

# No more free lunch

## Ending free allowances in the EU ETS to the benefit of innovation

Since 2005, the European Union Emissions Trading System (the EU ETS) has been presented by the European Commission as a “cornerstone” of EU climate policy.<sup>1</sup> Pricing emissions can be a powerful climate tool, and the EU ETS has proven effective in reducing the greenhouse gas emissions of the electricity sector. So far, it has however failed to trigger a deep decarbonisation of EU energy-intensive industries.<sup>2</sup> EU policy makers now need to reform the EU ETS to make it a tool that also works for climate innovation and industrial decarbonisation.

In a world where more than 80% of the global GDP is covered by a national climate neutrality target, we need an effective reform of the EU ETS. It must be aligned with the EU’s new climate objectives, and be able to bring clean industrial technologies from lab to market to secure the competitive sustainability of the European economy.

This policy brief focuses on EU ETS free allowances, which are given to most energy-intensive industries. Currently, 94% of industrial emissions are covered by free allowances,<sup>3</sup> muting the carbon price signal and, therefore, the incentive to innovate and invest in cleaner production processes.

After laying out how the system of free allowances has worked so far, this policy brief provides recommendations on how policy makers can use the opportunity presented by the revision of the EU ETS to stop subsidising pollution and instead invest in innovation, kick-starting the decarbonisation of the EU energy-intensive industries.

### I • How the EU ETS works

The EU ETS is a “cap and trade” carbon pricing scheme. Contrary to a carbon tax where a public authority determines a specific price to pay for pollution,<sup>4</sup> a ceiling (cap) is set on the maximum amount of emissions that can be emitted.<sup>5</sup> The cap is split into individual allowances, each representing the right to emit one ton of CO<sub>2</sub>eq. In a cap and trade system, covered actors are allowed to buy and sell those allowances on the market, resulting in a fluctuating market price. The EU ETS currently covers around 40% of the EU’s total emissions, including those from the electricity sector, energy-intensive industry and aviation.

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## FROM DEFAULT TO DEROGATION: WHO RECEIVES FREE ALLOWANCES AND WHY?

During the first two phases of the EU ETS, from 2005 to 2012, nearly all allowances were handed out for free. This responded to the need to test how emissions trading works in practice and allow covered actors to get familiar with the trading and compliance practises, without imposing any costs on them.

Starting from the third trading period (2013-2020), with the aim to apply the “Polluter Pays Principle”,<sup>6</sup> auctioning has become the proclaimed “default method” for the allocation of allowances in the EU ETS. In practice, however, a differentiation was made between three groups of actors:

- **Electricity producers**, who would no longer receive free allowances;
- **Energy-intensive and other manufacturing industries at risk of carbon leakage**,<sup>7</sup> for whom free allowances would remain the default- allocation method;
- **Other industries** not at risk of carbon leakage, who would see their free allowances gradually phased out.

## FROM GRANDFATHERING TO BENCHMARKING: HOW FREE ALLOWANCES ARE HANDED OUT IN PRACTICE

Up until 2012, free allowances were mainly handed out through grandfathering, meaning that installations received allowances equal to their historical emissions. Starting in

2013, this changed to a fixed benchmarking approach where the 10% most efficient installations in each sector determined the amount of allowances other installations received. While the former method was initially chosen for its simplicity, it was important to transition to the benchmarking approach after the initial pilot phase to also incentivise emission reductions in sectors deemed at risk of carbon leakage.

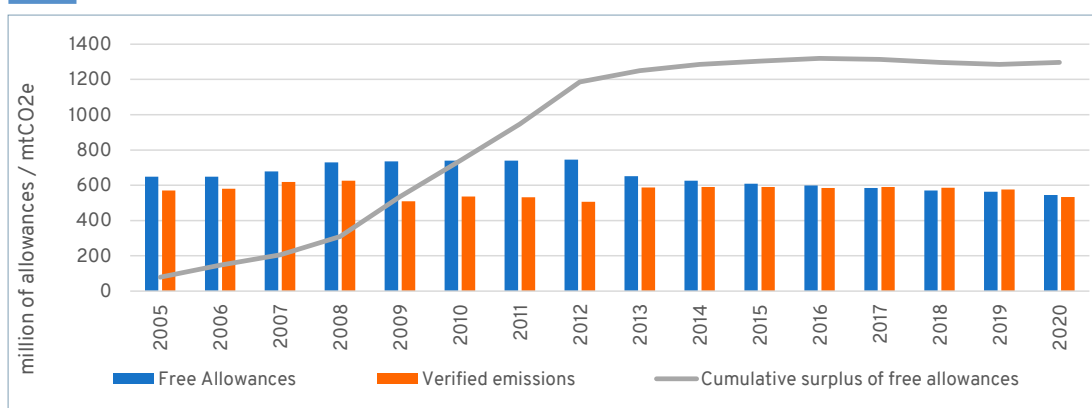
In reality, however, both systems had considerable flaws in how they were designed. As both grandfathering and fixed benchmarking were based on historical reference periods, neither was able to correct for any shocks or structural changes in the economy,<sup>8</sup> changes in technologies or in production levels of individual actors. Indeed, **allowances handed out for free as late as 2020 were based on benchmarks established on the basis of 2007-2008 data and assumed that production levels did not change over that time period, thus disregarding technological or productivity changes throughout that period.**<sup>9</sup> This led to a situation where many actors received more allowances for free than they emit, leading to significant amounts of overallocation.

## FREE ALLOCATIONS AND ENERGY-INTENSIVE INDUSTRY: A STORY OF OVERALLOCATION

Since 2005, industrial sectors received ~10.4bn free allowances worth over €138 billion.<sup>10</sup> Over the same time period, those sectors’ cumulative emissions only amounted to ~9.1bn ton, meaning they received ~1.3bn allowances more than necessary (cf. figure 1).

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**FIGURE 1.** Verified emissions and free allowances given to industry



▲ Source: E3G calculations based on data from the European Environmental Agency

From 2008 onwards, allowances became indefinitely bankable,<sup>11</sup> meaning that any allowance handed out since then, can still be used today for compliance reasons, or be sold on the market. **Since 2008, industrial sectors have been overallocated about ~1.1bn allowances.**<sup>12</sup> While it is likely that a part of these allowances have been sold on the market since then, **these allowances would, in theory, be worth over €90bn at the current market price (€85/tCO<sub>2</sub>).**

To put it simply, for EU industry, the “polluter pays principle” has only ever applied in theory. Europe’s most polluting industries have received billions of euros worth of subsidies via the EU ETS.<sup>13</sup> This has muted the carbon price signal they have faced, reducing the incentive to invest in cleaner production processes.

**Unsurprisingly, greenhouse gas emissions from the industrial sector have remained largely flat** between 2013 and 2019<sup>14</sup> while the electricity sector, which pays the ETS carbon price, decreased its emissions significantly (cf. figure 2).<sup>15</sup> Of course, there are other factors at play that held back industrial decarbonisation, which are reinforced by the hand-out of free allowances, including the comparative lack of mature low-carbon technologies, energy-intensive industries’ high capital intensity and long investment cycles, and lack of supportive policy frameworks for industrial decarbonisation.

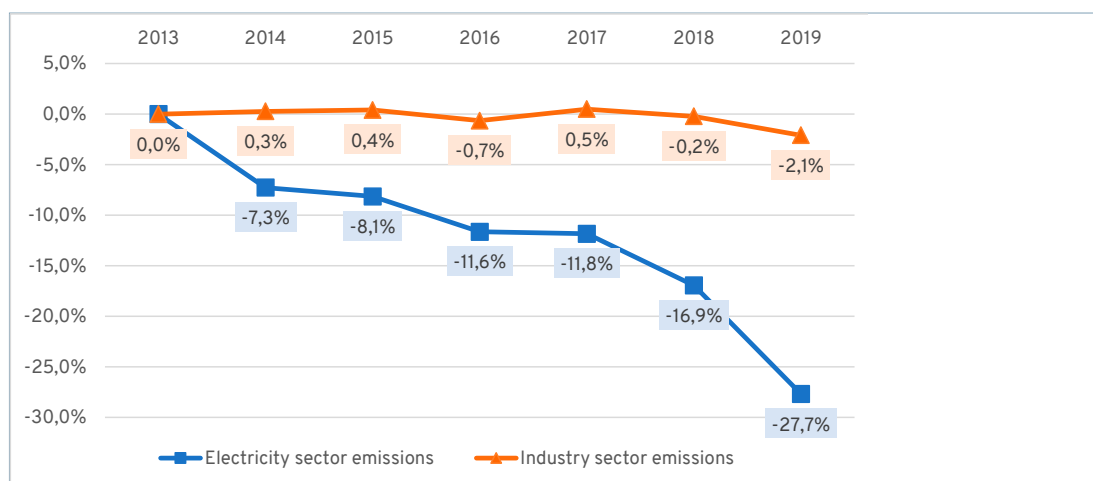
Several improvements have been implemented for the fourth phase (2021-2030). However, they remain insufficient to unlock the full potential of the ETS as one of the key climate policy levers to help innovate, create, develop, demonstrate, scale and deploy the clean solutions we need for the European industry to lead the way for global climate action.

## II • ETS free allowances: from an inherited right to pollute for free, to a privilege earned through innovation

### I FROM AN INHERITED RIGHT TO AN EARNED PRIVILEGE

Energy-intensive industries<sup>16</sup> have received free allowances since the very creation of the ETS. Some industrial lobby groups and policy makers therefore have the tendency to see them as an “inherited right”. Such an approach fosters a political dynamic that favours the *status quo*. The ongoing reform of the ETS should review the *raison d’être* of ETS free allowances. They were granted over 15 years ago to avoid the risk of carbon leakage,<sup>17</sup> at a time when the EU did not have other means of achieving that objective. This is no longer the case. **The EU is putting in place a holistic framework to address the risk of carbon leakage through several policy levers, including a Carbon Border Adjustment Mechanism (CBAM).**<sup>18</sup>

**FIGURE 2. EU ETS emissions during Phase 3**



▲ Source: E3G calculations based on data from the European Environmental Agency

**direct support for zero-carbon production processes, and regulations that contribute to market creation, such as green product requirements and green public procurement.** As the EU CBAM, and other policies to support industrial abatement are phased in, free allowances should become a measure of last resort rather than a default policy.

Any allowance handed out for free should be seen as form of public support given for a limited period of time, attached to strict climate conditions, and given only to those who earn it.

#### **I FROM FUNDING POLLUTION TO FUNDING INNOVATION**

Largely because of free allowances, flawed benchmarks and previously low carbon prices, the EU ETS has so far proved ineffective at fostering industrial climate innovation.<sup>19</sup> Indeed, the combination of a malfunctioning EU ETS with a general lack of concerted climate policy aimed at decarbonising energy-intensive industries, has undermined the EU's opportunity to seize the "first-mover advantage" of being the first regional economy in the world to develop and scale the clean technologies the world needs to reach climate neutrality.

As EU ETS prices increased significantly over the last few years, free allowances have become a major financial asset. Based on the current market price and preliminary free allocation data, the 560 million free allowances the EU is set to release in 2022 alone are valued at ~€50 billion.<sup>20,21</sup> In the current political context of higher climate ambition, constrained government budgets and social acceptability and equity concerns about the climate transition, giving such subsidies without any emission reductions to show for them is not easily justifiable.

There are better ways to use that money. **Rather than handing those allowances out for free, they should be reinvested in a portfolio of innovative industrial projects that help fight climate change.** This portfolio should include clean technologies that are not fully mature yet (e.g. green steelmaking with **100% electrolytic hydrogen direct reduced iron**), as well as solutions where

the technology is commercially available but needs integration at scale to become competitive (e.g. large-scale heat-pumps).<sup>22</sup> It should include all sectors that are relevant for industrial decarbonisation, ranging from innovative circular economy business models, to the scale-up of innovative renewable energy sources or the production and use of hydrogen for the **production of green steel** and other materials.

Crucially, allocating these allowances to innovation rather than handing them out for free would not change the amounts of money flowing to EU industry. It would however change the way the EU channels that money. Rather than subsidising pollution, it would invest in innovation to create the new generation of clean technologies (through tools such as the EU Innovation Fund).

### **III • Policy recommendations: Four joint actions to make the "Fit for 55" fit for industrial climate innovation**

#### **I PHASE-OUT ALL FREE ALLOWANCES AT A PACE THAT PUSHES INCUMBENTS TO INNOVATE**

While a CBAM, flanked by other measures,<sup>23</sup> can offer a sustainable solution for mitigating the risk of carbon leakage in the long term, a phase-in period is likely necessary given CBAM's legal, technical and geopolitical complexity.<sup>24</sup>

The European Commission has proposed a 10 year phase-out period starting in 2026 for the sectors to be covered by the CBAM. This would be too slow, and risks seeing the EU losing the global race for industrial decarbonisation.<sup>25</sup> To put in place the necessary incentives during this decade's critical reinvestment window for EU's energy-intensive industry,<sup>26</sup> all free allowances should be fully phased-out by 2030 at the latest.<sup>27</sup>

#### **I ALLOCATE THE NEWLY PHASED-OUT FREE ALLOWANCES TO BOOST THE INNOVATION FUND**

By phasing out free allowances, large amounts of additional revenues will be generated through auctioning, which should

be channelled to finance innovative projects and the deployment of clean technologies at commercial scale. This should be done through the EU Innovation Fund, which would ensure that all companies in all EU Member States have equal access to this new source of funding.<sup>28</sup>

Doing this at the EU level would also increase the overall effectiveness and efficiency through putting those companies in a fair competition with each other. It would also shield this critical funding from the risks of national stop-and-go policies that have hampered the energy transition in other sectors, such as the deployment of renewable energy sources.<sup>29</sup>

However, the scope of the Innovation Fund should be expanded to facilitate the scale-up and deployment of innovative clean technologies, including through Carbon Contracts for Difference.<sup>30</sup> Compared to the status quo, this proposal would channel a significant amount of money towards innovation.<sup>31</sup> It would however create winners and losers. **Companies that innovate and propose high-quality projects to the Innovation Fund would win as they would get more money through this Fund than what they would have gotten through free allowances.** On the flipside, those companies that refuse or fail to create innovative projects would lose money. With such a reform, the European Union would clean industrial innovation is vital to boost the competitive sustainability of the EU industry in the 21st century.

#### **I NO FREE LUNCH: REMAINING FREE ALLOWANCES SHOULD ONLY BE GRANTED ON THE BASIS OF STRINGENT CONDITIONS**

As a result of the need for a transition period during which companies can adapt, a share of free allowances would likely continue to be granted during this decade. EU policy makers must ensure that the remaining free allowances do not undermine innovation and decarbonisation by introducing conditionality measures to ensure that recipients innovate. This could include, but is not limited to:

- **Requiring sectors to develop climate neutrality roadmaps**, as called for by Article 10 of the EU Climate Law, in order to be eligible to receive free allowances.<sup>32</sup>
- **Only granting free allowances on the basis of a thorough revision of the applicable benchmarks.** It is clear that the current methodology to determine the scope of product benchmarks puts innovative clean technologies at a competitive disadvantage.<sup>33</sup> The European Commission needs to determine such revised benchmarks as soon as possible, and by 2025 at the latest, on the basis of independent and verifiable data. Minimum conditions for this revision include ensuring that the benchmarks 1) are based on products rather than specific production processes; 2) do not refer to (fossil fuel) combustion capacities; and 3) take into account emission reductions through circular approaches and material substitution.
- **Adopting requirements for companies in exchange for receiving free allowances.** This could include adopting net-zero transition plans, including setting intermediate emission reduction and resource efficiency targets, timelines for the phase-out of existing carbon-intensive activities, making commitments to investments in cleaner processes and subscribing to a transparent governance framework to monitor the progress of these plans.

#### **I MITIGATE THE RISKS OF CARBON LEAKAGE THROUGH OTHER TOOLS**

Carbon leakage measures which mute decarbonisation incentives are incompatible with deep decarbonisation and competitive sustainability. Indeed, continuing the practice of handing out free allowances would severely undermine the EU's ability to meet its climate neutrality targets. Going forward, the risk of carbon leakage will have to be addressed through means that do not undermine but strengthen climate efforts. Over time, all sectors facing a genuine risk of carbon leakage should be covered by the EU CBAM and receive dedicated support through other means, including the Innovation Fund and sectorial regulation. •

**FIGURE 3.** Summary of the four joint policy recommendations to make the ETS work for climate innovation



▲ Source: Thomas Pellerin-Carlin & Domien Vangenechten, "No more free lunch. Ending free allowances in the EU ETS to the benefit of innovation", Jacques Delors Institute & E3G, January 2022.

## • End notes

- 1 Lehne J., Moro E., Nguyen P.-V. & Pellerin-Carlin P. 2021. "The EU ETS: from cornerstone to catalyst – the role of carbon pricing in driving innovation", Joint E3G-Jacques Delors Institute policy paper, April 2021.
- 2 Such as producers cement, iron and steel, chemicals, paper and pulp, refined petroleum products, etc.
- 3 European Commission. 2019. [Adoption of the Delegated Decision on the carbon leakage list for 2021-2030](#)
- 4 The European Commission proposed to introduce an EU-wide carbon tax as early as 1991, ahead of the 1992 Rio Summit. This proposal failed because of opposition led by the French Government, supported by the British one. Cf. Stefan Aykut. "Gouvernement le climat, construire l'Europe: l'histoire de la création d'un marché du carbone (ETS)", Critique Internationale, N°62, 2014. Under current EU law, while a carbon tax would still require a unanimous vote from the Council, the ETS can be revised through the ordinary legislative procedure that entails a qualified majority vote in the Council. At the national level, several Member States now have national carbon taxes, like Sweden, or France where the carbon tax on building and road transport fuels is currently set at 44,60€/TCO<sub>2</sub>eq.
- 5 Every year, the EU reduces the cap by a specific percentage –named "linear reduction factor".
- 6 For more information on the Polluter Pays Principle and its application in the EU, see: European Court of Auditors. 2021. "The Polluter Pays Principle: Inconsistent application across EU environmental policies and actions".
- 7 Carbon leakage can occur when economic activities are displaced, or when investment or consumption patterns change, for cost-related reasons stemming from climate policies. This could directly or indirectly cause greenhouse gas emissions to be displaced to other countries with laxer constraints. This is especially true for most trade-exposed and energy-intensive industries, whose products face strong competition in global markets. According to the European Commission's impact assessments, sectors such as cement, steel and other metals, chemicals, glass and paper face the largest risks of carbon leakage.
- 8 Such as those induced by the 2009 and 2020 economic crises.
- 9 European Commission. 2011. "Commission Decision determining transitional Union-wide rules for harmonised free allocation of emission allowances".
- 10 Calculated by multiplying the amount of free allowances received by industry each year and the yearly average EUA forward price.
- 11 All allowances brought to the market between 2005 and 2007 were invalidated at the end of the first trading period (31 December 2007), meaning they cannot be used for compliance in subsequent years.

- 12 The other ~0,2bn allowances were invalidated at the end of phase 1 of the EU ETS.
- 13 De Bruyn S., Juijn D. & Schep E. 2021. "Additional profits of sectors and firms from the EU ETS".
- 14 A significant drop in emissions occurred in 2020 and is mainly attributable to drops in activity levels due to COVID-19.
- 15 Own calculations based on data from the European Environmental Agency.
- 16 This includes both sectors that are covered by the European Commission's proposal for a carbon adjustment mechanism (e.g. aluminium, cement, steel) and sectors that are not covered by the current proposal (e.g. oil refineries, paper, glass etc.).
- 17 Verde S. 2020. "The impact of the EU emissions trading system on competitiveness and carbon leakage: the econometric evidence"; ICAP. 2020. "Carbon Leakage and Deep Decarbonisation: Future-proofing Carbon Leakage Protection"; Dechezleprêtre A. et al. 2019. "Searching for carbon leaks in multinational companies".
- 18 Lamy P., Pons G. & Leturcq P. 2021. "GT6: Towards a carbon border adjustment mechanism", Europe Jacques Delors, July 2021.
- 19 Borghesi S. et al. 2015. "Carbon abatement, sector heterogeneity and policy responses: Evidence on induced eco innovations in the EU", *Environmental Science & Policy*, p. 377–388.
- 20 Based on national free allocation tables accessed via the EU Transaction Log.
- 21 Under current rules, over 5 billion allowances will be handed out for free during this decade. Assuming a 100€/TCO<sub>2</sub> over that period, such allowances would represent €500 Billion.
- 22 In other words, technologies that the [International Energy Agency](#) would assess as being between a technology readiness level of 5 (TRL5) to 10 (TRL10). For a brief explanation of the TRL scale applied to the energy transition, refer to Pellerin-Carlin T. & Bachelet M. 2021. [Make regulation fit for innovation: how EU regulations can enable innovations for a climate neutral economy](#), Jacques Delors Institute, April 2021, p. 5.
- 23 Including direct support for zero-carbon production processes, and regulations that can contribute to market creation, such as green product requirements and green public procurement, both within Europe and internationally.
- 24 A key element of the link between CBAM and ETS free allowances is that, an EU phase-out of ETS free allowances for the sectors and types of emissions concerned by CBAM is a way to strengthen the EU case that CBAM is compatible with the World Trade Organisation rules. Cf. Lamy P., Pons G. & Leturcq P. 2020. "GT3: A European Border Carbon Adjustment Proposal", Europe Jacques Delors.
- 25 For a look at the Chinese investment in the green transition, please refer to Groupe d'Etudes Géopolitiques. 2021. "La puissance écologique de la Chine : analyses, critiques, perspectives", *GREEN*, N°1, Septembre 2021.
- 26 According to a study from Agora Energiewende, between 30% and 53% of the EU's cement, steel and steam cracker plants will require major reinvestments in the coming decade. Agora Energiewende. 2021. "Breakthrough Strategies for Climate-Neutral Industry in Europe".
- 27 The European Parliament's ENVI committee, which leads the work on both files, is currently split about this timeline. While the draft report for the EU ETS supports the Commission's proposal, the draft report for the EU CBAM proposes to complete the gradual phase-out by 2028. See European Parliament ENVI Committee (2022), draft report on the proposal to amend the EU ETS; and European Parliament ENVI Committee (2021), draft report on the proposal to establish an EU CBAM
- 28 Additional measures to ensure geographically balanced access to the Innovation Fund might need to be considered, including through providing technical assistance. Not a single project from Central and Eastern Europe was selected through the first call for large-scale projects of the Innovation Fund. See European Commission (2021), first call for large-scale projects: list of proposals pre-selected for a grant.
- 29 David Robinson, 'Pulling the plug on renewable power in Spain', Oxford Institute for Energy Studies, 2013.
- 30 McWilliams B. & Zachmann G. 2021 "Commercialisation contracts: European support for low-carbon technology deployment", Bruegel, July 2021.
- 31 Assuming a linear phase-out of free allowances by 2030, starting in 2026 and an average carbon price of €85/tCO<sub>2</sub>, ~€130bn would be channelled towards innovation.
- 32 Regulation of the European Parliament and of the Council establishing the framework to achieve climate neutrality.
- 33 For example, under the current benchmarks, green hydrogen production is not considered in the hydrogen benchmark, leading to a situation where only grey hydrogen receives free allowances, thus undermining the business case for green hydrogen. Similar examples exist in the steel or cement sectors.

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