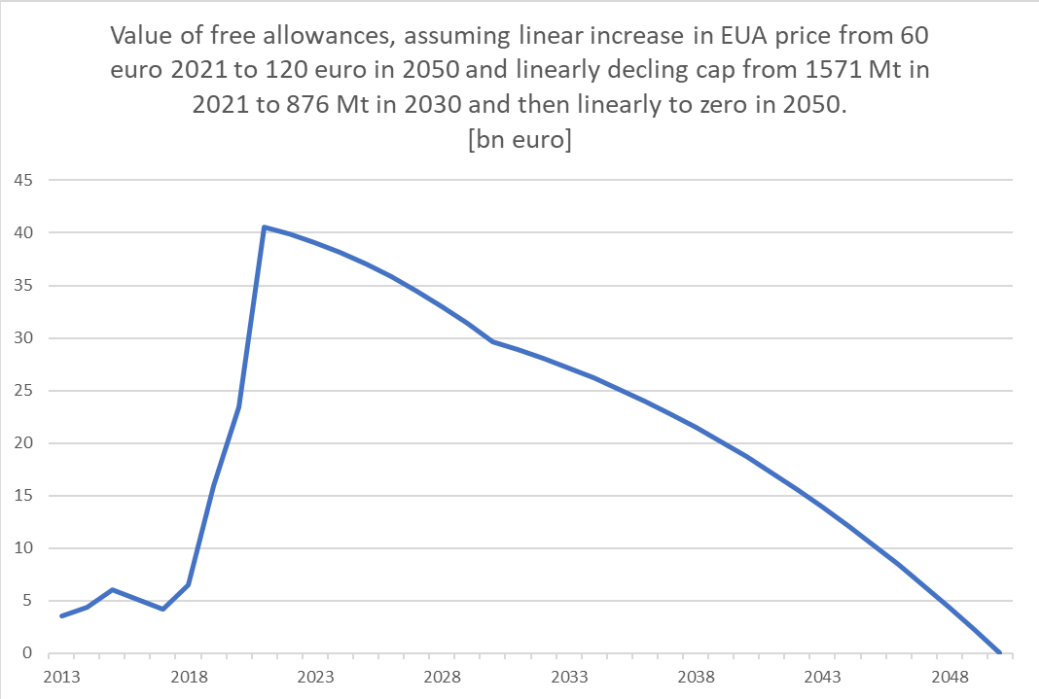
[4] CleanTech for Europe Group, 2021

The EU ETS: a EUR 100 billion primary market

Even if the ratio of free allocation to industrial emissions has been gradually declining due to the successive revisions of product benchmarks and allocation rules, the greatest volume of free allocation (in EUR terms) will be handed out over the next decade (see figure 1).

For the pre-commercial stage of low-carbon technology development, no EU policy – whether climate, energy or industrial policy – should hinder the deployment and competitiveness of those technologies that are compatible with climate neutrality. The role of EU ETS allocation merits review in this context.

Figure 1. value of free allowances from 2013-2050 (own estimation by Zetterberg & Elkerbout)



At a carbon price level of more than EUR 60 per tonne, the EU ETS today is a EUR 100 billion per annum market[5]. With some 700 million allowances to be allocated for free every year, this represents an asset transfer of more than EUR 40 billion from public resources to industry. Up to 2030, this can amount to over EUR 350 billion.

Given the need to transform industry into being fully climate neutral, at least a part of this huge sum should be used to support the deployment of climate neutral production. At the very least, **free allocation should not hinder the transformation of industry**.

[5] This is akin to the 'market cap' of the primary ETS market (annual cap of allowances multiplied by the ETS carbon price). The secondary market is still considerably larger.

Using the ETS to drive low-carbon technology deployment

The main rationale for giving industry free allowances, rather than auctioning them (as is the default rule) is the risk of carbon leakage. To determine how many allowances each installation receives, a set of rules based on historical production levels and technical product benchmarks are used. The benchmarks are based on the 10 % most (carbon) efficient installations. The most efficient producers in relative terms, can still be carbon-intensive in absolute terms. Therefore, free allowances are mainly given to carbon-intensive incumbents.

This system of free allocation does not support climate-neutral production. Producers who manufacture climate neutral products need to compete with incumbent producers. Since some benchmarks are based on specific production processes, changing to a new, low-carbon process can result in free allocation being reduced for the low-carbon producer, or ultimately, it is withdrawn altogether, as without any GHG emissions, an installation no longer falls within the boundaries of the ETS. What results from this situation is that **climate neutral producers, which Europe so badly wants to promote, will then be at a competitive disadvantage**.

Thus, a rethink of ETS allocation rules and its impact on climate neutral technology deployment is therefore warranted. Relying more on auctioning less to free up allowances for industrial support funds is one option; reforming the benchmark system is another.

Option 1: more auctioning?

The **most straightforward option** to reduce the inefficiencies of free allocation and make available more resources for deployment funding **is to increase the share of auctioning**. To some extent, the European Commission's Fit-for-55 package moves in this direction with the CBAM proposal, which replaces free allocation as the instrument to mitigate carbon leakage risk for some sectors. However, the phase-out of free allocation is foreseen to take up to a decade, while the scope of the CBAM would leave out many sectors still receiving free allowances. Nevertheless, with increased auctioning, Member States would receive higher auction revenues to support domestic industrial policies aimed at the deployment of climate neutral technologies, i.e. state aid.

Furthermore, with increased auctioning, it would be easier to increase the size of the Innovation Fund to support low-carbon technology at the EU level. Officially, the Innovation Fund exists to finance demonstration projects. But there is no reason why an expanded fund could not also support later stage innovation, i.e. deployment of 'Nth of a kind' low-carbon technology.

If 10 % of all allowances issued between 2026 and 2030 are set aside to increase the Innovation Fund, **some EUR 40 billion in additional funding would be available**. With the use of carbon contracts for difference, such a fund could go a long way, as only the difference between the ETS price and the (abatement) costs of a climate neutral technology need to be paid as a subsidy. With an ETS price of EUR 80, breakthrough technologies that once looked elusive, costing EUR 100 per tonne or more, are now within reach.

Option 2: free allocation that supports innovation – 'zero-carbon benchmarks'

The current system of efficiency benchmark-based free allocation leads to unintended consequences for low-carbon producers in certain industries. **It therefore hinders the deployment of climate neutral technology**.

Benchmarks are based on specific products and production processes, not sectors as such. As the production process changes when a company shifts to low or zero carbon production, a different benchmark may apply, which results in a lower amount of free allocation. One prominent example is hydrogen, where traditional hydrogen production based on steam methane reforming is an ETS sector for which free allocation is given, while green hydrogen based on electrolysis does not result in any direct emissions and therefore is not eligible for free allocation. The green hydrogen producer would not even fall under the ETS scope, except if it produces its own electricity with fossil fuels, a practice potentially detrimental to the EU's emissions reduction efforts.

In the steel sector, six different benchmarks exist, including coke, sintered ore, hot metal and Electric Arc Furnace (EAF) carbon steel. Whereas steelmaking based on traditional blast furnaces involves production processes to which the coke and hot metal benchmarks apply, the lower-carbon EAF steel producers receive fewer allowances because the process is more carbon-efficient. A green steel producer that produces zero-emissions steel could feasibly fall out of the ETS scope altogether.

The ETS revision proposal recognises this and suggests a revisit of the 'definitions and system boundaries[6], of the benchmarks[7]. But while a level playing field between low-carbon and high-carbon producers is important, we could take free allocation a step further and reform it in such a way that it actively supports zero-carbon production. **In other words, free allocation could be turned into a 'growth capital revenue stream'**.

This could be done by giving additional free allowances to producers of zero-carbon goods, i.e. materials such as green steel or green cement. The additional allowances would then be in the form of a retroactive payment to cover the investment costs, or a share of it. This can be done without increasing the overall volume of free allocation. Rather, if more allowances would be given to zero-carbon producers, a cross-sectoral correction factor would apply to ensure that free allocation does not exceed the politically determined volumes. The correction factor does not have to be applied to zero-carbon producers to retain the incentive effect. This would create an incentive to put zero-carbon goods on the market, to essentially 'collect the bounty'

[6] See Para 12 (a (ii)) of the ETS revision proposal of July 2021.

[7] One possible way to redefine these 'system boundaries' is to use the NACE codes already used to determine carbon leakage risk and the eligibility for free allowances. NACE and PRODCOM codes are used for the statistical classification of economic activities. 4-digit NACE codes are used to determine carbon leakage risk based on trade and emissions intensity, but 8-digit codes are also used for some sub-sectors, allowing for a high degree of disaggregation and specificity.

of the additional allowances, which could then be sold on the secondary market to higher carbon producers or other sectors.

The volume of additional allowances to be given for zero-carbon production can be determined simply by applying a multiplication factor to the existing benchmark values. For example[8], if a producer currently receives one allowance per tonne of a certain product, the zero-carbon producer could receive, for example, 1.2 or two allowances per tonne of climate-neutral goods produced. Of course, this would depend on how strong a 'zero-carbon bonus' is deemed desirable by the legislator.

An additional benefit of this approach is that it would be budget-neutral. No additional free allowances are needed; the available volume is simply distributed in such a way to explicitly benefit climate neutral producers and their competitiveness.

Such a system can co-exist with the existing approach of gradually strengthening the benchmarks (i.e. by reducing the values). This is because innovation deployment funding is ideally reduced when the scale of climate neutral production increases, as the technology costs would then subsequently decrease. It could also apply 'across the board' to all industrial ETS sectors, **without increasing administrative complexity**.

A zero-carbon benchmark example

To illustrate the above, take the example of LKAB's production of carbon-neutral iron for steel production in Sweden. By 2030, LKAB aims to produce 2.8 million tonnes of emissions-free iron. If the sinter iron benchmark applies, they would receive 440,000 EUAs, which at an ETS price of EUR 80 per tonne results in EUR 35 million in assets/funding. Assuming annual investment costs of EUR 2 billion (the upper end of their own estimates), this covers 1.76 % of their investment costs.

Instead of separate steel production process benchmarks, if all production instead fell under the higher hot metal benchmark, the company could receive 3.6 million allowances, worth EUR 288 million, or 14.4 % of annual investment costs. Doubling this benchmark for zero-carbon producers would allow nearly 30 % of annual investment costs to be covered by free allocation – a hefty and not-insignificant contribution.

This redistribution would have an impact on other producers – the allowances would be taken away from conventional producers and given to those putting climate neutral goods on the market. The justification for this could be that early producers of climate neutral goods face higher costs and higher risks, while the learning effects and cost reduction can benefit the entire industry. **Early movers therefore deserve support**.

[8] This example is purely illustrative. In reality, benchmark values are not rounded, e.g. the benchmark (before accounting for the automatic reductions mandated by the ETS Phase IV legislation) for ammonia production is 1.619 allowances per tonne of product, while for grey cement clinker it is 0.766 allowances per tonne of product. For more information, see Annex I of Commission Delegated Regulation (EU) 2019/331. The logic of multiplying these values for zero-carbon producers could still apply.

Such a system of 'zero-carbon' benchmarks could in principle apply to every industrial ETS sector. For the many smaller sectors with fewer emissions, it could still result in an additional funding stream if they are able to produce climate neutral goods. A downside is that large sectors can crowd-out allowances from smaller sectors if a multiplication factor applies.

Conclusion

It may be politically challenging to give away allowances to companies that do not need them for compliance with the EU ETS. However, from the perspective of industrial competitiveness in the longer term, it is also important that low-carbon producers can thrive and scale their production. Giving companies more allowances than they emit in greenhouse gases is not 'overallocation', akin to what occurred during the third ETS trading phase[9], if the beneficiaries are genuine climate-neutral producers and their investments.

One way or another, for as long as the cost of climate-neutral production methods exceed those of conventional industrial products, **some degree of 'growth capital' for deployment of breakthrough technologies is needed**. Structuring this support through ETS funds, whether directly or through free allowances, allows for an EU-level climate-industrial policy, which is less dependent on the fiscal capacities of Member States.

In any case, EU climate policies should support, not hinder, the deployment of climate neutral technologies. The question is whether giving away EUR 40-50 billion every year to incumbent industries for protection against carbon leakage risk is the best way to transform industry towards climate neutrality. This policy brief has thus argued that without any changes to free allocation, the EU may spend hundreds of billions of euros on industry without the guarantee of solid investments that would bring its climate neutrality goal within reach.

Until now, progress made in reducing ETS emissions has been primarily due to reductions in the power sector, with industrial emissions only being marginally reduced over the last 15 years. **The EU should therefore re-examine the ETS allocation, benchmark and funding instruments, to ensure that industrial decarbonisation can accelerate and that new technologies enter the market in Europe first**.

Using ETS allocation this way does not have to be an alternative to CBAM or other industrial policy measures. The combination of CBAM, increased ETS auctioning, EU innovation and infrastructure finance, and Member State industrial state aid may indeed be more attractive.

But in so far as free allocation continues, especially for smaller ETS sectors which may at first be excluded from the CBAM, it would be a second-best solution to improve the market conditions for the EU's climate neutral producers, whose success is so vital for achieving the aim of transforming Europe into a truly climate neutral continent.

[9] As a result of lower production levels in the wake of the financial and Eurozone crises, allocation to industrial ETS sectors during the early years of the third ETS trading phase (2013-2020) often exceeded real emissions levels considerably, thereby contributing to the surplus of allowances in the EU ETS. See also the discussion in Chapter 1 of *Emissions Trading: Fighting Climate Change with the Market*. Fores. (2018). Stockholm