Project Name: Future of Emissions Trading in the EU

Report Nº 3: Price signal and competitiveness

Report Launch

Thursday, March 27, 2025

ERCST
Roundtable on
Climate Change and
Sustainable Transition

1. Background

- Competition has been central to the development and implementation of EU ETS.
- It was addressed under the heading of carbon leakage, but carbon leakage is brought about by international competitive pressures resulting from carbon costs from carbon pricing under EU ETS as well as other climate change related policies and measures.
- Policy solutions to address carbon leakage and competitiveness have evolved over time, from the initial approach of grandfathering, to free allocation and, more recently, to the Carbon Border Adjustment Mechanism (CBAM).
- Competitiveness is a concern within the EU domestic market, as well as, within the international market.
- Competitiveness is impacted by multiple, sometimes overlapping policies and measures influencing at a diverse level, depending on the characteristics of the organization. Such policies and, measures may include (not an exhaustive list):
    - Climate Change
    - Energy
    - Regulatory burden
    - EU Governance
- Studies have highlighted different factors that impact competitiveness. A few such studies are outlined below:
    - 'The competitiveness of the European chemical industry' from the European Chemical Industry Council (CEFIC, 2025)
        - Price/Cost competitiveness Factors (PCF): Labour cost, logistic cost, capital cost, subsidies and taxes.
        - Non-Price Competitiveness Factors (NPCF): Innovation, human capital, supply/demand ecosystem, industrial and trade policies.
    - 'The Global Competitiveness Index (GCI) 5.0' from The World Economic Forum, (WEF, 2022)
        - WEF consider the following 12 pillars for its Global Competitiveness Index (GCI) 5.0: Public Institutions, Security and Social Cohesion, Environment, Infrastructure and Human Capital, Public Health, Social Protection, Education and Skills, Labour Markets, Financial conditions, Competition, Innovation Capability, Future Orientation of Business.

1. Background

- Competitiveness can also be looked upon from different perspectives:
  - What costs are borne by EU-based enterprises?
  - What are the costs in other jurisdictions?
  - What measures are put in place to compensate for asymmetry in prices and costs resulting from different legislative and regulatory costs?
  - Who is impacted, and who ultimately pays the cost (‘Who pays the bill”)?

- It must be emphasized that all climate change costs, including EU ETS, are regulatory in nature and highlights the importance of getting policies and regulation right.
- It must also be recognized that while the EU ETS imposes visible prices and associated costs on covered entities, there are also the broader costs of EU climate change policies. While some costs are alleviated through policies, such as in the EU ETS through free allocation, or the reduction of costs through lowering demand for compliance instruments (EUAs), the costs of the non-EU ETS climate change policies are internalized without any rebates. It must be added that the reductions and therefore the cost per ton for non-EU ETS reductions may be less efficient as these policies are regulatory in nature, and not market approaches..

1. Background

- The EU ETS has two key objectives, as outlined in Article 1[1] of the EU ETS Directive and discussed further in Section 2 of this report, which can be perceived as conflicting, and requiring management:
  1. Providing a visible price signal for economic asset allocation, under the constraint of a CO_2 cap,
  2. Maintaining competitiveness in a dynamic climate change policy landscape.
- Under the EU ETS, prices of EUAs and decarbonization costs may differ and play different roles that need to be highlighted:
  - Costs resulting from complying with the EU ETS, direct and indirect, will impact the competitiveness of covered installations, and sectors overall.
  - While EUA prices are impacted by the EUA scarcity, and ultimately by the cost of decarbonization, this is not a direct relationship as the overall cap provides the long-term visibility and market participants' behaviour determines prices. This sends a decarbonisation signal but is not always predictable.
- Climate change policies affect competitiveness not only through costs that come from EU ETS pricing, but also through costs arising from other policies and measures. Two specific examples of such polices are:
  - The Energy Efficiency Directive (EED), which imposes mandatory energy audits and efficiency upgrades on industries and reduces energy consumption and therefore emissions – but there is a cost.
  - The Renewable Energy Directive (RED) introduces additional costs by mandating targets for renewable energy adoption, requiring investments in infrastructure, technology, and grid upgrades to integrate renewable sources – which reduce energy consumption, and associated emissions. .
- Energy costs are a determining factor in the competitiveness of EU industry. In this context it must be highlighted that while the significant increase in EU energy cost originates from exogenous factors, many of the decisions that reduce options and increase cost of energy in the EU are regulatory in nature and can be attributed to EU climate change policy. Early coal phase-out is one such decision among others.

Sources: [1]*"This Directive establishes a system for greenhouse gas emission allowance trading within the Union (hereinafter referred to as the "EU ETS") in order to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner."*

Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (Text with EEA relevance). Official Journal L 275.

1. Background

- Examples of studies measuring compliance costs due to EU ETS/climate change policies:

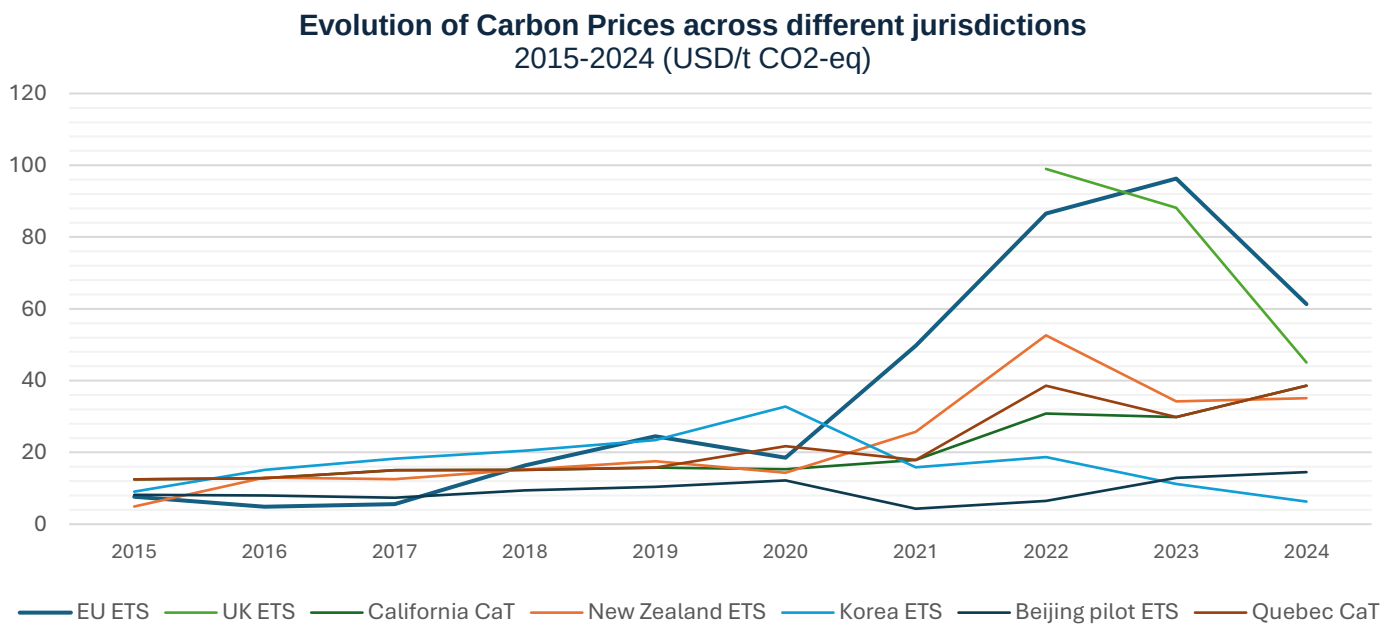
Studies	Takeaways
CEPS (2013) Carbon Leakage: An overview. CEPS Special Report No. 79/December 2013	Steel ETS costs as a fraction of EBITDA reached up to 12% in 2012, while aluminium up to 43%. Table 5 & 6. Pp. 25-26. The paper also outlines 3 different types of carbon costs; direct costs (Purchasing EUAs to meet emissions), indirect costs (compliance costs that are passed down the value-chain) and administrative costs (Costs related to back-office operations).
CEMBUREAU (2021). CO_2 Costs in Cement - Some Calculations	At an EU ETS price of 55€/EUA, carbon costs for the average EU27 cement plant account to 8-10% of the total production costs of cement, with free allocations at 2021 levels. At an EU ETS price of 90 € /EUA, carbon costs climb to 12-15% of total costs, with free allocation.
Bank of Spain (2025). Carbon pricing, border adjustment and renewable energy investment: A network approach. Work document n 2506.	An increase of **€100/tonne in the EU carbon price** reduces the carbon footprint but **lowers GDP** due to higher energy costs and carbon leakage. Investment in RE- mitigates electricity price increases in the medium term, leading to a smaller GDP loss (up to −0.4%) and a larger emissions reduction (24%) in the EU.
Gillingham and Stock, 2018; and Colmer et al, 2020,	The study shows the cost of reducing a tonne of CO2 of EU ETS compared to other climate policies. The maximum cost of reducing a tonne of CO2 was $52.68. When using the maximum cost per tonne of CO2, the EU ETS is ranked 7th. If the average Phase II price is used instead ($21.35), the EU ETS is ranked 5th. The actual cost was lower, as this is the maximum cost it would have been cheaper for firms to buy emission permits instead of reducing emissions. Estimates for other climate change mitigation policies come from Gillingham & Stock (2018).
Kuosmanen, T., Zhou, X., & Dai, S. (2020). How much climate policy has cost for OECD countries? World Development, 125, 104681.	The study finds that in the EU- OECD countries the marginal abatement costs by country ranges from €116 to €507 per tonne [($€^{2010}$ / ton), average of 1990-2015]. The large variance in the average abatement costs across countries, even within the EU, suggests that allocation of GHG abatement across countries despite the EU ETS market has been far from cost efficient.
Veyt (2025). EU ETS – Decarbonising industry or deindustrialisation?. Webinar 30 January. Slide 12.	Downstream sectors are not likely to struggle because of carbon, as **carbon cost remain small compared to CAPEX and OPEX**. Carbon cost is **even smaller for downstream** sectors.

- It is important to define KPI that provide a clear picture on competitiveness due to EU ETS and broad EU climate change policy. Some KPIs that could be considered may include:
  1. Visible carbon prices in different economic jurisdictions worldwide
  2. ETS compliance costs premium in unit production costs
  3. Emission intensities (Emissions/production)

1. Background

1. Visible carbon prices in different economic jurisdictions worldwide

- EU ETS prices, and the associated costs, play an increasingly important role as ETS prices are significantly different between jurisdictions where an ETS exist.
- The EU ETS is the highest-priced carbon market globally. In 2024, the EU ETS price (€65/t) was 1.5 times that of the UK ETS, almost double that in the New Zealand ETS and California CaT and around 20% higher than the Canadian fuel charge carbon price of $80/t(€52/t) [1].



Sources: From forthcoming, 2025 State of the EU ETS Report (2025),
Compass Lexecon analysis based on data from World Bank Group, State and Trends of Carbon Pricing Dashboard

	Start year	Sector coverage	2024 Average Price (USD/t CO2-eq)
EU ETS	2005	Industry, Power, Aviation	61.3
New Zealand ETS	2008	Industry, Power, Waste, Transport, Buildings	35
California CaT	2012	Industry, Power, Transport, Buildings	38.5
Beijing pilot ETS	2013	Industry, Power, Transport, Buildings	14.5
Quebec CaT	2013	Industry, Power, Transport, Buildings	38.59
Korea ETS	2015	Industry, Power, Waste, Transport, Buildings	6.5
UK ETS	2021	Industry, Power, Aviation	45

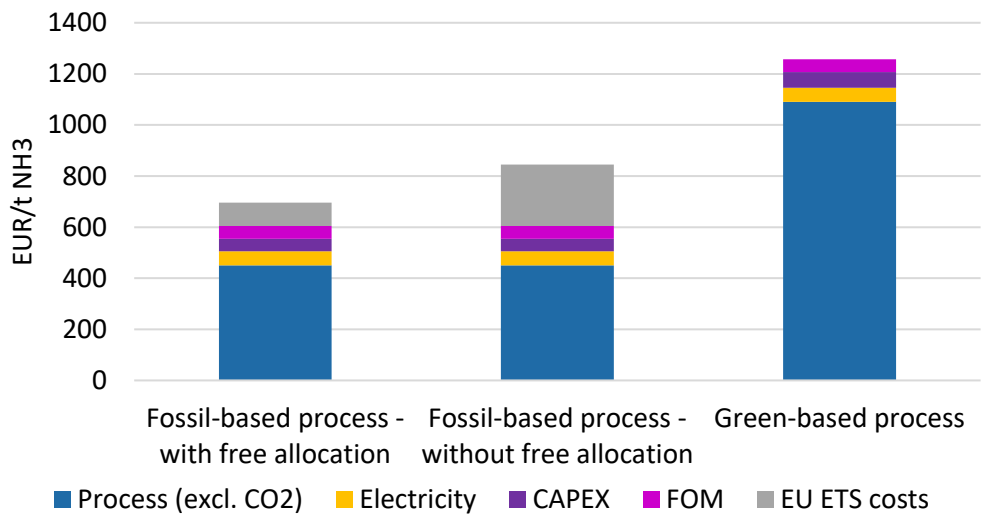
Sources: [1] Canada Gazette (2025), Regulations Amending Schedule 2 to the Greenhouse Gas Pollution Pricing Act and the Fuel Charge Regulations

1. Background

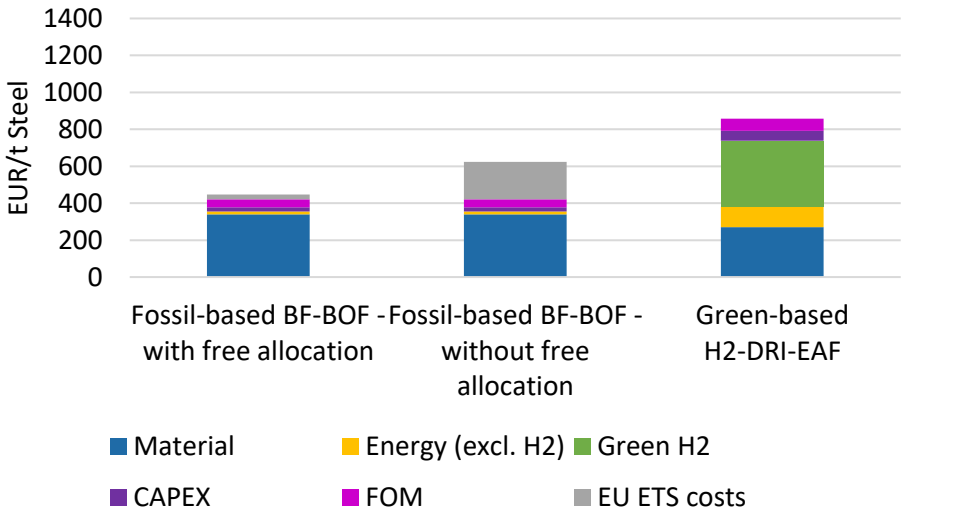
2. ETS compliance costs premium in unit production costs

- KPI 2 presents the impact of EU ETS compliance cost on the production costs faced by an installation to produce one unit of a product. KPI 2 splits up costs in individual components: EU ETS compliance, Process, Electricity or Energy, CAPEX, FOM (Fixed Operating and Maintenance) & Green H2
- KPI 2 shows 3 production scenarios, Production with free allocation, production with no free allocation and production with no EU ETS but with a green production process.
    - Compliance costs are represented at two different levels, the first with current free allocation, the second without.
    - Compliance cost premium in unit costs is best exemplified through the cost of production of ammonia and steel.
- The phase-out of free allocation, combined with the expected increase in EUA prices, would increase costs for producers as of 2030, by (a) 20% for ammonia and (b) 40% for steel.
- Decarbonised production processes would be more expensive than carbon-intensive processes – as of 2030, even when assuming low green hydrogen costs, (a) green steel would be 40% (80%) more expensive while (b) green ammonia would be 50% (90%) more expensive, compared to fossil-based processes with no free allocations (with free allocations).
- Phasing out free allocation alone does not create a strong financial incentive for decarbonisation, without public support or changes in the costs of low-carbon processes.

Production costs for ammonia by cost component under different scenarios – 2030



Production costs for steel by cost component under different scenarios – 2030

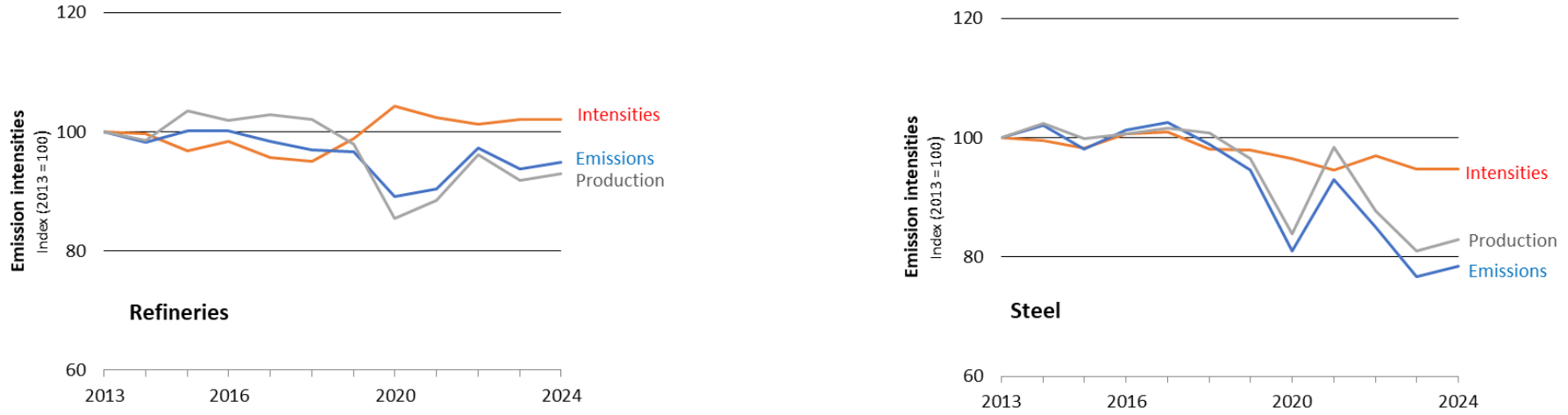


Sources: From Marcu, A., Hernández, et all. (2024) 2024 State of the EU ETS Report. Pp.24.
Compass Lexecon analysis based on data from AgoraEnergiewende for Steel and BusinessEurope for Ammonia. The C-intensive Steel making facility is assumed to be a retrofit BF-BAF with coking coal. Grey Ammonia is produced based on SMR + Haber-Bosch synthesis.

1. Background

3. Emission intensities (Emissions/production)

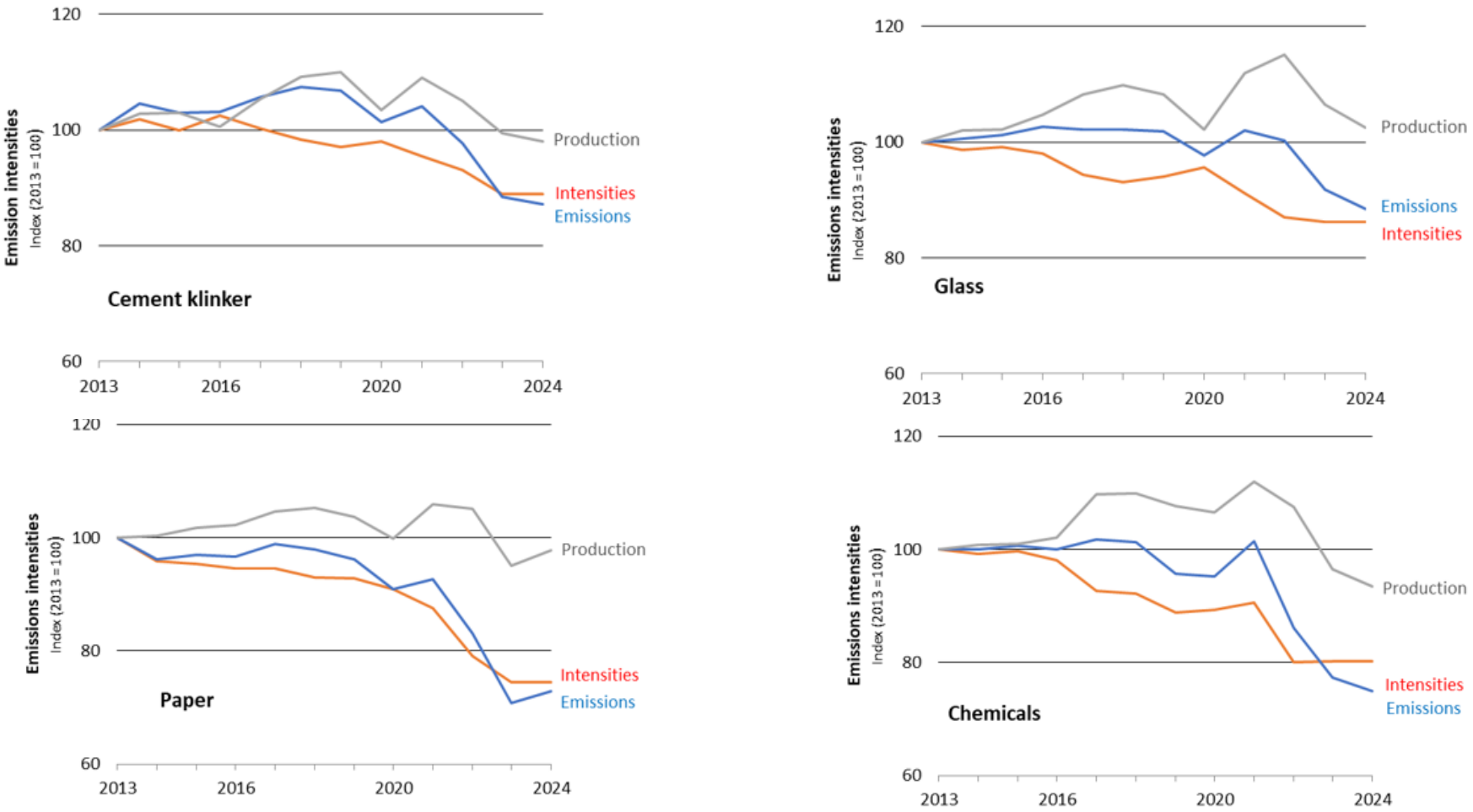
- KPI 3 Emission Intensities is an index calculated by dividing the volume of emissions in a sector by the corresponding volume of production activity. Both values are indexed at base year 2013. KPI 3 allows the comparison of ETS sectoral production changes, emission changes and intensity changes.
- This is a better metric for assessing the competitiveness and economic delivery of the EU ETS of the covered industrial sectors as it allows emission trends due to output to be disaggregated from those due to efficiency gains.
- On the other hand, in 2023 the European Commission has documented[1] a 7.5% reduction in industrial emissions and a 24% decrease in power sector emissions compared to 2022. However, this takes no account of the quality of the emissions abatement.
  - Are emissions reducing with investments or with production curtailment? To what extent has this been caused by efficiency improvements and to what extent has this been caused by demand destruction? Which sectors have experienced a decoupling from production levels and emissions?



Sources: Provisional data from forthcoming, ERCST, 2025 State of the EU ETS Report (2025)

Sources: [1] European Commission. (2024). Report from the Commission to the European Parliament and the Council on the functioning of the European carbon market in 2023 (COM(2024) 538 final). Pp. 19-20

1. Background



Sources: Provisional data from forthcoming, ERCST, 2025 State of the EU ETS Report (2025)

2. Objectives and role

Role of the EU ETS :

- EU ETS is meant to provide a price signal for asset allocation based on a good market functioning and price discovery
- It provides the means to hedge against the risks of complying with obligations under the EU ETS.
- Decarbonisation and competitiveness
    - The EU ETS environmental mandate in terms of emissions reductions is clearly stated (i.e. reduce GHGs emissions in a certain period of time).
    - However, there is also a clear mandate to ensure the competitiveness of EU covered installations, and some direct references to that effect are listed below:
        - Promote reductions of GHGs emissions in a "cost-effective and economically efficient manner" (Art 1 of the EU ETS Directive).
        - Review of goods covered by EU CBAM (Art 30 (2) of CBAM Regulation)[1].
        - Assessment of carbon leakage for CBAM goods as part of the annual report on the European carbon market (Art 10a(1a) of the ETS Directive).
        - The requirement to take into account the international dimension:

❖ **EU ETS Directive** [2]

- Art 1 [3] sets a stricter target upon the approval of an international agreement on climate change.
- Art 30 - EU ETS review in light of the **Paris Agreement** and ETS developments outside the EU.
- Increased ambition of **maritime** (Art 3gg) and **aviation** sectors (Art 25a and 28b) covered by EU ETS if not success of IMO/ICAO.
- Art 10d – **Modernisation Fund** investments should be consistent with long term objectives of the Paris Agreement.

❖ **European Climate Law** [4]

- Art 4(5) when setting **2040 target, EU should take into account international developments** and efforts to achieve the Paris Agreement.

Sources: [1] Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism (Text with EEA relevance).
[2] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (Text with EEA relevance). Official Journal L 275
[3] "*This Directive also lays down provisions for assessing and implementing a stricter Union reduction commitment exceeding 20 %, to be applied upon the approval by the Union of an international agreement on climate change leading to greenhouse gas emission reductions exceeding those required in Article 9, as reflected in the 30 % commitment endorsed by the European Council of March 2007.*"
[4] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law')

2. Objectives and role

EU climate policy approach

- The EU aims to decarbonize:
  - In parallel: In general, the EU is not moving up the MAC curve progressively but requires all sectors to contribute at the same time, within the same time frame Complementary policies need to be put in place to decarbonize higher on the MAC curve, or else EUA prices (associated costs) will move to unsustainable levels for those lower on the MAC curve and make those sectors non economically viable.
  - Different sectors with different MACs: For sectors with higher abatement costs, decarbonisation will could be more. The higher the carbon price, and cost, the more need for complementary measures to support them in the transition.
  - Absolute reduction targets: The EU's approach to decarbonisation is centred around setting reduction targets (55% by 2030, 100% by 2050). While targets are an important signal, however, for decarbonisation to occur, it is not only the absolute targets that matter, but also the enabling conditions to make these targets attainable while ensuring the viability of the different sectors.
  - Timing of the price signal and associated cost: The EU's decarbonization goals are often more ambitious than the rate at which the price and cost signals can drive change at politically and economically acceptable levels. Given the respective elasticity, timing is an issue as the price signal may take longer to lead to decarbonization, at what is considered acceptable price levels. As a result, the EU uses complementary policies to accelerate decarbonization
  - The urgency to decarbonize, as mandated by climate regulation and policy, has a strong impact on competitiveness :
    - Decarbonizing fast is important to reduce the negative impacts of climate as soon as possible.
    - Too ambitious climate targets can be unsustainable and difficult for compliant entities to implement in a short period of time. Overambitious targets over short time periods can be burdensome for companies exposed to dynamic and competitive environment.

2. Objectives and role

- Since the start of the EU ETS in 2005, emissions from stationary installations (power and industrial installations) have decreased 48%. [1] However, it remains to be seen whether such pace can be maintained in the future:
  - The power sector has been the main contributor to decarbonization so far (reducing 340 MtCO2e between 2012-2022)[2] . However, there is a general consensus that this achievement is mainly due to other policies and measures put in place to address climate change. Emissions are on a downward trend driven by the decarbonisation of the power sector, through the deployment of renewables, the coal to gas switch in power generation and an increasing use of biomass.[3] This was achieved through a significant level of subsidies received by the power sector, which made it possible for the power sector to move aggressively away from fossil fuels[4].
  - The reduction of process emissions in energy intensive sectors where technologies are not available yet or are more expensive will be more challenging. Some technologies will require support to develop and deploy (capex and opex), rather than ETS price signal alone. In the case of Direct Air Carbon Capture and Storage (DACCS) the cost of removing a tonne of CO2 is estimated to be €122-539 [5]. Such CO_2 prices will be difficult for by both households and industry/power sector, socially and economically.

Sources: [1] EEA (2024). Greenhouse gas emissions under the EU Emissions Trading System. October 31.
[2] From Marcu, A., Hernández, et all. (2024) 2024 State of the EU ETS Report. Pp.13.
[3]. European Commission (2024). Report from the Commission to the European Parliament and the Council on the functioning of the European Carbon Market in 2023. COM(2024) 538 final. Pp 21
[4] ERCST (2022). 2022 State of the EU ETS Report. Pp 6.
[5] European Commission (2024). Communication towards an ambitious Industrial Carbon Management for the EU . COM(2024) 62 final. Pp 15

3. EU ETS prices and costs: Impacts and Implications

- EU ETS cost can be same as EUA prices multiplied by level of emissions but can also be different. Measures, such as free allocation, were been put in place to ensure that the price of EUAs and the cost of compliance with the ETS are different.
- As mentioned previously, the cost climate of change that impacts competitiveness has the additional component of non-EU ETS EU climate change policies. The EU ETS cost is a subset of overall cost of climate change policies.

Factors influencing carbon prices and costs

- **Measures to reduce demand**

Policies that reduce emissions decrease the demand for allowances, leading to lower carbon prices, and can therefore lead to lower carbon costs. However, the costs of these complementary policies such as renewable energy subsidies, energy efficiency regulations, and sector-specific decarbonization mandates should also be considered as they add to the cost of meeting climate change objectives even if not EU ETS costs of compliance.

- **Measures to reduce supply**

MSR is designed to adjust the supply of carbon allowances in the market to ensure price stability.

The current MSR set-up, which is actually “beyond MSR”, acts as a "de facto" mechanism to reduce supply. Reducing supply can increase the price of carbon and could lead to increase in costs of compliance.

The MSR also does not differentiate in its impact between the sources of surplus and the level of the TNAC - it does not differentiate between good surplus/bad surplus of carbon allowances [1]).

Good surplus: one that is generated from abatement efforts (endogenous developments) which clearly need to be rewarded and not penalized. Eliminating such surplus through mechanisms such as MSR cancellation is unjustifiable and goes against the very principle of the EU ETS.

Bad surplus: one that stems from economic cycles and deindustrialization (exogenous developments). This was seen in the Kyoto Protocol in the form of what was called “hot air” which referred to surplus carbon credits resulting from Eastern European countries resulting from post central planning economic retrenchment, and not as a result of mitigation measures. A bad surplus of carbon allowances in the EU ETS reflect reductions not driven by real climate efforts.

Source: [1] ERCST (2024) Future of emissions trading in the EU: Role of Emissions Trading in EU Climate Policy. Slide 28. Dec 12.

3. EU ETS prices and costs: Impacts and Implications

Factors influencing carbon prices and costs

- **Free allocation**

When companies receive free allowances, they don't need to purchase as many carbon allowances, through auctions on secondary markets. This reduces the overall demand for allowances in the carbon market, which will lower carbon prices in the market.

The lower the amount of free allocation, the higher the compliance cost as the higher amount of EUAs will need to be purchased to meet compliance obligations.

In addition, with the progressive phase out of free allocations, the pressure to buy EUAs in the carbon market will increase, thus increasing also the compliance costs for energy and industrial players.

- **Other measures to reduce costs (Innovation and Modernisation Fund).**

  Through the Innovation Fund[1], the EU ETS allocates a share of revenues from the sale of EUAs to financing projects with high decarbonisation potential like carbon capture and renewable energy. It facilitates risk-sharing with project partners and highlights pioneering, highly innovative projects The Modernisation Fund[2] is designed to support decarbonisation in Central and Eastern European MS with a GDP below 75% of the EU average in 2016-2018, by addressing the social impacts of modernising energy systems and improving energy efficiency. Both funds make the transition to a low-carbon economy more affordable, reducing the need for ETS allowances.

Source: [1] The Innovation Fund was established by Article 10a(8) of Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (Text with EEA relevance). Official Journal L 275.

[2] Commission Implementing Regulation (EU) 2020/1001 of 9 July 2020 laying down detailed rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards the operation of the Modernisation Fund supporting investments to modernise the energy systems and to improve energy efficiency of certain Member States.

3. EU ETS prices and costs: Impacts and Implications

Is there a "right price"?

- Is the right price for EUAs. Can the social cost of carbon (SCC) be deemed to be the right price? Why yes or why not?
  - The SCC is an estimate of the economic damages associated with emitting one additional ton of carbon dioxide (CO_2) into the atmosphere. It represents the long-term cost to society due to climate change impacts [1]
  - While the SCC doesn't directly set carbon prices in the EU ETS (market-based pricing), it has been important in shaping EU climate policies, justifying stricter emissions targets, and guiding long-term reforms.

- Is the right price of EUAs equivalent to the optimal price of carbon as defined in economic theory? Why not?
  - When it comes to carbon pricing, there are different approaches to defining the right price, including :
    - A carbon tax rate matching the social cost of carbon
    - The cap-and-trade abatement target approach (specific mitigation target)
    - Others less frequently used include:
      - Revenue target approach: not primarily a price signal as such. Instead, a target is set until a certain amount of revenue is achieved.
      - Comparison with other jurisdictions (benchmarking), setting a carbon price linked to the price of other jurisdictions. [2]
  - The choice was made to use a cap-and-trade approach by setting a cap and then let the market determine the right price of carbon, through the supply/demand balance.

Sources: [1] UK Government (2024) Social Cost of Carbon. December 17.
[2] European Parliament (2020). Carbon emission pricing. Some points of reference.

3. EU ETS prices and costs: Impacts and Implications

Is there a "right price"?

- The price is right as long as it emerges from price discovery in a well-functioning market.
- To meet the objectives of the EU ETS the price is not the determining KPI for success or failure of the EU ETS. Meeting the conditions of
  - Good market functioning and price discovery
  - Environmental delivery – meeting the emission reduction target
  - Ensuring an efficient decarbonization and ensuring social acceptability and economic competitiveness of covered sector

Is what will determine the if the EU ETS is fit for purpose

- This means that the measures that accompany the EU ETS are as important as the target
- What matters is that there is a good price discovery through good market functioning and that the relationship between price and cost is one that allows to meet the competitiveness goal. Instruments to reach this goal must be available and used by EU policy markets.

3. EU ETS prices and costs: Impacts and Implications

Role of EU ETS Costs:

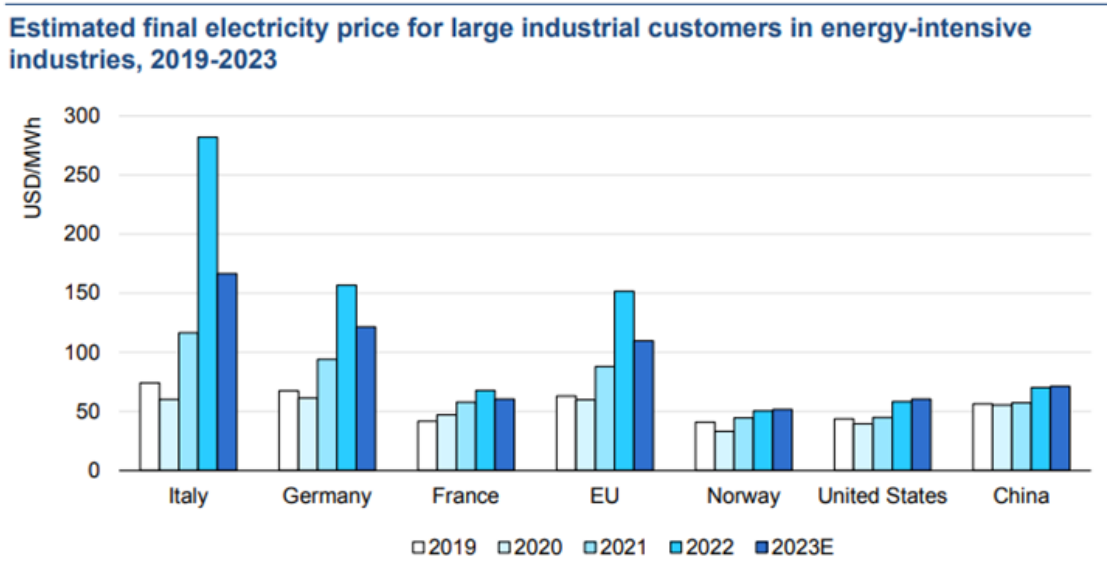
- **Costs** as a result of **EU ETS** are a) **direct costs** (costs of complying with EU ETS) and b) **indirect costs** (costs of carbon embedded in electricity consumed in the process of production). **Costs** are what **determines competitiveness** and are **fundamental to economic decision-making** process of:
  - In the EU ETS, the direct cost of compliance has been partially muted with free allocation, while the indirect cost has been partially muted with state aid. Both direct and indirect costs are expected to increase as free allocation declines, and price of EUAs increase and electrification increases, thus impacting (if temporarily) the competitiveness of EU industry.

- High costs from carbon pricing will affect the competitiveness of European industries in international markets. EU industries facing global competition may struggle if they are subject to higher costs than their counterparts in other countries.

- According to the Draghi report [1], in the EU carbon costs accounted for around 10% of the EU industrial retail electricity price in 2023. This is a high and volatile cost in the EU.

- EU's final electricity prices for large customers in energy intensive industries are significantly higher in EU than US or China.

- Increased electrification will also lead to increased impact of carbon prices through electricity prices, while fossil fuels are still on the margin



Source: [2] IEA, 2024

Sources: [1] Draghi, M. (2024). The future of European competitiveness. Report Part B. In-depth analysis and recommendations. September. Pp.12.
[2] International Energy Agency (2024). Electricity 2024. Analysis and forecast to 2026.

3. EU ETS prices and costs: Impacts and Implications

Sector-specific Costs and Responses

- EU ETS costs vary across sectors. Also, different sectors can absorb different levels of ETS costs and given the nature of different sectors, the nature and the type of support needed will vary
  - The power sector can pass on the cost of EUAs as it is less open to competition from outside the EU, except in certain border regions. The support it need was largely through subsidies in related to renewable energy, with EUA prices providing an impulse and contribution
  - Industrial sectors or district heating are more diverse and are open to different degrees to international competition, which makes it difficult to pass costs through. The support they require is more diverse and different in nature form what was put in place for the electricity sector:
    - Cost reduction via free allocation
      Under the free allocation system, the costs faced by industries were/are lower than the market price for carbon, allowing for investment in decarbonisation
    - Cost equalisation through CBAM
      Under CBAM, industries that are exposed to international competition will eventually face costs that align with the carbon price, but protection against carbon leakage should be provided through the mechanism if current uncertainties are addressed (i.e. circumvention risk). However, significant challenges remain, and the upcoming review process this year is crucial, as there is little time for a trial-and-error approach. Unlike the ETS, which evolved through multiple adjustments over the years, CBAM must be refined swiftly to ensure its effectiveness. Meanwhile, costs for industries will remain significant as the EU tightens its carbon pricing policies over time

3. EU ETS prices and costs: Impacts and Implications

Sector-specific Costs and Responses

- Indirect cost compensation
  At the same time, indirect costs are set to rise, which aligns with the push for electrification. However, it is essential to ensure that these costs do not escalate to a level where compensation becomes unaffordable, especially since it is often financed through ETS revenues. Increasing self-generation, investing in on-site storage, or adopting more flexible demand patterns—could be key. Understanding how much of the industry operates on a baseload versus how much can be made more flexible is also important. Additionally, indirect cost compensation could play a role in incentivizing such adaptive measures.

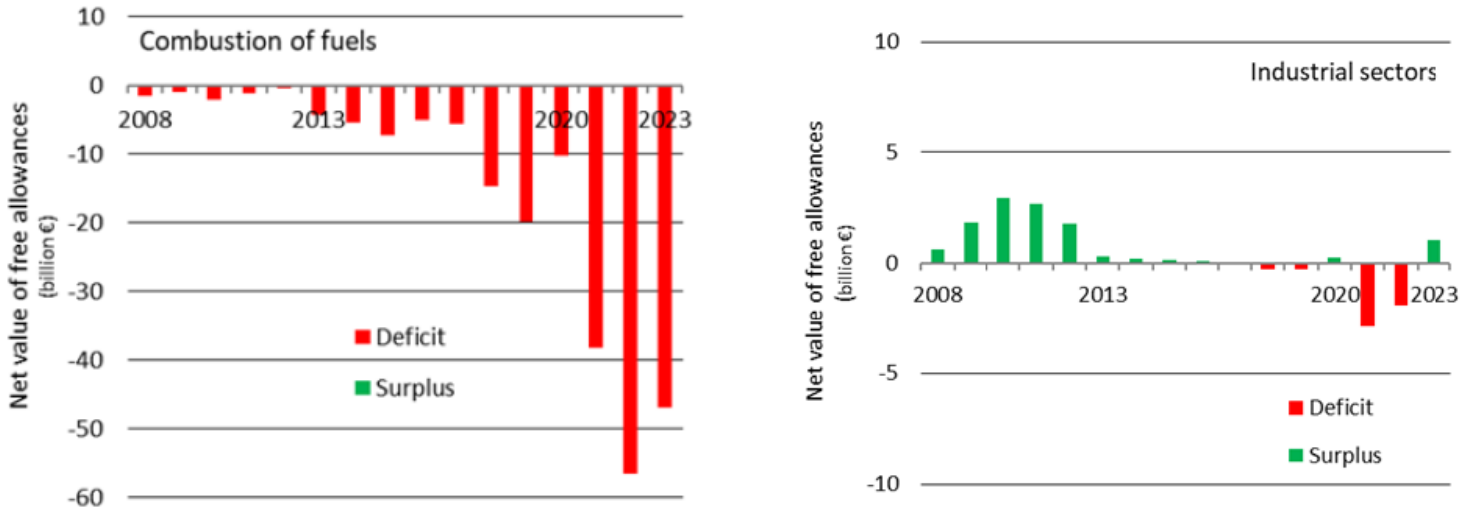
- The support will need to include in many cases both CapEx and OpEx

- Support is also being offered through funds (such as the Innovation Fund, the Modernisation Fund, the Just Transition Fund The Hydrogen Bank). However, the support through the different funds comes from recycled funds that were in the first place taken from EU ETS covered sectors through the elimination of free allocation and the auctioning of EUAs, which raises the issue of efficiency, and whether the funding goes back to the sectors affected.

3. EU ETS prices and costs: Impacts and Implications

- The 2024 State of the EU ETS Report [1] shows that in the combustion sector, annual expenses surpassed EUR 40 billion during the fourth trading period, reaching a cost close to EUR 60 billion in 2022. For industrial sectors, the costs reached up to EUR 3 billion annually in 2021 and 2022, while 2023 saw a minor surplus. These are significant amounts that are removed from sectors that need to decarbonize.

KPI 5.13: Net supply value of free allowances – combustion and industry sectors (bn EUR)



Source: Wegener Center (2024)based on EUTL

*Net supply of free allowances = (free allowances minus verified emissions) / (verified emissions) * 100

Combustion of fuels has activity type code 20 in the EUTL. The remaining activities correspond to 21-99 'All industrial installations'

Sources: [1] 2024 State of the EU ETS Report. KPI 5.13: Net supply value of free allowances. Pp 21.

4. Ensuring a price signal and addressing global competitiveness concerns

- Competitive concerns are not only in the internal EU market, but also in the global market, therefore export needs to be also recognised as a concern.
- This is becoming a more acute problem as time passes. As the ETS price increases so does the price gap with other jurisdictions, as a result of the severe regulatory asymmetry present when it comes to implemented emission trading schemes. It is well noted that this gap is based on the more visible element, which is the pure price, which as expressed previously in the report, does not represent the true cost faced by EU industry.
- Yet as the EU continues to deliberate its 90% 2040 decarbonisation target [1], the same cannot be said for other parties. The NDCs to be presented this year in Belem have stalled, and the atmosphere at the upcoming COP is not an encouraging one [2].
- Despite the EU's limited share of global emissions at around 6% [3], EU decarbonization continues to play an important role in overall EU policy. Its importance comes from a number of points of view, including global leadership, ethics, respect for the multilateral approach – but equally important is the long-term competitive advantage that it will give to the EU economy a. However, while this is generally accepted, it is also generally accepted that the decade leading to 2035 is expected to be particularly challenging from a competitiveness point of view. The main approach must be clearly enunciated: **EU needs to decarbonise, but not deindustrialise**
- The EU ETS is a tool for decarbonization in an economically efficient manner. The objective of maintaining EU competitiveness is clearly stated and accepted. A sustainable transition requires that the economic (competitiveness), environmental and social elements move in tandem, at the same speed. That may not currently be the case in the EU where competitiveness is a growing and alarming concern, with climate policy and EUA prices playing an increasingly significant role. Climate policy are by no means the only or maybe the largest concern for competitiveness.
- Energy prices are the major concern, but while other geopolitical factors played a dominant role, they also cannot totally divorced from policy decisions, including EU climate policy.
- While environmental objectives have dominated the EU agenda during the first UvdL Commission, and decarbonization has taken place at an increasingly rapid pace in the power sector, it is clear that the heavy lifting for industry decarbonization will take place in the decade leading to 2035.
- The concern about EU ETS, and EU climate policy costs in general, and their impact on industry competitiveness is increasingly an important topic of discussion.

Sources: [1] Carbon Pulse (2025) EU's 2040 climate target plan facing delay amid political infighting. 31 January.
[2] Financial Times (2025) Indonesia casts doubt on Paris climate accord after Donald Trump's exit. 31 January.
[3] Crippa, M., Guizzardi, D., Pagani, F., et al. (2024) 'GHG emissions of all world countries', Luxembourg: Publications Office of the European Union. DOI: 10.2760/4002897

4. Ensuring a price signal and addressing global competitiveness concerns

- While the principle of polluter pay[1] is fundamental and cannot be denied as the right approach, it is becoming increasingly clear that a significant portion of decarbonisation costs have been socialised rather than borne by polluters.
- This principle needs to be expanded domestically and internationally. This is especially important against the realities of global competitiveness and the rapidly deteriorating EU industry structure
- This can be illustrated through
  - Power decarbonization in the EU, where while EU ETS prices played a role, but the heavy lifting was done through subsidies. The deployment of renewable energy is a case in point
  - The use approach under the Inflation Reduction Act in the US, under the past Administration, was largely based on public incentives and not on penalties.

Sources: [1] LSE (2022). What is the polluter pays principle? 18 July.

4. Ensuring a price signal and addressing global competitiveness concerns

- We can conclude that to ensure both an effective price signal for decarbonization and maintain EU industry competitiveness, several conditions must be observed:
  - Policy makers must distinguish between measures that have immediate impact on costs and competitiveness, and that are needed to ensure the viability of certain sectors and installations and other measures that are necessary but have a longer-term positive impact on competitiveness. What is needed is a balanced approach, as theoretically helpful measures that provide no immediate relief are unnecessary conditions.
  - EUA prices ensure that not only disincentivise carbon intensive approaches, but also incentive the development and deployment of low carbon technologies. The two are not the same and at current levels it they later is not happening.
  - EU ETS costs are not the only climate change related costs that need to be considered. EU ETS costs are just a subset of the broader costs that result from climate policy, and that includes the impact of climate policy on energy choices and costs
  - Costs resulting from EU ETS must not be an unsustainable burden for those that need to undertake decarbonization. High prices must not be confused with high costs – we aim for high prices but for costs that industry can bear, and not threatened its viability
  - Who pays for the cost of decarbonisation? This implies that costs will need to be managed and partially socialized in the transition period**.** There needs to be a price to drive decarbonization, the issue will be how the cost is addressed. This must be done in an effective and efficient manner. There must be a serious reflection on the role of free allocation – that is whether accumulating money through compliance costs to recycle them through the different Funds available is the most efficient and targeted approach.
  - Effective and well tested measures need to be put in place to level the playing field, with international competition resulting from the additional costs of climate change policies, including EU ETS compliance.
  - Long term regulatory predictability is desirable and an important ask by all stakeholders – however, this does not need to lead to a lack of willingness to make changes when necessary.

4. Ensuring a price signal and addressing global competitiveness concerns

- To meet these conditions the EU ETS must be
  - **Adapted –** that is measures need to be put in place to meet the conditions outlined above
  - **Complemented** – the EU ETS must be accompanied by measures that will contribute to meeting the tests outlined above

4. Ensuring a price signal and addressing global competitiveness concerns

Measures to adapt the EU Emissions Trading Scheme

- **CDR:** Removals can play a critical role in achieving net zero and contributing to good carbon market functioning. Both domestic and international removals represent opportunities to bring market liquidity. Their integration in the next review of the EU ETS should be considered, recognising that currently CDRs are expensive, and something must be done to incentivise them. But they are necessary in a net zero or net negative world, provided that the cost is managed. This applies to international removals as well, am important element in the EU commitment to the Paris Agreement, including international climate finance.
- **Expansion: new sectors and geographical:** Expanding ETS is aligned with ETS's fundamental purpose: allowing carbon prices to drive emissions reductions to their most cost-effective locations. While the expansion of Emission Trading can add both supply and demand, the underlying commodity will nevertheless add additional liquidity to ETS and ensure good market functioning. While this will not impact costs, it is a necessary but not sufficient condition. The inclusion of CDRs in the EU ETS, including or maybe especially international ones is as aspect on the legislative agenda, and one that needs to have added urgency.
- **New sectors:** The EU ETS Directive currently opens the potential expansion **to municipal waste incineration and small installations**, while an **AgETS** is **under discussion**. Additionally, there is the possibility of the **merger** of **ETS-1 and ETS-2** into a unified system after 2031. The "ETS endgame," looming challenge justifies the need for discussions around opening emissions trading to more industries. Adding new sectors will not necessarily ease the management of the endgame nor will it solve the problem.
- **Linking:** Following the Swiss model, linking would connect Emissions Trading in the EU with other national carbon markets, especially the UK.
- **MSR Reform:** The concepts of good (from mitigation measures) and bad (from low economic activity) surplus should be recognized The upcoming revision of the MSR should provide a good opportunity to measure and address the right definition of market surplus and how to treat it. Otherwise, the MSR will continue to be a de facto instrument for lowering the cap, which is against its mandate and against the principles of the EU ETS as a market instrument.
- **Art 29a** of the EU ETS Directive addresses excessive price fluctuations. While the MSR is a volume-based instrument, Art 29a can contribute to generating price stability in the carbon market, which contributes to ensuring a good basis for taking decarbonization investment decisions. It has never been triggered but with the lowering of liquidity, we can expect that this will become an increasing problem.
- **Governance**: The automatic trigger rule-based governance is the approach currently used. Given that we expect a different environment in which the EU ETS will function, with lower liquidity, concerns about CBAM circumvention may militate for a revisiting of the governance to allow for a more rapid reaction to market conditions.

4. Ensuring a price signal and addressing global competitiveness concerns

Complementary Measures

- **Levelling the playing field for EU ETS costs:**: One of the elements outlined previously in the report, was to ensure a level playing field between the cost incurred by EU producers and international exporters to the EU, not exposed to the same carbon costs. The CBAM is the main instrument put forward for this purpose, gradually replacing free allocation and possibly increasing its current scope in the future. The role of free allocation itself merits more reflection, given the fact that money from the auction revenue is recycles through several Funds and the efficiency and efficacity of this approach need to be examined. In its current form the CBAM is not yet a tool fit for purpose, with a number of elements to be defined, and some essential components to be considered. Chief amongst them is a provision for exports, but there are others that will not be discussed as this is not the mani remit of this paper.
- **International credits:** access to international credits, especially CDRs, is a controversial issue, if they are seen as lowering the price of EUAs. Approaches can be imagined whereby they will play the role of allowing for increased ambition or lowering the costs of compliance rather than lower EUA prices.
- **Support for CapEx/OpEx:** This type of support may not lower the cost of compliance immediately but will lower the cost of decarbonization in line with the approach of socializing part of the decarbonizations costs overall, not necessarily those that are EU ETS related. They will also eventually contribute to lowering the cost of compliance give the fact that they will lower the carbon intensity of production and the scarcity faced by covered installations. In addition, complementary measures are generally seen as focusing on CapEx. However, we live in the real world and compete against those who see the need for intervention not only for CapEx but also for OpEx. The IRA was a good example of CapEx and OpEx support
    - Use of EU ETS revenues: Instruments like the **Innovation Fund and Modernisation Fund need to continue** and are key to supporting capital investments in low-carbon technologies, and improvement of energy efficiency systems in certain Member States.
    - **EU budget: Climate mainstreaming** through different EU programmes, i.e. Horizon Europe, CEF for Energy.
    - **Continue to provide incentives for private investments** in low carbon
- **CCfD:** Can support power systems and industrial decarbonisation by providing price stability and predictability. CCfDs can become a useful tailor-made instrument to support decarbonisation in an uncertain economic environment. Furthermore, the integration of CSUs into the EU ETS could be further facilitated by incorporating CCfDs, financial instruments that provide price stability and risk mitigation for low-carbon investments.

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Complementary Measures

- **Demand side measures:**
  - Foster demand for low-carbon products. While this also does not the impact of climate change policies related cost, it plays a critical role as it makes the economic case for the investment in and production of low carbon products. Under the monitoring, verification and reporting cycle, the EU ETS accounts for emissions at the production source. While this promotes the supply of low carbon products to customers, it does nothing to promote the demand for low carbon products by customers. In many cases, producers are not able to pass on the cost to consumers and this can require additional complementary measures. Measures to incentivise demand are needed and they can include public procurement and labelling of low carbon products.
  - Reducing the market price of low carbon products to increase their demand vs fossil based.
- **Social support:** To reduce the negative impacts on citizens and companies of stricter climate policies.
  - ETS2 could be hard on small companies, with no free allocation, and citizens. Complementary measures before the system kicks off in 2027 will be needed to achieve social acceptance.

Supporters of the initiative

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Disclaimer

The views expressed in this paper are attributable only to the authors and not to the supporters of this initiative or any stakeholders that have participated in the consultation process.

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