



Project Name: Future of Emissions Trading in the EU

Report N° 2: Role Emissions Trading in EU Climate Policy

Thursday December 12, 2024

Take aways

- This report focuses on the role the Emissions Trading System plays within the overall EU climate policy beyond carbon pricing. Considering the overall climate picture is important as Emissions Trading does not operate in isolation. Instead, it has become part of a complex policy mix. Can Emissions Trading alone be compatible with a net zero economy?
- Achieving climate neutrality by 2050 would require very high prices, and that is not viable from an economic nor a social point of view. If we allow the price signal to work, it takes a long time to deliver full decarbonisation unless it is very high, and that's very heavy on compliant entities. Free allocation has helped to temporarily alleviate the problem of carbon leakage up to a certain extent, but now is CBAM to take over.
- The reality is that the EU ETS did not and does not provide a full price signal - the ETS was never really allowed to deliver an entire price. There were complementary measures that muted the real price and the real cost of carbon for compliant entities. A full price signal coupled with effective carbon leakage risk mitigation is important to trigger low carbon investments and to incentivise a changing behaviour aligned with net zero goals.
- Emissions Trading needs to be adapted and complemented:
 - It needs to be adapted because there is an upcoming liquidity problem in the carbon market. To address this liquidity problem, we see Carbon Dioxide Removals (CDR), governance, international credits, geographic expansion, and new sectors linking as potential solution providers.
 - It needs to be complemented to provide an adequate price signal for investments, through temporary instruments such as CCfDs, ultimately the creation of a market for low carbon products, and a fit for competitiveness carbon leakage package, i.e. one that covers both domestic and international markets.
- Emissions trading in the EU faces fundamental challenges transcending mere system design. Its success requires careful calibration of both core adaptations and complementary measures. An adapted and complemented real price discovery should lead to an economic rational allocation of assets and 'good decarbonisation'.

1. Emissions Trading in the EU

Why was the EU ETS built, initial objectives and how it was presented

- **Kyoto protocol.** In 2005, the EU created the EU ETS to help meet its Kyoto Protocol commitments. The EU and its Member States agreed to reduce emissions of GHG gases listed in Annex A to the Kyoto Protocol by 8 % compared to 1990, between 2008 and 2012.
- **Cap and trade vs taxation.** To meet Kyoto Protocol objectives the EU had a number of possible pathways including cap-and-trade and taxation. The USA SO₂ trading programme provided the inspiration, and opting for the EU ETS was largely driven by political feasibility due to EU governance regarding taxes- it was the second-best solution, but the right choice. The cap provided quantity certainty up to a certain timeframe.
- **Being the full driver for decarbonisation** was the original promise. The EU ETS was "sold" as the main EU climate instrument, with an expectation that carbon pricing will drive decarbonisation for power and industry.
- **The EU ETS was also seen as delivering on a number of other important issues:**
 - Markets are supposed to drive decarbonisation in the most efficient and effective manner.
 - It would allow for a carbon price signal that will drive asset allocation and economic decision making and be an arbitrage between different energy sources.
 - It allows covered entities to hedge carbon risks by using financial instruments.
 - Putting a price on carbon could induce innovation in low carbon technologies, and investments. The concept of innovation was not an explicit objective of the EU ETS in its origin. Instead, it was included in the revision of the EU ETS Directive in 2009, as a way to accelerate the demonstration of the first commercial facilities and innovative renewable energy technologies, through the New Entrants Reserve (NER).
 - Provide for a start towards a global carbon price – which would also deal with competitiveness and carbon leakage
 - It would help position the EU international leadership and active role in climate diplomacy.

2. Evolution of Emissions Trading in the EU

2.1. Objective and evolution

- Initial objective and current objectives. Art 1 established the main objective of the EU ETS:
 - **Initial objective** (2003)
 - To promote reductions of GHG emissions in a **cost-effective** and **economically efficient** manner. The THE driver for decarbonization of the covered economic sectors
 - **Current objectives** (2023)
 - To promote reductions of GHG emissions in a **cost-effective** and **economically efficient** manner.
 - **Target to be increased** to contribute to the levels of reductions considered **scientifically necessary**, aligned to the **European Climate Law**.
 - Stricter reduction commitment if **international agreement** on climate change.
- The EU ETS has evolved in time, in terms of objectives, architecture and governance. There were Also, design flaws that needed to be addressed. Also EU climate policy in general evolved in sometimes unexpected ways, especially with respect to the international response to climate change.
- EU climate policy also changed and is not aligned with Art 2 of the UNFCCC which refers to controlling the concentration of GHG in the atmosphere and is not technologically neutral as the use of ETS as an instrument would normally indicate.
- Since its creation in **2005**, the EU ETS underwent changes in different trading periods. The changes focused on architecture, governance, addressing specific objectives such as carbon leakage protection, etc

2. Evolution of Emissions Trading in the EU

- **Phase 1** (2005-2007) – It was the EU ETS kick-off, as a learning phase. Grandfathering was the allocation method. The carbon price crashed in November 2007 due to the overallocation of EUAs, inaccurate data, and underreporting. In the absence of real emission accounting, data was based on estimates with a resulting supply exceeding demand. In addition, Phase 1 allowances could not be banked for use in Phase 2 ^[1].
- **Phase 2** (2008-2012) – Iceland, Liechtenstein and Norway joined the EU ETS in 2008. The economic recession resulted in reduced emissions, reducing the demand of permits while the supply stayed unchanged - a design flaw.
- Phase 2 was also marked by the revision of the EU ETS Directive in 2009, and the introduction of international credits, through the two mechanisms set up under the Kyoto Protocol: The Clean Development Mechanism (CDM) and Joint Implementation (JI).
- EU ETS was also impacted by the effect of overlapping policies on ETS price (such as national support schemes for renewables^[2]).
- Price dropped significantly due to a number of issues including the economic crisis, the introduction of international credits and design flaws, reaching a price of 10 EUR/tons CO₂eq. in March 2009.

Figure 2: EU ETS spot price evolution 2005-2024.



Source : [Trading Economics \(2024\)](#), EU Carbon Permits. November 11

2. Evolution of Emissions Trading in the EU

- **Phase 3 (2013-2020)** – This phase was marked by low prices most of the time,
 - (2013-2018): During the first period of Phase III carbon prices remained stable below 10 EUR/tonnes of CO₂ eq.
 - (2018 – 2020): Prices started to consolidate after 2018, following the revision of the EU ETS Directive.
- Measures were put in place to address design flaws and the emerging structural imbalance:
 - Backloading to slow surplus down
 - MSR to address structural and design problems
 - MIFID II EUAs were recognised as a financial instrument [2].
 - There were also other changes as the inclusion of new sectors, etc.
- **Phase 4 (2021-2030)** – The UK left the EU and UK installations were no longer part of the EU ETS from 2021, reducing market liquidity. The current phase of the EU ETS has been marked by a carbon price increase (reaching above 100 EUR/tCO₂ eq., in March 2023), the move to eliminate free allocation and the introduction of CBAM, and the addition of new sectors (i.e. maritime transport in 2024).

These regulatory changes lead to two separate sub-phases:

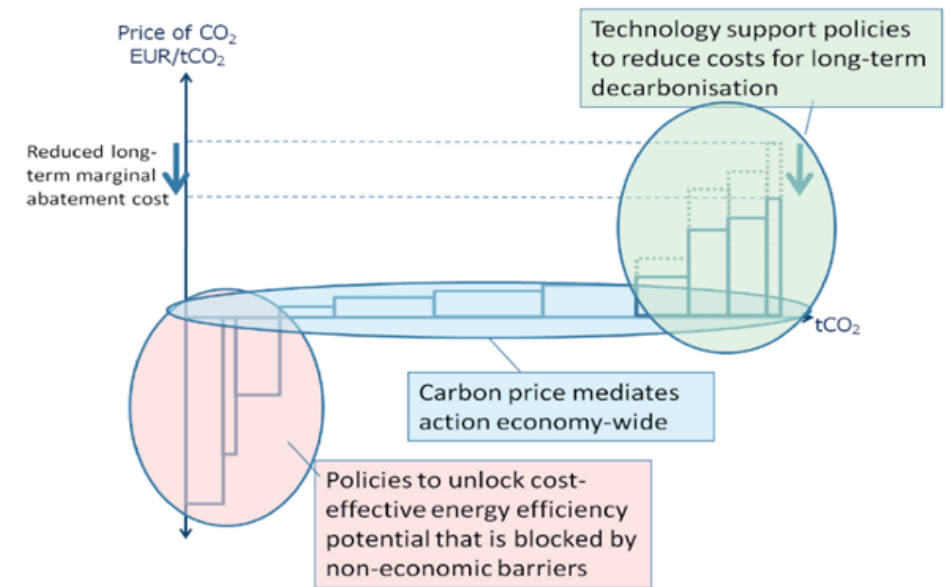
- (2021-2025): following the 2018 ETS Directive revision, with dedicated funding to support innovation & low carbon transition: Creation of the Innovation Fund & Modernisation Fund; a benchmark update for free allocation, and the introduction of dynamic allocation (2019).
 - (2026-2030): increased market stringency (EUA cancellation from MSR, reduced free allocations, CBAM, conditionality on free allocations for energy audits, increased focus on industrial decarbonisation).
- The different phases of the EU ETS show a move towards more stringent targets, higher prices and higher costs for covered installation, the use of MSR to further reduce the cap, and the increased acceptance and public admission that the EU ETS was, and will not be, the sole driver of decarbonization, but only one element as part of a wider toolbox that relies on policies complementary to carbon pricing.
 - What is essential is that the EU ETS did not provide a full price as it was hidden for price by complementary measures and in terms of cost by free allocation. Where we are is that prices are visibly increasing through measures put in place while costs increase by the elimination of free allocation.

2. Evolution of Emissions Trading in the EU

2.2. Reasons for introducing national or EU-wide complementary policies

- The EU could not show the full price need for decarbonization or the full cost as that was political and socially not possible. Complementary policies to drive decarbonization and drive it in parallel in all sectors were introduced, which also resulted in a muted the price signal.
- The launch of carbon pricing also created new interactions with energy policies [\[1\]](#).
- The full price for decarbonisation can only be understood and visible when complementary policies interacting with carbon pricing are identified.
- The OECD (2013, OCDE/IEA) model represents a policy mix of **energy-carbon pricing- and low carbon technology** policies.
 - Cheaper abatement options rely on energy policies (left side, in red)
 - Costlier abatement options rely on low carbon technologies (right side, in green).
 - Both energy policies and low carbon instruments are complemented by a carbon price (in the center, in blue).
- The same **policy mix** approach is used in the EU.
 - In the EU, the increase in renewable energy subsidies contributed to the increase in the share of renewable energy share [\[2\]](#).
 - The change in the share of renewables has been the main driver for the variation of GHG emissions in the power sector [\[3\]](#).
- The EU introduced technology support policies, such as the Innovation Fund to reduce the long-term cost of decarbonisation and to support the adoption of low carbon technologies.

Figure: Mix between carbon price, energy efficiency, and technology policies



Source: OECD/IEA, 2013, Figure 5: The core policy mix: a carbon price, energy efficiency and technology policies

[\[1\]](#) Hood, C. (2013) Managing interactions between carbon pricing and existing energy policies. Guidance for Policymakers. International Energy Agency. Insights series 2013. Pp.6.

[\[2\]](#) ECA (2022) Energy taxation, carbon pricing and energy subsidies. Review 01. Pp25.

[\[3\]](#) See [2024 State of the EU ETS Report](#), KPI 5.1: Drivers of variation in EU power sector GHG emissions (2012-2022). Pp. 13.

2. Evolution of Emissions Trading in the EU

- Measures complementing emissions trading were introduced as markets in the EU ETS can only operate freely up to a certain point, then they will encounter social acceptability issues and create competitive challenges. Politically, showing prices/cost of decarbonization in a visible manner was also deemed to be politically explosive. Complementary policies such as renewable energy targets have kept prices below what would be the market-driven price level as a result of the scarcity of the cap. These complementary measures introduced additional costs that are partially borne by covered entities and partially socialized.

2.2.1. Timing issues

- Carbon pricing alone takes time to push decarbonization and, particularly when price signals do not fully represent the value of scarcity imposed by regulation. Currently, the price signal from the EU ETS does not provide total clarity even in the context of the Climate Law beyond 2030 – the 2040 target has not yet been set. This timing issue creates uncertainty in the EU’s decarbonisation agenda which wants to totally decarbonize by 2050. Complementary measures are seen as necessary.
- Carbon price signals typically require a number of years to drive major technological transitions and meaningful changes in industries.
 - For instance, Innovation Fund demonstration phases can take up to 10 years of operation [1].
 - A second crucial timing challenge emerges from the misalignment between industrial investment cycles and EU ETS regulatory phases. Industrial sectors like steel, cement, and chemicals can operate on investment cycles of 20-25 years for major capital investments [2]
- In contrast, EU ETS phases have been relatively shorter: Phase 1 ran for 3 years (2005-2007), Phase 2 for 5 years (2008-2012), Phase 3 for 8 years (2013-2020), and the current Phase 4 spans 10 years (2021-2030).

2.2.2. Acceptability of price signal and cost challenges

Measures complementing the EU ETS were introduced, as the EU ETS can deliver a visible carbon price up to a certain point after which it becomes:

- **Socially and politically challenging:**
 - The last revision of the EU ETS Directive, and the initial blocking of ETS2 during the negotiation process [3] raised concerns about the potential impact of climate policy on vulnerable groups and provided a glimpse on the social dimension of the EU climate policy. Emissions Trading needs public support and a public license to operate.
 - Examples of social challenges resulting from a high visible price from EU ETS are the possible inclusion of agriculture in the EU ETS [4], and district heating (already covered by ETS1), with a direct impact on households [5].

Sources: (1) [European Commission \(2022\)](#). Innovation Fund - Best practices from previous Calls for Proposals. First call for large-scale projects and first call for small-scale projects launched in 2020. Pp 12.

(2) [IEA \(2020\)](#). Aligning investment and innovation in heavy industries to accelerate the transition to net-zero emissions, IEA, Paris.

[3] [Carbon Market Watch \(2022\)](#): A compromise too far: Why no deal at the European Parliament was better than a bad deal on EU’s carbon market – Updated. June 14.

[4] For a better understanding of AgETS, we encourage you to look at our first report under the “[Future of Emission Trading in the EU](#)” project.

[5] Strambo, C. et al (2022) The impact of the new EU Emissions Trading System on households. How can the Social Climate Fund support a just transition? Sokhom Environmental Institute. Pp6.

2. Evolution of Emissions Trading in the EU

- **Economically difficult:**
 - A full price signal implies higher prices that can be financially and economically burdensome for emission-intensive, trade-exposed covered entities. This risks undermining their industrial competitiveness and draining resources that could otherwise be invested in the energy transition.
 - In sectors at risk of carbon leakage, an excessively high carbon price could drive businesses to relocate outside the EU, resulting in job losses and increased social tensions.
 - The second dimension is the distinction between **price vs cost**. While the carbon cost of compliance is only one component of the investment decision, it is, at current prices, becoming an increasingly important one. Decisions on future investment are made based on the Net Present Value (NPV) driven by the total cost, not only carbon.
 - With free allocation, ETS-covered entities could combine, and were demanding, a high carbon price, but with a low compliance cost. With rapidly decreasing free allocation, compliance costs are increasing.
 - The European Commission's Fit for 55 Impact Assessment foresees a carbon price of 85 EUR/tonnes of CO₂ eq. in 2030. Other stakeholders are arguing that a higher price is needed to trigger investment in low carbon technologies. Recent analysis suggests that the announced 90% EU GHG target by 2040 could send EU carbon prices above the €400 mark [1].
 - Prices that work under the current circumstances can be high enough to deter certain activities but not high enough to incentivize what is need to develop and deploy new technologies.
- This debate highlights the difficulty in calibrating a price signal that effectively drives climate objectives while maintaining industrial competitiveness. This can be referred as the 'goldilocks price zone' - representing the narrow band where carbon prices are sufficiently high to drive certain decarbonization activities, but low not to trigger financial and competitiveness negative impacts.

2. Evolution of Emissions Trading in the EU

2.2.3. Concurrent decarbonisation of all sectors

- Through the ETS price, the aim was to move up the MAC curve and to facilitate a sequential decarbonisation that prioritises the least expensive abatement measures before progressing to more costly options.
- In contrast, by aiming to decarbonise all forms of emissions from all sectors at the same time, the EC is moving up the MAC curve horizontally and not vertically. The EU overlooks the main benefit of economic efficiency that the ETS presents, as it seeks to decarbonize higher MAC sectors, such as transport, at the same time as sectors with lower MAC.
- This calls for complementary climate policies to decarbonize both ETS covered sectors as well as some outside the EU ETS.
- The EU's decision to introduce multiple policies in parallel may indicate a general underlying distrust of EU institutions and maybe society at large in the market's ability to achieve the desired outcomes.

2.2.4. Industry decarbonisation and carbon leakage

- While the ETS price played a role in decarbonizing the power sector, currently well underway, the main drivers were subsidies. The current phase is focused on industrial decarbonization, and industry needs similar complementary measures.
- The issue of competitiveness was initially brushed aside through grandfathering of allocation, then moved to free allocation for trade-exposed energy-intensive industries, and is currently at the stage of CBAM
- As the EU ETS starts running out of available free allocation, concerns increase over competitiveness and carbon leakage. CBAM, was introduced, as a complementary policy but tied at the hip to the EU ETS, including through the price of permits to address competitiveness and carbon leakage for industry. It is currently seen as imperfect as:
 - Not all sectors exposed to carbon leakage are covered by CBAM.,
 - For the initially covered sectors, CBAM has not been tested yet and exports is not being addressed.
 - Announcements such as the Antwerp Declaration, and the Green Industrial Deal, show that industrial decarbonisation is a high priority in the EU political agenda and that complementary policies to Emissions Trading are needed. Achieving decarbonisation of hard-to-abate sectors, while guaranteeing their survival, is key to show Emissions Trading as a successful instrument.
 - Circumvention is a major concern, and the feeling is that the current CBAM set up does not fully address it
 - It is also becoming increasingly clear that if CBAM does not prove to be up to what is needed, or certain provisions may not work for CBAM, the answer cannot be “do nothing” but that additional measures may need to be considered, such as State Aid, within or outside the WTO context if necessary

2. Evolution of Emissions Trading in the EU

2.2.5. Revenues for decarbonisation

- Over the years the EU ETS has become an important source of revenues. For 2023-2030, revenues from auctioning ETS and ETS 2 allowance are projected to reach nearly EUR 400 billion [1]. The European Commission estimates that reaching the 2030 climate target will require additional annual investments of €360 billion on average [2].
- Emissions Trading revenues will not be sufficient to meet all investment needs. KOBIZE [3] estimates revenues from EU ETS auctions over the period 2031-2050 at EUR 1.5 trillion, representing only 11% of the total investment needs of the energy sector alone.
- The achievement of the EU decarbonisation agenda is part of a bigger picture. Additional funding to own Emissions Trading generated funding instruments (Innovation Fund, Modernisation Fund, SCF) could be needed. Climate mainstreaming (i.e. MFF) can play a role after 2030 to support the transition to net zero.
- There may be a need for policies to accompany the funds that ETS generates and provide additional and necessary funds for the transition.
- These funds cannot only address CAPEX, they also need to focus on OPEX, the same way that the US IRA is.

3. EU ETS landscape to 2030, and beyond

- As the EU ETS evolves to meet the challenges of decarbonization by mid-century, several key elements shape its surrounding landscape and will impact it. The period leading up to 2030 will require the system to adapt to unprecedented market and technological dynamics, while the path beyond will see even more fundamental shifts as the EU transitions to net zero and eventually net negative emissions economy. It is an instrument that works?
- This section explores the critical aspects shaping the EU ETS landscape, highlighting the emerging challenges and opportunities for achieving its overarching objectives, including:
 - **Net Zero Commitments (to Net Negative):** Meeting economy-wide net-zero emissions targets will require integrating innovative technologies like Carbon Dioxide Removal (CDR) and expanding the ETS's scope to cover other sectors.
 - **Market Tightening:** A shrinking emissions cap will lead to decreasing liquidity and heightened price volatility, reshaping market dynamics and compliance strategies.
 - **Competitive and International Pressures:** Global disparities in climate policy ambition and market mechanisms, coupled with the evolving implementation of the Carbon Border Adjustment Mechanism (CBAM), will influence the EU ETS's competitiveness and potential for international linkages.
 - **Societal Impacts:** Rising carbon prices and the deployment of new technologies like CCS and CDR will face public scrutiny as CBAM enables ETS1 cost passthrough to society (on top of ETS2), with social acceptability and equitable financial frameworks becoming pivotal concerns.

3. EU ETS landscape to 2030, and beyond

3.1 The push toward Net Zero and Net Negative emissions

The EU's ambition to be the first to do net zero and then net negative impacts the environment in which the EU ETS, as we currently know it, will function, should it be the instrument of choice to 2050. Europe's commitment to net-zero emissions by 2050 drives an unprecedented transformation of the structure and operation of the EU ETS, as well as for the economic sectors it governs. Some of the issues that need to be recognized and factored in the decision to continue using the EU ETS as one of the principal tools for decarbonization, as well as in the architecture and governance of the EU leading to and post 2030 are outlined below

3.1.1 A net zero world (and net negative)

- To reach net-zero economy-wide GHG emissions by 2050, the EU will need removals to balance out around 400 million tons CO₂ [1] equivalent of residual emissions in hard-to-abate sectors such as agriculture, aviation and some industries. Achieving net-zero and moving into net-negative emissions will require scaling up carbon dioxide removal (CDR) technologies. Options include engineered solutions like direct air capture (DACCS) and bioenergy with carbon capture and storage (BECCS), as well as nature-based (but less permanent) approaches such as afforestation and soil carbon sequestration.
- Using CDR in the ETS presents (not unresolvable) challenges which are bluntly not an ETS issue, but an issue either ideological (postponing mitigation) or related to the technical feasibility of CDRs (to establish robust accounting frameworks to verify removals, ensure permanence, and prevent double counting). Additionally, the high costs and uncertain scalability of many CDR technologies mean that dedicated support mechanisms will be required to kickstart their deployment.
- However, the inclusion of CDR in the ETS also raises questions about the ETS' overall structure and governance that are fair game for discussion. For example, should removals be treated as equivalent to avoided emissions, or should they be governed by separate targets and incentives? These decisions will have far-reaching implications and need to be addressed.
- One of the main issues has been and will continue to be, the fact that EU climate change policy is not technologically neutral and is not in line with Art 2 of the UNFCCC which focuses on the concentration of GHG in the atmosphere, and not how that is achieved.
- The governance of net zero and net negative will also pose challenges given the nature of CDRs and the need for new governance. This is also a fair matter for discussion. Who is responsible for net negative is a question that has barely been touched upon, but which is important, considering that we seem to be only fifteen years away from net zero in EU ETS.

[1] COM(2024) 62 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Pp. 14.

3. EU ETS landscape to 2030, and beyond

3.1.2 Decarbonizing new sectors

- As the EU moves closer to its net-zero ambitions, the scope of the EU ETS could expand to address emissions from a broader range of sectors. Historically, the system has focused on high-emitting industries and the power sector. However, as these sectors approach the limits of decarbonization, there is a policy choice for the inclusion of new sectors.
- This evolution raises critical questions about how to integrate these sectors into the existing ETS frameworks or whether entirely new mechanisms are required. Integrating these sectors with the current EU ETS or ETS 2—or managing them under a parallel framework—requires balancing market complexity with the need to address diverse abatement cost structures and behavioral factors. The integration of agriculture, where the obligation is put, and how to deal with carbon leakage and competitiveness, are also issues that are not only non-trivial, but rather thorny.

3. EU ETS landscape to 2030, and beyond

3.2 The tightening market and its implications

- The EU ETS's structure is built around a progressively tightening cap on total emissions, reflecting the need to align with net-zero trajectories. As the cap on emissions tightens, the EU ETS faces structural pressures that reshape its operational dynamics, with challenges such as reduced liquidity and heightened price volatility becoming more pronounced. These trends have far-reaching implications for compliance costs, market efficiency, and investment decisions

3.2.1 Decreasing liquidity

- As the EU ETS cap tightens in line with the bloc's climate targets, the supply of allowances will shrink dramatically. While this reduction is consistent with the EU's targets, it introduces significant market functioning challenges. One of the most pressing issues is the decline in market liquidity.
- Liquidity is a critical feature of any trading system, as it ensures that participants can buy and sell allowances efficiently and at stable prices - if there is not good market function there is not good price discovery - and then we would all be better off seeking another driver for decarbonization. In a low-liquidity environment, trading volumes decrease, bid-ask spreads widen, and price discovery becomes less effective. These issues can lead to increased transaction costs and reduced confidence among market participants. Furthermore, declining liquidity may discourage the involvement of financial intermediaries, which have traditionally played a key role in ensuring the smooth functioning of the EU ETS, further impacting liquidity in a vicious circle.
- As we approach net zero, the scarcity of allowances will likely exacerbate these trends. Compliance entities may engage in hoarding behavior, further reducing the pool of available allowances and creating a feedback loop of declining liquidity. Addressing these dynamics will require careful market design, as well as mechanisms to support trading activity in a constrained environment.
- Therefore, addressing the issue of liquidity should be a top concern for policy makers as we approach zero allowances in 2040 - and actually the trading community will factor that in much earlier than 2040.

3.2.2 Expected price volatility

- The combination of reduced liquidity and increasing scarcity of allowances creates fertile ground for price volatility within the EU ETS. Volatility poses significant risks to the system's effectiveness, as it undermines the ability of carbon prices to serve as a stable and predictable signal for investment and will also affect the ability for the EU ETS to be used as a hedging instrument. For example, sudden spikes in allowance prices can create financial uncertainty for businesses, delaying or deterring investments in low-carbon technologies. Conversely, sharp price drops can reduce the incentive for emissions reductions, threatening the integrity of the ETS.
- Price volatility is likely to increase as the market enters its final stages toward net zero, particularly as the supply of allowances becomes increasingly constrained. External shocks—such as economic recessions, energy crises, or technological disruptions—could amplify these fluctuations.

3. EU ETS landscape to 2030 and beyond

3.3 Balancing carbon prices to drive innovation and address competitiveness

The carbon price signal is central to the EU ETS's ability to steer investment and innovation toward decarbonization. However, achieving the “good enough” price is fraught with challenges, as prices that are too high or too low can undermine the system's effectiveness and/or economic viability. This section discusses the dual challenge of incentivizing transformative technologies and operational changes, while safeguarding the competitiveness of EU industries in a global marketplace. It explores the nuances of maintaining a balanced carbon price signal that aligns with Europe's climate ambitions and economic realities, by avoiding an uncompetitive gap with global competitors in effective, net carbon costs borne by EU producers.

3.3.1 Challenges of high carbon prices

High carbon prices are often seen as a strong signal for accelerating emissions reductions. However, they can introduce economic and social challenges or undermine their effectiveness. High enough prices can disproportionately burden energy-intensive industries, create uncertainty for businesses, and provoke consumer backlash. Understanding these risks is critical to designing a pricing mechanism that encourages innovation without jeopardizing industrial viability or public acceptance. A high visible carbon price can be politically explosive and is therefore to be avoided if other means are available.

- **Economic pressures on industries**

High compliance costs can reduce profitability and hence global competitiveness, discourage investment, and lead to carbon leakage. For the EU, this risk is particularly pronounced in globally traded sectors where competitiveness hinges on narrow cost margins.

- **Investment barriers**

Contrary to expectations, high carbon prices and costs can disincentivize investment in breakthrough technologies. Industries facing financial strain from compliance costs may lack the capital to invest in costly decarbonization solutions like hydrogen-based processes, Carbon Capture and Storage (CCS), or electrification. This counterproductive outcome underscores the importance of financial and policy support, and addressing carbon leakage mechanism, to complement carbon pricing.

- **Consumer price inflation**

High carbon prices can cascade through supply chains, ultimately impacting consumer goods and services. This challenge emphasizes the need for measures to protect vulnerable consumers while maintaining public support for the ETS. The fact that there will be a consumer price impact is unavoidable, as the cost of the transition will have to be paid.

3. EU ETS landscape to 2030 and beyond

3.3.2 Challenges of low carbon prices

A low carbon price may avoid the immediate economic burdens associated with high prices, but it fails to provide the necessary incentives for long-term decarbonization. Low prices send weak signals to market participants, resulting in delayed or insufficient investment in emissions reductions. Weak price signals undermine the ETS's effectiveness, particularly in sectors where transformative technologies are critical but expensive to deploy. Examining the risks of low carbon prices highlights the need for a balanced approach to ensure the ETS remains a robust driver of emissions reductions.

- **Failure to incentivize innovation**

Many transformative technologies, such as direct air capture, low-carbon fuels, and green hydrogen, require significant upfront investments and operate with high operational costs. If the carbon price does not provide a sufficient return on investment for these solutions, their adoption will remain limited. This stagnation could hinder Europe's progress toward net-zero emissions, particularly in sectors like heavy industry and aviation.

- **Lack of long-term certainty:**

Investors and companies require stable and predictable carbon prices, coupled with effective carbon leakage risk mitigation, to justify long-term commitments to decarbonization projects. A persistently low price undermines confidence in the ETS's ability to provide a price signal for decarbonisation, to enforce stricter emissions reductions in the future, resulting in deferred investment.

- **Over-reliance on other measures:**

A weak carbon price necessitates greater reliance on subsidies, regulations, and mandates to achieve emissions reductions. While these measures can complement carbon pricing, over-reliance can lead to inefficiencies, fragmented policies, and increased costs for governments and taxpayers.

3. EU ETS landscape to 2030, and beyond

3.4 Navigating competitive and international pressures

The global nature of climate action introduces external pressures on the EU ETS, as it operates in a world of diverse and often fragmented climate policies, but above all, asymmetrical climate ambition. The EU has chosen to be a leader and inspiration to others and that has clearly created competitive stress and the associated risk of carbon leakage, in particular in the context of several other existing drivers of EU competitive challenges (low growth, demographics, high energy & labour costs, regulatory burden,...).

3.4.1 Competitive stress and carbon leakage risks

- As the scarcity in the EU ETS becomes increasingly stringent, industries within the EU face heightened competitive pressures, particularly from countries with less ambitious climate policies. This disparity creates the risk of carbon leakage, where businesses shift production to regions with lower or no carbon costs. Such relocations not only undermine the EU's environmental goals (as well as global goals) but also result in economic losses, including jobs lost, and rapidly and visibly lower industrial presence in the EU.
- The EU has sought to address these risks through mechanisms like free allocations and the Carbon Border Adjustment Mechanism (CBAM). Free allowances provide protection by reducing compliance costs, but it is fully dependent on EUAs brought to the market, that is the repartition between auction and free allocation. However, as the EU phases out free allocations, the reliance on CBAM has to grow. CBAM is designed to impose equivalent carbon costs on imports, aiming to level the playing field for domestic producers. Yet its implementation faces significant challenges, in terms of technical complexity (calculating the embedded carbon in imports and verifying data across international supply chains requires robust methodologies and significant administrative capacity); international acceptance (CBAM has faced resistance from trading partners who view it as a protectionist measure), as well as the lack of export provisions, currently absent and opposed by the EC and concerns on pushing the carbon leakage risk downstream into the value chain.
- As global climate policies evolve, competitive pressures will remain dynamic and unpredictable. Other jurisdictions also highlight divergent approaches to decarbonization. The EU will need to continuously adapt its ETS framework to navigate these shifting dynamics while maintaining its leadership role in global climate governance. In the face of IRA which is purely incentives, is the EU ETS and current complementary instruments (CBAM, funds, etc) a viable instrument, or does it need to be further complemented and adapted.

3. EU ETS landscape to 2030, and beyond

3.4.2 International developments and linking ETSs

- The EU ETS operates within a broader global context, where international developments and market linkages are increasingly influencing its design and functionality. Article 1 of the EU ETS Directive explicitly acknowledges the international dimension, emphasizing that the EU ETS must account for global conditions when setting its targets and structure. This principle reflects the recognition that climate change is a global challenge, and solutions must align with international frameworks and realities.
- Historically, the international dimension has played a limited role in shaping the EU ETS. To date, the system has primarily focused on internal EU targets and sectoral dynamics without substantial consideration of international market conditions. However, as the EU ETS evolves and the scarcity of allowances intensifies, the global context will become increasingly relevant. Stricter caps and higher compliance costs in the EU amplify the need to factor in external pressures, including the policies of trading partners and the competitiveness of EU industries in a global market.
- While other Emissions Trading Systems are emerging worldwide, they often differ significantly in terms of scope, ambition, and coverage. These discrepancies make it challenging to compare the level of effort required from EU installations with those under other systems. The relative stringency of EU climate policies and the EU ETS imposes higher costs on EU-based installations, creating potential competitive imbalances.
- The introduction of the Carbon Border Adjustment Mechanism (CBAM) is a direct response to these challenges, aiming to equalize costs between domestic industries and imports from regions with less ambitious climate policies. However, it could also spur alternative market approaches from other countries, such as developing domestic carbon pricing systems or alternative climate measures, potentially influencing the feasibility and attractiveness of linking different ETS frameworks.
- Linking Emissions Trading Systems across borders has long been discussed to enhance market liquidity, stabilize carbon prices, and reduce risks of carbon leakage. While limited progress has been made, global linkages have yet to materialize on a meaningful scale. Moving forward, the emergence of new ETS frameworks could open new opportunities for linking. However, differences in design, ambition, and compliance mechanisms will continue to be significant barriers.
- Efforts from international organizations such as the International Monetary Fund (IMF) and the World Trade Organization (WTO) are increasingly relevant in this space. Their leadership in exploring pathways to an international carbon market is gaining traction. These initiatives often incorporate principles of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), recognizing that not all countries can bear the same costs and burdens in addressing climate change. Such frameworks may help align global efforts and provide a more consistent basis for linking systems while ensuring fairness across different economic contexts.
- As the EU ETS evolves, its interactions with the carbon market globally will play a critical role in shaping its success. Whether through enhanced linkages, responses to international competition, or contributions to global frameworks, the system must navigate these pressures while maintaining its core goals of decarbonization and economic resilience.

3. EU ETS landscape to 2030, and beyond

3.5 Social acceptability and public support

As the EU ETS becomes more stringent and its influence extends to new sectors and technologies, the system's long-term success will increasingly depend on public support and social acceptance. This dimension of the ETS landscape underscores the importance of addressing societal concerns, ensuring fairness, and maintaining trust in the mechanisms driving decarbonization.

3.5.1 Social acceptability of emerging technologies

- Technologies like Carbon Capture and Storage (CCS) and Carbon Dioxide Removal (CDR) are poised to become critical components of the EU ETS as Europe strives to meet its net-zero and net-negative emissions targets. However, their widespread implementation faces hurdles tied to public skepticism. Many people question the practicality, safety, and environmental impact of these technologies, alongside concerns about their high costs and long-term viability.
- The future landscape of the EU ETS will increasingly reflect these tensions. Public debate around CCS and CDR may intensify as pilot projects scale up, drawing attention to issues such as the environmental risks of carbon storage, potential land use conflicts, and the financial burden on taxpayers or industries. The visibility of these projects and their proximity to communities may also influence acceptance. If skepticism persists, it could slow the adoption of these technologies, creating bottlenecks in sectors that rely on them to achieve emission reductions.
- As public discourse around CCS and CDR continues, the role of societal attitudes in shaping technology adoption within the ETS framework will become more pronounced. A lack of broad acceptance could delay critical advancements, complicating efforts to reach the ambitious decarbonization targets set for the EU ETS.
- Achieving the ambition (other than through deindustrialization) will require a number of technological and infrastructure projects that will come at a cost. An ETS can help to drive project selection at lowest societal cost. With an absent ETS but with the same ambition, those costs and hence societal pressures will still be there – and possibly even more pronounced, as the solution set may be less efficient.

3. EU ETS landscape to 2030, and beyond

3.5.2 State aid rules and economic equity

- The future trajectory of the EU ETS will be deeply intertwined with the financial challenges faced by industries adapting to a carbon-constrained economy. State aid rules, which govern the support that member states can provide to industries, will increasingly intersect with the ETS as industries with high decarbonization costs navigate stricter emissions caps and higher carbon prices.
- The evolution of the ETS will expose disparities across sectors and regions, particularly in areas where high-emission industries dominate local economies. These regions may face significant economic challenges, such as job losses or reduced industrial activity, highlighting the need for targeted support. State aid frameworks will become critical in managing these disparities, but their effectiveness will depend on how well they balance regional economic realities with the broader objectives of the ETS and to what extent they impact the functioning of the EU single market.
- Economic equity will remain a key theme as ETS revenues grow and are distributed across member states. Questions around how these funds are allocated, whether they address vulnerabilities or reinforce existing inequalities, and how they align with the broader ETS goals will shape public perceptions of fairness. The design of state aid frameworks and the degree to which they integrate with ETS revenues will play an essential role in addressing the social and economic impacts of the evolving carbon market.

3. EU ETS landscape to 2030, and beyond

3.5.3 Social acceptability of emerging technologies

- As the EU ETS tightens caps and extends to new sectors, allowance prices are expected to rise, directly impacting energy costs and consumer goods, particularly in CBAM sectors. Public acceptance of these higher prices is a critical factor in maintaining political and societal support for the ETS. Without careful management, the social backlash to rising costs could derail climate policies concerns, with not the ETS but the stringency of the cap that drives prices.
- Higher prices for carbon allowances are designed to send a strong market signal, incentivizing industries to adopt cleaner technologies and reduce emissions. However, without a well designed CBAM, these costs often trickle down to consumers, increasing electricity bills, fuel prices, and the cost of goods. Low-income households are particularly vulnerable, as they spend a larger share of their income on energy and essential goods. Perceptions of unfairness, especially if the burden of rising costs appears to fall disproportionately on certain groups, can erode public support.
- To mitigate these risks, governments and policymakers must implement measures to cushion the impact of higher ETS-driven costs. Social safety nets, such as energy subsidies for vulnerable populations or compensation mechanisms funded by ETS revenues, can help ease the transition. Transparent communication is equally important. Explaining why costs are rising, how revenues are being used to fund climate solutions, and what benefits the public can expect in terms of cleaner air, better infrastructure, and long-term economic stability can help build public acceptance.
- Ultimately, public support hinges on the perception that the costs of decarbonization are being shared equitably and that tangible benefits outweigh the financial sacrifices. Tangible benefits depend much more on what is happening in the rest of the world than on what happens in the EU, while the financial sacrifices can be perceived to be concentrated in (or even limited to) the EU. By addressing these concerns, the EU can strengthen the social foundation of the ETS and ensure its continued effectiveness in driving climate action.

4. Role of Emissions Trading in the EU

- The elements discussed in Chapter 3 will raise a number of issues with regard to a EU ETS fit for purpose beyond 2030. Relevant questions include:
 - What kind of price signal do we expect post 2035?
 - Can it provide a good price discovery with low liquidity? Is it still a viable instrument?
 - How will it function in a net negative world?
 - Can its life be extended by adding liquidity (new sectors)?
 - Is a different governance model needed?
 - What other instruments are needed leading to post-2030?
 - Are Carbon Contracts for Differences (CCfDs) - new funding instruments, needed?
 - Is ETS1, as is, a viable instrument post 2030?
 - What changes are required?
- Looking at these questions, it is clear that **Emissions Trading may not be sufficient on its own to drive remaining decarbonisation efforts post-2035**. However, it is here to stay as a central piece in the toolbox. The EU has invested too much into this approach and it is unlikely that it would not consider it post 2039 when we run out of carbon permits.

4. Role of Emissions Trading in the EU

- To be fit for purpose towards net zero, Emissions Trading needs to look at issues that need to be addressed and measures put in place to address them. The measures that will need to be considered to make the EU ETS fit for purpose for conditions described above in Section 3, will fall into two categories:
 - **Measures/policies to adapt the EU ETS to a new environment:** These will be changes to the EU ETS, such as governance and architecture, and can address issues such as:
 - Carbon market liquidity,
 - Functioning in a net zero world,
 - Functioning in a net negative,
 - Market behaviour such as volatility and addressing different types of market surplus
 - **Complementary measures:** Those measures existing outside of the direct scope of Emissions Trading but strongly interacting with it. The introduction of complementary measures may address issues such as
 - Need for a high price for investments
 - Competitiveness and carbon leakage

4.1 Measures/policies to adapt the EU ETS to a new environment

4.1.1. Addressing liquidity.

There are a number of measures that can and should be considered in order to address the upcoming issue of liquidity in the EU ETS as we approach 2039, but likely becoming an issue earlier, in the mid 30s.

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.

- The inclusion of carbon removals in the EU ETS could bring additional permits and extend Emissions Trading 's operational lifetime beyond the 2040s. CDRs are especially relevant to prevent liquidity shortages, thus reducing market volatility and rigidity. In addition, beyond 2050 residual emissions will remain in the EU, and CDR will be necessary.
- The EU currently lacks clear demand signals for investments in carbon removals. To attract removal investments, the EU needs to establish strong market signals. Here Emissions Trading can play a role to incentivise the demand of CDRs. The inclusion of CDRs would require the establishment of good quality standards and of the appropriate governance framework.

4. Role of Emissions Trading in the EU

- **International credits:** Linking carbon markets could generate economies of scale and lower the carbon cost for covered entities and increase ambition. Critics point out that limited progress on building international carbon markets contradicts the Paris Agreement's spirit [1].
 - The current context differs significantly from the Kyoto Protocol's CDM and JI, in that these are corresponding adjustments to Article 6 and many fundamental differences - with many countries now having NDCs in place.
 - Article 6 was the last outstanding component of the Paris Agreement. With the approval of important, high-level norms to support the Paris Agreement Crediting Mechanism, negotiators have already succeeded in securing a satisfactory agreement on UN carbon markets through decisions on Art 6.2. and Art 6.4.
 - Article 6 was completed and can now move forward. It is significant, and totally appropriate, that removal credits under Art 6.4 were in pole position in Art 6 discussions and the first one to be gavelled, as they are likely to be the only credits that will count when the chips are down – that is, at the time when we reach to net zero.
 - Any consideration of international credits in the EU ETS will have to be addressed realistically with respect to the type of credits (clearly removals will have a head start), quality, quantity, price and geographic region. Paying competitors to modernize their industry is unlikely to be seriously considered by EU institutions and supported by EU industry and other stakeholders.
- **Geographical expansion:** Expanding ETS coverage to EU candidate countries, 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 the EU ETS.
 - Benefits of geographical expansion include increased international alignment with EU climate policies, and opportunities for exporting green technologies. Key concerns include the lack of data, the inexperience with carbon markets, the repercussions of agriculture, the geopolitical uncertainty, and social impacts. The impact of including new jurisdictions in EU ETS will depend heavily on how these factors play out [2].
- **New sectors:** Similar to geographical expansion, sectoral expansion into new sectors can bring liquidity to the system. 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 possible merger of ETS-1 and ETS-2 into a unified system after 2031. This would increase market size while maintaining the EU regulatory framework. The "ETS endgame," looming challenge justifies the need for discussions around opening emissions trading to more industries. However, adding new sectors will not necessarily ease the management of the endgame nor will it solve the problem. Expanding to additional sectors, will more likely be a stopgap for the EU cap-and trade system as we know it.

4. Role of Emissions Trading in the EU

- **Linking:** Following the Swiss model, linking would connect Emissions Trading in the EU with other national carbon markets. Potential candidates are Turkey and the UK due to their pre-existing economic links to the EU, and in the UK's case, previous participation in EU ETS.
 - The EU should focus its efforts on linking with the UK, which has political barriers but otherwise is possible and desired by many stakeholders. The timeline is impossible to predict, it is all politics. For other countries, Turkey may present an opportunity to consider. However, Turkey will see advantages in linking, but there are barriers related to price levels that will be difficult to bridge, except maybe through a temporary one-way link. [1]

4. Role of Emissions Trading in the EU

4.1.2. Addressing net zero/net negative targets

- **CDRs:** In addition to bringing liquidity to Emissions Trading, CDRs are key elements for reaching net zero and then net negative. Given the significant hard to abate emissions (400 million tonnes overall in the EU), CDRs in the EU ETS are a necessary condition to reach net zero and after that the net negative in the form that the current EU Climate Law envisages. However, CDRs remain costly [1], with current technological methods for DAC estimated between €600-1,000 per tonne of CO₂[2] removed. For BECCS, current costs are estimated at €172-315 per tonne of CO₂. These technologies will not become viable unless complementary measures, such as targeted subsidy programs and certification frameworks, are put in place.
- **International CDR:** In addition to bringing liquidity to the carbon market, international credits could serve as a mechanism to integrate removals from other jurisdictions and facilitate the development of a negative emissions market within the EU ETS. When net zero was included in the objectives of the Paris Agreement it was clear that Art 6 was envisaged to make that possible as it was well understood that emissions and removals were not geographically in the same place. The EU should reconsider its go-at-it-alone approach, as international cooperation through linking could reduce overall costs, allow greater flexibility in the geographical allocation of removals, and make net zero possible - it is becoming clear that international CDRs will be a necessary condition for the EU to address residual emissions and reach net-zero.
- The implementation timeline for CDR integration into the EU ETS has been defined. This begins with CRCF implementation in late 2024, followed by a Commission assessment of CDR integration by 2026, with the earliest possible integration timeline set for 2030. International cooperation presents significant opportunities through Article 6 of the Paris Agreement, potentially reducing the overall costs of achieving net-zero emissions by 20-30% compared to purely domestic efforts. However, the EU currently maintains a strong focus on domestic emissions, evidenced by its decision not to accept international credits.
- **Integration challenges and considerations:** Looking ahead, the European Commission must report on whether and how to cover removals under emissions trading. This integration requires careful consideration of various policy options to ensure effective implementation without compromising the integrity of the EU's climate policy, particularly given the challenges of allowance availability in the coming decades. One of the main challenges in integrating CDR into the EU ETS is the varying levels of permanence among CDR technologies. More permanent CDR is more significant from a climate repair perspective, but establishing equivalence between different CDR methods is crucial for achieving the fungibility of carbon assets under the EU ETS. This fungibility is essential for promoting a liquid market that can provide sufficient funds for CDR deployment.

4. Role of Emissions Trading in the EU

4.1.3. Addressing market behaviour

Market behaviour includes issues such as price volatility and recognition of different origins of EU ETS surplus. These are issues that will need to be addressed. A distinction must be made between the "good surplus" of EUAs from actual reductions versus the "bad surplus" of EUAs.

- A good surplus of EUAs is one that is generated from abatement efforts (endogenous developments) which clearly need to be rewarded. Eliminating such surplus through mechanisms such as MSR cancellation is unjustifiable and goes against the very principle of the EU ETS .
- A bad surplus of EUAs is 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". While in some ways understandable from an EU perspective, the insistence on such terms in the end hurt the very existence of the Kyoto Protocol.
- The concepts of good and bad surplus should not be mixed, and surplus is not necessarily a good indicator of the health of Emission Trading [1]. The "good surplus" resulting from mitigation is fundamental to the EU ETS concept. If there are no incentives to reduce then the whole philosophy of incentives to reduce as it is cheaper and easier for some to reduce more and sell to those for whom it is more expensive and cumbersome, falls apart. The upcoming revision of the MSR should provide a good opportunity to address the right definition of market surplus.
- Volatility will increase as we approach the mid-30s under the current EU ETS conditions and may cause real disruptions in the market. It will be driven by the scarcity, liquidity and the approach of net zero, which is desirable, but no one has ever dealt with such a situation.

4. Role of Emissions Trading in the EU

- This may lead to a need to look at the governance of the EU ETS which so far has been done through a normal co-decision process, which is long and cumbersome and is not well adapted to respond to the functioning of a market that is purely regulatory in nature. The EU ETS can have two fundamental approaches:
 - **So called "rule based"**: this is based on rules such as MSR claw back, which relies on automatic quantitative triggers, which no human intervention. To change the parameters of these rules in the EU needs to go through a complicated and time-consuming co-decision process. Can the current rule-based governance handle an environment marked by an increase in competitiveness, decreasing liquidity and price volatility, as well as the introduction of CDRs, which as outlined above, are a necessary condition for net-zero ?
 - **Alternative governance**: more flexible governance, more asking to what financial market worldwide use, and where there are guidelines but the final decision rests with human intervention and judgement. This is not a matter of institutional arrangements, especially given the allergy to new institutions when a Carbon Central Bank is mentioned. What needs to be ensured is that the functions that are needed can be fulfilled. The institutional arrangements can only be consequence, rather than the objective. Those who argue against examining such arrangements should examine their confidence in the strength of EU institutions and the public trust in EU institutions.
- In the end, achieving cost-effectiveness and economic efficiency will require a mixed approach balance between a strong/soft rule-based system and a strong/soft market management approach.

4. Role of Emissions Trading in the EU

4.2. Complementary measures

- The EU ETS has so far not functioned on its own. Other measures including subsidies were put in place to deal with some of the issues discussed above: timing of decarbonization, parallel sectoral decarbonization, price of EUAs that for political and social reasons, as well as economic realities outlined above could not give the full signal for decarbonization. Complementary measures were necessary then and are even more necessary now that competitiveness and carbon leakage have become critical. Complementary measures to emissions trading are needed to:
 - 4.2.1 Support the price signal for investments/hedging carbon price risk and long-term uncertainty,
 - 4.2.2 Address competitiveness/ carbon leakage issues and
 - 4.2.3 Foster demand for low-carbon products
- Ultimately, the balance between carbon pricing signal and (the funds needed for) complementary measures is a political choice.
 - There will need to be significant financial outlays and the question that needs to be squarely faced is “who pays the bill”.
 - In some countries with a larger industrial base it has been largely the consumer, with industry in many cases shielded.
- More broadly, governments would need to consider a portfolio of different policy instruments and its macroeconomic and other impacts: an emphasis on subsidies for low-carbon generation investments reduces the need for carbon price surges and results in lower inflation, while production subsidies boost investment and Gross Domestic Product (GDP) with little impact on inflation⁽¹⁾.
- Put more simply, the mere choice of relying more on complementary measures implicitly means more of the costs socialized rather than borne by EU ETS covered entities who might see a reduction in carbon prices.
- It is clear that there are choices to be made between consumption and investment, and this is also a political decision.
- One matter that needs to be clearly stated is that complementary measures are generally seen as focusing on CapEx. However, we live in the real world and compete against those that see the need for intervention not only for CapEx but also for OpEx. The EU needs to accept this reality.
- As ERCST, the talk about increasing state intervention is not our first stop. In state driven transformation, we need to live with the reality of state intervention and not in an academic world.

4. Role of Emissions Trading in the EU

4.2.1 Right price signal for investments/ hedging long term uncertainty

- **Derisking investments through Contracts for Difference (CfDs) & Carbon Contracts for Difference (CCfDs)**

- CfDs and CCfDs can respectively support power system and industrial decarbonisation by providing price stability and predictability.
- CfDs are designed to encourage investment in low-carbon power generation by mitigating the risks associated with volatile electricity prices:
 - By guaranteeing a certain price for low-carbon electricity generators, they essentially provide a stable, long-term revenue stream for renewable energy projects, enhancing their bankability and attractiveness for investors to fund them. The guaranteed long-term revenue stream enables developers to secure financing at rates close to that of government bonds, fostering the realisation of ambitious low-carbon power generation targets.
 - In two-sided CfD schemes that are bound to become the key complementary instrument to support low carbon generation, an agreed-upon "strike price" is established between the electricity producer and a counterparty, often a government or utility. This strike price represents the long-term average price at which electricity is expected to be sold. The CfD functions as a hedge, where payments flow between the producer and the counterparty based on the difference between a reference price index (e.g. day-ahead market price) and the strike price.
 - Two-sided CfDs have already been used in more than 200 auctions across ten European countries, namely Denmark, France, Greece, Hungary, Ireland, Italy, Poland, Portugal, Spain, and the UK⁽¹⁾.
 - CfDs' role to remain significant as we move towards a zero variable cost power system which makes for an uncomfortable setting for investors who would have to recover investments in very few scarcity events.
- CCfDs can in a similar manner support industrial decarbonisation by providing carbon price stability and predictability, enhancing investor confidence and lowering discount rates for investments in emissions reduction, particularly in capital-intensive breakthrough technologies like hydrogen production or carbon capture and storage.
- Going into 2030s, there needs to be a discussion on how to use emissions trading revenues to derisk investments in strategic technologies like infrastructure that could have a multiplier effect.

4. Role of Emissions Trading in the EU

- **Development of EU state aid and best practice guidelines for the design of CfD and CCfD schemes by MSs could:**
 - Enable a faster “clearance” and therefore implementation of such national schemes notified to the European Commission.
 - Serve as common guiding/best practice principles for their design, that to the extent possible do not create market distortions or over-subsidisation.
 - Ease competition to attract investments among Member States that have schemes of diverse designs (e.g. countries with CfDs with payouts during zero or negative market prices will attract low-carbon power generation project developers from countries that have a 0-hour tolerance for zero or negative prices).
- **Envisage EU-wide or regional CfD and CCfD schemes in the future:**
 - When it comes to the decarbonisation of the electricity sector, the recent EU Electricity Market Design reform put an emphasis on two-sided CfD schemes, which imply a stronger role for national governments in the development of their national energy systems.
 - Given the interconnectivity of the EU power system, this emphasis on national incentives and planning requires at minimum coordination at the EU level of investment decisions if we are to not lose sight of the aspiration of having an efficient and resilient power system at the European level.
 - EU-wide or regional CfD (and CCfD) schemes could be envisaged in the future that would incentivize production in hours where there is most value for the system, as well as optimal siting of facilities at the EU level while avoiding competition to attract investments among MSs through schemes of diverse designs.
 - There is a role for the EU in avoiding a race for subsidies and the emergence of an unlevel playing field reflecting national administrative and financial capabilities across MSs.

4. Role of Emissions Trading in the EU

4.2.2 Competitiveness and carbon leakage

- There are significant changes on how to address the risk of carbon leakage – at least that component of competitiveness arising from a carbon price that has risen from 5 to 100 Euros, and now fluctuates around 70.
- There are changes to the free allocation of allowances, starting with phasing out this approach that has been in place for almost 20 years and was very much the basis for avoiding carbon leakage. The new rules include new benchmarks, conditionalities, adjustment to production levels.
- What is more revolutionary is the gradual move from free allocation to CBAM. It poses a number of problems:
 - Cost of buying allowances which was not there so far, and at 70 Euros it is a significant outlay,
 - CBAM is an untested system,
 - Imperfections in the CBAM that will need to be addressed - and it is unclear if the political will and capital is there, especially in the face of increasing attacks to what is perceived by developing countries as broadly unilateral trade measures and the extraterritorial application of EU legislation. Some of the issues that will need to be addressed in CBAM are outlined below.

4. Role of Emissions Trading in the EU

- In order to have a **CBAM fit for purpose**:
 - Export provisions: The absence of export provisions in CBAM creates significant vulnerability for EU industry. As free allocation phases out, EU exporters face mounting competitive pressures in global markets without corresponding protection. This is especially critical for sectors requiring high-capacity utilisation rates for economic viability, such as steel and fertilizer production, where loss of export markets could threaten operational sustainability. Solution for addressing exports that have been provided but so far the political will or desire to address has not yet been present. Maybe the timing is not yet right.
 - Value chain: Blindness to the complexities of global supply chains may lead to systemic incoherences and market distortions. Similarly, its future operational success depends on its ability to account for both direct and indirect emissions, recognising that at times such information may not be as accessible to compliant EU entities by their suppliers.
 - New sectoral coverage: While initial coverage encompasses steel, cement, aluminium, fertilizers, electricity, and hydrogen, future expansion must balance administrative feasibility with environmental effectiveness. Each sector's inclusion necessitates specific consideration of technical parameters and trade exposure.
 - Anti-Circumvention measures: This is a totally untested area, and a door that is almost impossible to close completely and permanently. The challenges will need to be identified, but as a general lesson of history, defence comes always late in response to new offense.
- One issue needs to be highlighted: In some cases, CBAM may not be able, for WTO compliance reasons, as well as possibly due to practical or administrative matters, to fix issues of competitiveness and carbon leakage. If that is the case, a "do nothing" solution is not acceptable, and extra solutions need to be further explored and contemplated and applied.

4. Role of Emissions Trading in the EU

4.2.3 Lead markets development/demand side policies

- Comprehensive decarbonisation policy strategies need to encompass measures that address both the supply and the demand side. It is critical that the supply-demand gap is closed to incentivise low-carbon technologies.
- Thus, complementary demand-side measures to emissions trading and investment incentives are needed.
- This requires the development of lead markets ⁽¹⁾ to ensure demand for low carbon products, through for example:
 - Public procurement;
 - Mandates such as sustainable fuel blending mandates that can provide a framework to foster demand;
 - The success of ETS2 will be determined by such demand-side complementary measures already before 2030
 - Minimum GHG intensity standards for basic materials in conjunction with product labelling can promote lead markets development ⁽¹⁾.
- This is in particular relevant for markets where the potential demand for climate-friendly products is currently limited and for those parts of the economy that would have otherwise been untouched by emissions trading in the short to medium term (i.e. sectors with high marginal abatement costs) since the required carbon price level for action is considerably higher than the current carbon price.
- Similarly, when it comes to schemes like CfDs that derisk the supply side, policy makers could consider whether there is a need for a downstream mechanism to derisk also the consumer side ⁽²⁾, and whether and how the fee/revenue structure for schemes like CfDs could become a tool for competitiveness (i.e. how will potential revenues be allocated? Will/should there be preferential treatment of certain users e.g. energy intensive industry?).

Supporters of the initiative

ERCST's project "Future of Emissions Trading in the EU" was made possible by support from Cefic, Cembureau, Cepi, EdF, Enel, EuLA, Eurelectric, Eurofer, Eurometaux, European Aluminium, ExxonMobil, Fertilizers Europe, FuelsEurope, PGE, the Government of France, the Government of Denmark, the Government of Germany, and the Government of Poland.

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.

To reference:

Marcu, A., Maratou, A., López Hernández, J. F. Nouallet, P., Caruana, N. (2025), "Future of Emissions Trading in the EU: Role in EU Climate Policy". December 12.