ESG Economist

EU-ETS in the spot light

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- **The European Union Emission Trading System (EU- ETS) is the largest carbon market globally**
- **The reforms under the 'fit for 55' package and the REpowerEU plan entail higher emission reductions from covered sectors**
- **The system will be extended to include the maritime shipping sector in the EU-ETS, while a separate ETS covering emissions from road transport and the building sectors, under the name EU-ETS II, will be established**
- **In both systems auctioning is the main allocation mechanism. Free allocation will still play a role in the sectors with high risk of carbon leakage based on newly updated benchmarks**
- **The linear emission reduction factor is revisited to become stricter with a goal to earlier and faster emission reductions and quicker transition in the covered sectors**
- **EUA prices are driven by many supply and demand factors such as emission reduction factors, abatement efforts, weather conditions, together with fossil fuels prices and investments in renewables**
- **Higher ETS prices will positively affect the feasibility and business case for low carbon technologies boosting the transition further in the covered sectors**

Introduction

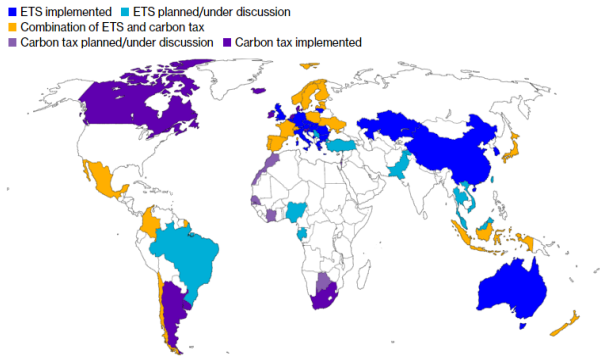
The European Union Emission Trading Scheme (EU- ETS) is the first and largest emission trading system in the world. It represents one variant of carbon pricing that aims at reducing emissions of Greenhouse Gases (GHG). The scheme entails setting a cap on emissions in the European Union, which decreases over time to reach certain emission reduction targets. The scheme initially covered GHG emissions originated from the power and heat generation activities, the aviation sector, and emission intensive industries (i.e. cement manufacture, iron and steel production, aluminium oil refining and other industrial activities).

The EU-ETS was first introduced in 2005. Since then it has gone through many changes and reforms along different fronts. In this thematic note, we revisit the main principles of carbon pricing and the developments of the EU-ETS since its establishment. We further highlight crucial milestones and main drivers for the allowance price and the effect on the transition process. Finally, we zoom in the upcoming extension to include emissions from the maritime shipping industry, and elaborate on potential consequences.

Carbon pricing

Carbon pricing is used in climate scenarios to reflect the strictness of the measures that are in place to address GHG emissions. These measures could involve market-based instruments such as carbon taxes and emission trading systems (cap and trade systems), or the use of regulation that makes emitting harder, unattractive, or impose the usage of low carbon technologies. The choice between these instruments is dependent on many aspects. Using a carbon tax is attractive when institutions are weak and administrative costs are high. However, a disadvantage of carbon taxes is that the total amount of emission reductions cannot be determined with precision. Emission trading systems provide economic efficiency - emissions are reduced by the firms that can do so at a lowest cost - while targeted emissions can be reduced with accuracy. A disadvantage would be the complexity of the system that makes it hard to understand by participants, along with the associated administrative burdens to run and monitor the system. Thus, based on the country-specific particularities, some countries could make the choice to establish a carbon market for emission permits, implement a tax, regulate the emissions, or use a combination of these instruments. The left hand side of the figure below shows the differences among global carbon compliance markets, while the right hand panel depicts the evolvement of the allowance prices in the main ETS markets.

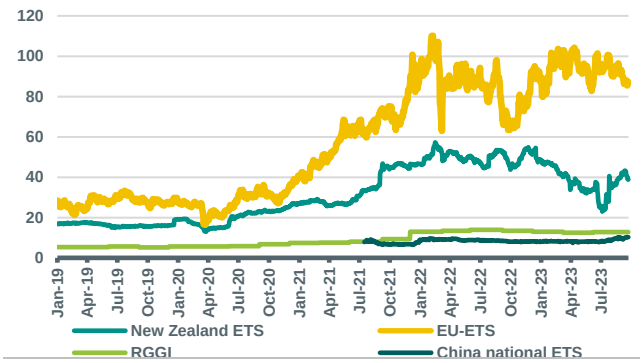
Global carbon compliance markets



Source: BloombergNEF

Carbon prices across global compliance ETS markets

Unit: USD/ton CO2



Source: Bloomberg, ABN AMRO Group Economics

The figure further illustrates that some EU countries opted for combining EU-ETS with a national tax. These taxes could be motivated by different transition needs/targets. For example, in the Netherlands, such a tax aims to set a minimum carbon price if the European Union emission Allowance (EUA) is trading at a low level. However, such taxes have been criticized for increasing the transition cost and reducing the competitiveness of affected companies. Furthermore, it is argued that the unilateral complementary tax could have a distorting effect on the energy transition as more emission allowances will be available for installations that are not covered by the tax.

Carbon off-set markets

There are different instruments that can be used for addressing carbon emissions on a global level, especially to tackle emissions in regions where carbon pricing is absent or not possible, such as carbon offset markets.

Offset markets involve the trading of carbon removal or carbon avoidance credits. These credits are transferrable financial instruments that represent an emission reduction or avoidance. The credits are generated by projects dedicated to remove or avoid GHG. They can then be purchased by firms and industries to compensate for their emissions. Forestry projects or the avoidance of deforestation is a typical basis for such credits. Removing carbon from the atmosphere can also be carried out using technologies such as carbon capture and storage (CCS). The main criticism of using removal credits is that it weaken the incentives to switch to low-carbon technologies, along with prolonging the use of fossil fuels.

Offset markets are mostly voluntary with vast majority managed through NGOs. They are quite popular among multinationals driving a growing demand for offsets as companies try to meet their emission targets, but supply is much higher, thus prices remain low. Criticism for offset markets is the lack of standardization and structure, along with the overestimation of the carbon reduction of some projects and the lack of evidence on their effectiveness. The plan was for a

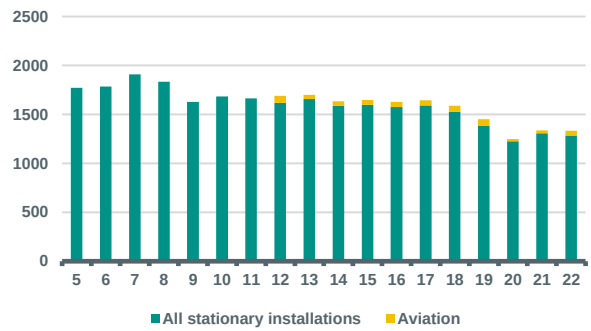
global offset market to go live in 2023, which is not likely to materialise. Challenges are related to reaching an agreement on definitions (for example, removal offset), and the avoidance of double counting. The market is expected to be especially helpful for countries with limited abatement potential.

EU-ETS main characteristics and developments

In addition to all EU countries, the EU-ETS operates in Iceland, Liechtenstein, Norway, and also covers power generation in Northern Ireland. The initial sectors under the EU-ETS (aviation, power generation, and emission-intensive industries) cover around 40% of the EU's GHG emissions. A reform extending the ETS to maritime transport will increase its emissions reductions to 62% by 2030 compared to 2005 levels. With regard to GHG gases, the EU-ETS covers carbon dioxide (CO2) along with Nitrous oxide (N2O) and Perfluorocarbons (PFCs) (aluminium production) emissions. The cap on emissions is translated to number of emission allowances, where each allowance entails a right to emit 1 ton of CO2 or an equivalent amount of other gases. The cap was initially set on a national level under the National Allocation Plans (NAPs), which helped later on in setting a bottom-up cap on European level in a decentralized way.

EU-27 verified emissions

Unit: billion ton of CO2 equivalent



Source: EEA, ABN AMRO Group Economics

The development of the ETS went through several phases. The first phase (2005-2007) had a 'learning by doing' approach, covering power generation and energy-intensive industries with mostly free allocation of allowances. It succeeded in establishing a carbon price and the needed infrastructure for monitoring emissions. Phase 2 (2008-2012) witnessed an extension of the number member countries, where a small portion of allowances were auctioned, and businesses could use international credits to cover their CO2 emissions. The phase further witnessed the development of Union register. In Phase 3 (2013-2020) allowances were auctioned by default along with harmonized allocation rules for the remaining allocations. This phase also attested the inclusion of more sectors and gases and the setting up of New Entrant Reserve and a single cap on emission on the European level.

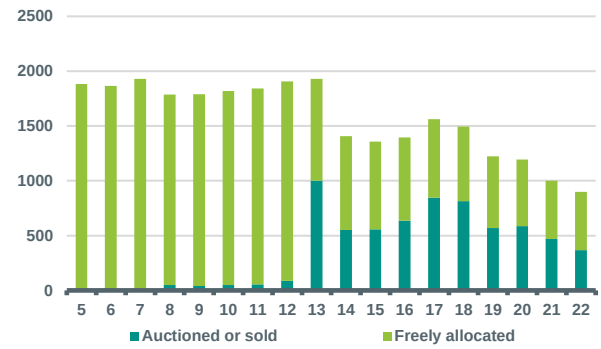
We are currently in phase 4 (2021-2030) which was revised in July 2021 by the European Commission through a series of legislative proposals (the 'fit for 55' package and the REpowerEU plan). The revision aimed to help meeting the EU climate targets for 2030 and 2050. It involved a faster annual reduction of emissions (annual linear reduction factor of 4.2% versus. 2.2% previously), reinforcing the Market Stability Reserve, addressing the risk of carbon leakage, and setting innovation and modernization funds to boost the transition towards a low carbon economy.

Allocation of allowances

Allowances are allocated among covered sectors and between installations either through auctioning or are given for free. There are rules governing the specifics of each method of allocation. The figure below shows how the allocation of allowances has developed over the EU-ETS lifetime.

Allowances allocation by method

Unit: billion ton of CO2 equivalent



Source: EEA, ABN AMRO Group Economics

Auctioning

Auctioning is the main mechanism to allocate allowances. Revenues are part of member state budgets. Member states should spend at least 50% of the revenues on climate and energy-related purposes. There are different criteria that need to be met for auctions such as fairness to access relevant information for all participants, predictability, and cost efficiency. The vast majority of allowances are auctioned out through the platform of the European Energy Exchange (EEX). The figure below shows a steep growth in total auction revenues over time (right hand side) driven mainly by the increase in EUA prices. The right side panel reports the usage of these revenues as reported by member states.

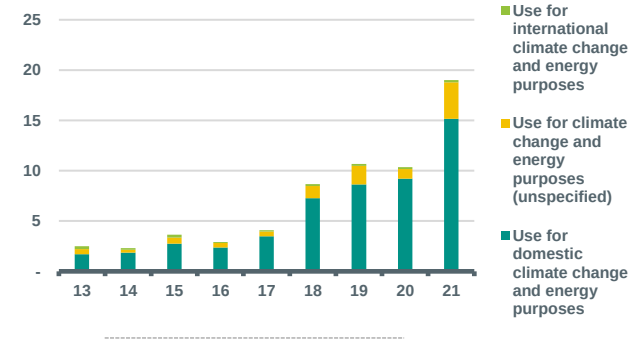
Total auction revenues

Unit: billion euros

Source: EEX, ABN AMRO Group Economics

Reported usage for most auctioning revenues

Unit: billion euros



Source: EEA, ABN AMRO Group Economics

A 3% of the auction quota is reserved as a uniform cross-sectional correction factor that can be applied in case the volume available for free allocation is higher than the calculated one. The portion of that buffer that is not used is allocated to the innovation fund (50 million allowances max), the modernization fund (0.5% of total union cap), and auctioning (the remainder)[1].

Free allocation

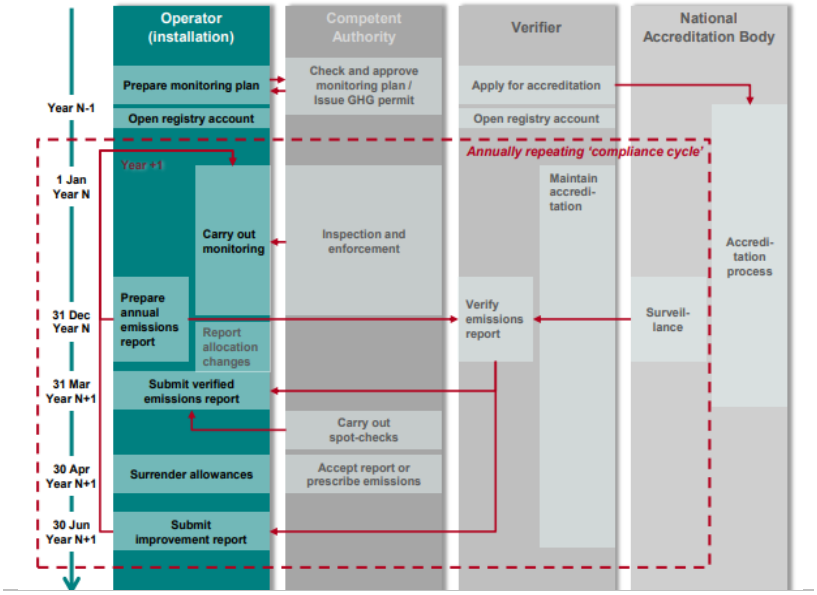
Sectors, other than power generation, are entitled to receive some share of their allowances for free in order to protect these sectors from the risk of carbon leakage - the relocation of installations to regions with laxer climate policies.
The aviation sector receives most of its allowances for free because of the international nature and the high risk of competitiveness loss in this sector. More precisely, for aviation, 82% of the dedicated allowances are allocated for free, 15% are auctioned, and 3% are dedicated for the support of new entrants.

[1] The innovation fund is dedicated to finance the development of low carbon technologies in Europe, while the modernization fund is dedicated to help the low income European countries in their effort to modernise their energy system and efficiency.

Free allocation after phase 3 was based on benchmarks. These benchmarks are determined by the average emissions of the 10% best performing installations in a certain industry/sector. Accordingly, best performing installations will receive all their needed allowances for free, while those with lower efficiency will need to either reduce their emissions or buy the difference of their needs from the market. For phase 4 and from 2021, 43% of the Union cap is given for free. An indicator that is based on trade and emission intensities is being developed to distinguish between the sectors that are highly exposed to carbon leakage risk and those sectors that are less exposed. Free allocation of allowances will stay in place for highly exposed sectors. For other less exposed sectors, free allocation will be gradually phased out from a maximum of 30% in 2026 to zero in 2030. Also, some free allowances are available for the modernization of the power sector in some member states to be dedicated for investments that contribute to the diversification of the energy mix, clean technologies, or infrastructural upgrade. Furthermore, under the new reforms, some free allowances will be dedicated to new and growing installations.

At the end of the compliance cycle, installations failing to deliver the required number of permits to cover their emissions pay a penalty. The figure below summarizes the compliance cycle for stationary installations with the most important dates and deadlines.

Compliance cycle for stationary installations



Source: European Commission

Carbon Border Adjustment Mechanism (CBAM)

In response to the risk of carbon leakage and in order to ensure a level playing field within the sectors under the EU-ETS, the EU will introduce Carbon Border Adjustment Mechanism (CBAM). CBAM entails a levy on the carbon content of imported goods entering the EU. It further encourages the switch to low carbon production processes in the exporting countries.

The phase in of the CBAM will be gradual with a transition phase starting on the 1st of October 2023. During the transitional phase, importers only need to report the emission (direct and indirect emissions) content of their imports. The 31st of January 2024 is the deadline for the first reporting period for importers. Sectors initially covered by the CBAM are cement, iron and steel, aluminium, fertilisers, electricity and hydrogen. The permanent CBAM system enters into force on 1st of January 2026. The phase in of CBAM goes hand in hand with the phase out of free allowances to support the decarbonization process in the targeted industries (in the period 2026-2032).

Market Stability Reserve (MSR)

There was a surplus of allowances at the beginning of phase 3, which undermines the functioning of the market and the reduction of emissions in a cost effective manner. Back-loading (postponing the auctioning of 900 million allowances 2019-2020) was used to reduce the surplus of auctioned allowances in the short run. In the long run, the Market Stability Reserve (MSR) was established in January 2019 with a main objective of balancing supply and demand of allowances and increasing the resilience of EU-ETS to future shocks. By 15th of May every year the commission announces the number of allowances in circulation, which in turn determines whether there will be any additions or withdraws from the reserve based on a predetermined threshold. In 2019-2023 the threshold of 833 million allowances in circulation was temporarily doubled from 12% to 24%. As of 2023 allowances held in the MSR above the previous year's auction volumes will be invalid.

International credits

International credits represent a reduction of 1 ton of carbon through either the Clean Development Mechanism - industrialized countries investing in emission reductions in developing countries to meet their emission reductions - or through Joint Implementation (JI) - industrialized countries implementing a joint emission reduction projects in another industrial countries. The use of international credits in the EU-ETS was accepted until 2020. Up until phase 3, imports of international credits could substitute emissions allowances in the EU, and thus reduce demand for EU-ETS allowances, which drove down the price. For phase 4, Europe has put international credits on hold in order to focus on meeting domestic emission reduction targets. Thus, international credits are not valid to offset compliance requirements in the EU.

Allowances trading

EU Auctioning Regulation specifies the eligibility of compliance buyers such stationary installation operators, aircraft operators and, after the inclusion of maritime transport, shipping companies. In addition, investment firms and credit institutions, along with business groupings of compliance buyers can also participate in the market. Furthermore, market trading is accessible to all other intermediators with an authorization from a home member state.

The constant reduction in supply means that unless demand decreases, prices are to set to increase. This trend may be seen as an attractive opportunity for investors to use carbon allowances to hedge their position against inflation, for example. The positive side of allowing access of investors to the market is the higher market liquidity, which increases the trading opportunities for covered companies. At the same time, the increase in speculation on market price developments in combination with lower number of allowances would increase the risk of higher price volatility in the EU-ETS market. In that direction, potential extension to the EU-ETS and linking it to other international markets would mean a potential increase in trading volumes and more price stability.

A word of caution, with the current 4.2% linear reduction factor in phase 4, the primary market for allowances will be depleted by 2040. Depending on secondary markets for the acquisition of allowances induces concerns about the liquidity and stability of the allowances market.

Drivers of EUA price

As mentioned above, the EUA price has an essential role in incentivizing relevant installations to reduce their emissions in the member countries. Thus, in this section we aim at understanding the main EUA price determinants.
As in any market, the EUA price is a product of supply and demand forces for allowances. From the supply side, the number of allowances available in the market is governed by the emission cap, the linear reduction factor, and the decisions governing the time of loading allowances to the market (front loading, or back loading)[2].

Demand for allowances comes from the covered sectors and changes depending on inter and intra-sectoral dynamics. In general, demand for allowances would be driven downwards by higher abatement efforts and more investments in renewables. Noting that developments in non-covered sectors could also affect the EUA price. For instance, even though transport and real-estate sectors are not directly covered by the EU-ETS, the developments in these sectors affect the carbon market through their effects on power demand. To better understand the dynamics, we focus on the electrification of the transport sector. This process will increase the demand for electricity, and unless the switch to renewables is growing at a faster rate, conventional fossil based power may become needed for longer period of time. Thus, the demand for allowances from the power sector will increase, driving a higher price for EUA.

Shocks/development	Expected effects	EU-ETS market dynamics	EUA price effect
Weather conditions (Heat waves, cold winter, slower wind, cloudy sky)	Higher conventional power production	Higher demand from the power sector	Upwards
Fossil fuel prices (higher gas price/ lower oil price)	Power sector switching on coal generation/ Industrial sector using more oil	Higher demand from the power/industrial sectors	Upwards
Overall higher fossil fuel prices	Efficiency improvements/ Electrification/ Lower output	Lower demand from associated sectors	Downwards
Limited grid capacity	Lower renewable investments, slower electrification	The decrease in demand is slower than that of supply	Upwards
Negative economic outlook	Lower industrial output	Lower demand for allowances	Downwards
Breakthrough emission reduction technology	Faster transition	The decrease in demand is faster than that of supply	Downwards
Front loading of allowances	All covered sectors	Higher supply	Downwards
Higher linear reduction factor	All covered sectors	Lower supply	Upwards

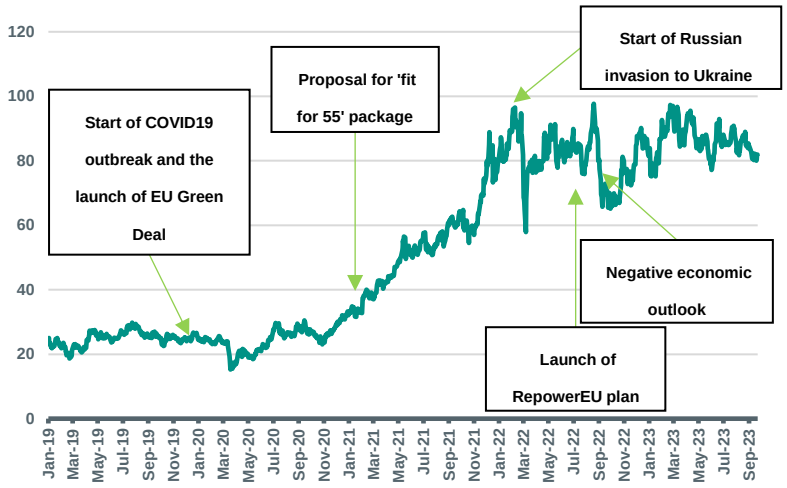
[2] Front loading mean that more allowances are put in the market sooner than planned, while back loading induce a postponement of supply and the market become tighter.

Similarly, fossil fuel price affects the demand for allowances. For example, a negative supply shock to the gas market may trigger higher coal power generation raising the demand for allowances as coal is more carbon intensive than natural gas. The economic cycle and sentiments towards economic outlook also affects demand for allowances as lower output in recession times translates into lower demand for allowances. Higher fossil fuel prices could also reduce energy demand (efficiency measures, or lower output, having the opposite effect on prices.

Moreover, the more we increase our reliance on renewable power, the more sensitive demand becomes to weather conditions. For example, heat waves and extreme cold could trigger a surge in demand for power which, in absence of sufficient storage, triggers more conventional power generation, more required allowances and higher EUA prices. Additionally, a breakthrough technological discovery that reduces emissions in one of the covered sectors would induce a faster transition, lower demand for allowances, and lower EUA prices.

EUA price developments and major events

Unit: EUR/ton CO2



Source: Bloomberg, ABN AMRO Group Economics

Under the same transition scope, there is a link between anticipated bottle-necks to the energy transition and the carbon market. For example, delays in grid capacity extensions would slow down renewable power capacity building, which in turn will hinder the development of green hydrogen that is needed for the transition of heavy industry. The combination of the slower industrial transition and the ongoing reduction of the cap will increase the EUA price. Noting that one way to avoid/mitigate this kind of dynamics would be for Europe to rely on imports for green hydrogen. However, in either case, the international competitiveness of European industries is affected[3]. First, by the high cost of allowances, and second by the reliance on more expensive imports.

The table above summarizes main developments and their potential effect on EUA price.

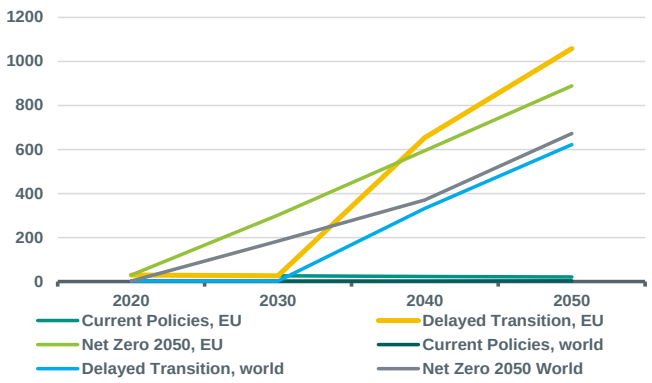
[3] The implementation of CBAM can alleviate this effect.

EU-ETS and the transition process

Carbon pricing is the main driver for the energy transition process as it provides incentives for different economic agents to switch towards a more sustainable low carbon practices. Accordingly, the level of carbon pricing plays an important role in governing the speed of the transition towards a certain climate goal. Scenario analysis is used to compare different pathways to reach such a goal under different levels of carbon pricing over time. The figure below depicts the carbon prices associated to different transition scenarios developed by the Network for Greening the Financial System (NGFS). The figure shows that the level of carbon price differs depending on the transition process under different scenarios. The timing of the introduction of an effective carbon price is of a high importance here. The delay in addressing emissions means that a higher carbon price will be needed to achieve the same climate goal. Accordingly, the carbon price is typically higher in the Net Zero scenario – particularly this decade - than in less ambitious scenarios. Furthermore, the carbon price to reach the same emission reduction target differs between different regions of the world due to differences in opportunities and sectoral composition to reduce emissions.

Carbon prices in NGFS scenarios

USD 2010/t CO2



Source: NGFS, REMIND-MAgPIE 2.1-4.2

The EU-ETS represents the main driver for the transition of covered sectors towards a low carbon world. In early phases of the EU-ETS, the over-supply of allowances kept the EUA price at a low level that was not strong enough to speed up the transition. However, following the EU Green Deal and subsequently Russia's invasion of Ukraine, reforms to the EU-ETS have been put in place: the fit for 55 package which increased the emissions reduction target to reach 62% by 2030 and the REpowerEU plan which entailed the use of 20 billion euros of allowance revenues to reduce the reliance on Russian gas.

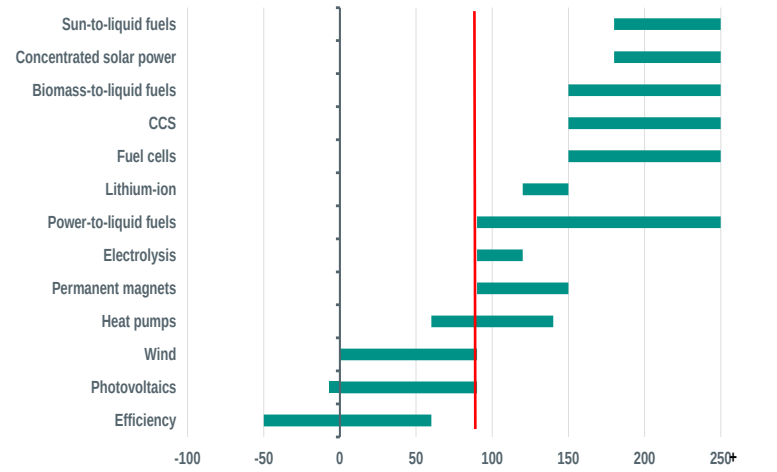
It is worth noting that the development in the ETS price gives an indication of the speed of the transition in covered sectors. That is, as the speed of supply is decided upfront to meet the emission reductions, an increase in EUA price levels indicates that the reduction in demand is not matching the reduction speed in supply, indicating a slower transition. The other side of the coin would be that demand for allowances is also dependent on the transition speed, which in turn is linked to the availability of technological alternatives. For example, some hard to abate industries, which are mostly covered by the ETS, like steel, have green hydrogen as a strategic alternative to fossil fuels. However, the slow development of the associated infrastructure, such as pipelines to transport green hydrogen from where it is produced to where it is needed, will prolong the reliance on old technologies, slow down the transition, and entail higher price for allowances.

More specifically, the level of EUA price affects the feasibility and business case for low emission technologies. The figure below depicts the link between the marginal abatement cost for different low carbon technologies against the EUA price. The figure shows that under the a permit price of 90 euros per ton of CO2, the business case of most of the transition technologies is still weak. Only efficiency measures, investments in wind and solar in the power generation have a positive

business case. To make other decarbonization technologies more feasible, their marginal abatement cost should be reduced, or the EUA price should increase, or a combination of both.

Indicative Marginal Abatement Cost per technology

Cost in EUR/tonne, red line is current ETS price of 90 EUR



Source: IEA, CRU, McKinsey, own estimations

Based on the costs of the needed decarbonization technologies to trigger the required transition, and given the upcoming reduction in supply, a rise in the EUA price in the coming years can be reasonably anticipated. This in turn will bring into play technologies such as CCS or biofuels.

Noting that the ETS price alone may still not be enough to trigger the required change especially when bottlenecks are present. Therefore, complementary measures and timely interventions, such as setting targets for emission efficiency and facilitating the coordination between different stakeholders, will be needed to resolve these issues and reach climate goals on time. Instruments such as Carbon Contracts for Difference can also be used to boost the transition further[4]. The main goal for this instrument is to reduce uncertainty to investors in order to ameliorate the business case of low carbon technologies. However, there are associated concerns that relate to market and futures distortions.

[4] CCD is an instrument the aim at setting a strike price for carbon emission permits under which the government will pay the difference to the industry.

EU-ETS II

Sectors that are not covered by EU-ETS are part of the Effort Sharing Regulation (ESR), which aims to collectively reduce member states' emissions from these sectors by 40% in 2030 compared to 2005 levels. However, as part of the 'fit for 55' reform packages, and as of 2024, emissions from road transport and buildings will be regulated under a new separate emission trading scheme, known as EU-ETS II. Accordingly, 600 million allowances will be reallocated from the ESR mechanism towards the new EU-ETS II. Monitoring and reporting obligations for the new system will be in effect as of 2024, while the full operation is planned for 2027. This gradual phase in of the new system, along with a less ambitious emission reduction targets of 43% by 2030, compared to the 62% under EU-ETS, aim at smoothing the transition for households and businesses. The new system will have its own MSR to avoid excessive price fluctuations and maintain the balance between supply and demand of the allowances. Furthermore, the system will have a price cap of 45 euros valid until the end of 2029. The social implications of the new system on vulnerable end users will be addressed by establishing a Social Climate Fund with a target of 65 billion euros of revenues raised through auctioning under the EU-ETS (50 million allowances) and EU-ETS II (150 million allowances) in the period of 2026-2032. Member states that already have a carbon tax or ETS for the road transport and building sectors in place can benefit from an exemption from the EU-ETS II until 2030[5].

The EU-ETS II will cover CO2 emissions from fuel combustion for road transport, buildings, and industrial activities that are not covered by the original EU-ETS. All allowances will be auctioned, thus no free allocation. Regulated entities under EU-ETS II are those selling fuel for combustion to final consumers. These entities have to hold a permit by an assigned authority that is appointed by member states. At the end of the compliance deadline (31 May, starting from 2028), reporting entities have to surrender enough allowances to cover their emissions. Entities failing to cover their position will have to pay the carbon price augmented by a penalty for every additional uncovered ton of emissions.

The EU-ETS II legislation incorporates the option to postpone the start of its implementation by one year if either the gas (TTF price) or oil (Brent) prices deemed to be "exceptionally high" in comparison to historical levels.

[5] The allowances that would have been auctioned for these members will be cancelled.

Extension of ETS for maritime shipping

Another part of the reform for EU-ETS under the fit for 55 package is its extension to cover emissions from maritime shipping, which will be enclosed in the EU-ETS as of January 2024. Accordingly, every shipping company[6] will have the responsibility to surrender allowances against the emissions of its fleet.

The International Maritime Organization (IMO) sets rules and regulations to decarbonize the shipping industry. In comparison with the EU-ETS, the IMO approach is based on rating vessels based on their productivity, emissions, and the distance travelled. This rating is then used to penalize ships that falls below a certain threshold. The EU-ETS on the other hand provides monetary incentives to shipping companies to reduce their emissions which is a more efficient approach to achieve climate targets for the sector.

The existing Monitoring, Reporting and Verification (MRV) system under EU-ETS will be extended and revised to include ship sizes, types, and associated GHG emissions. The MRV system will be used to report and verify maritime shipping emissions. However, compliance and emission coverage will be gradually phased in, with 40% of emissions covered initially, 70% by 2025, and 100% as of 2026. Accordingly, vessels above 5000GT of maritime cargo or passengers for commercial purposes are covered for 100% of their emissions for intra-EU voyages, and 50% for international voyages starting from 2024. Offshore ships above 5000GT will be covered as of 2027, while for general cargo and offshore ships the phase in of vessels under 5000 and above 400 tonnages is still to be evaluated and determined in 2026.

Shipping companies will have to surrender allowances on the emissions they have reported in the previous year. Thus, starting from 2025, companies have to surrender allowances. There will be no free allocation of allowances. Accordingly, an additional 80 to 100 million emission allowances will be added to the market. Most of the auction revenues for these allowances will be at the disposal of member states for climate and energy related activities, while the revenues of 20 million allowances will be dedicated to the innovation fund for shipping related projects. Allocation of allowances among countries will take into account the presence and size of the shipping industry, where countries with relatively larger shipping presence could receive 3.5% of the ceiling of the auctioned allowances to be allocated among them.

With respect to the GHG emissions coverage, in the first two years (2024 and 2025) only CO2 will be in scope. Later on and starting from 2026, all GHG[7] will be in scope for the maritime sector. See more on the EU-ETS shipping extension in our previous note **here**.

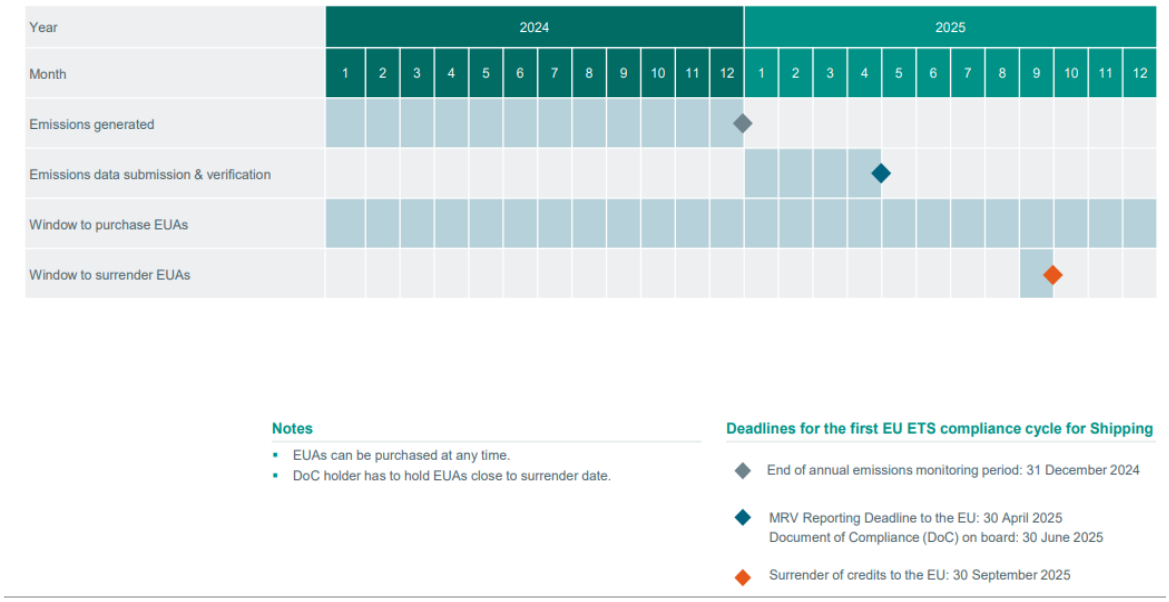
Practicalities for shipping companies

Every shipping company should open a registry account at their corresponding authority. International companies can register in any EU member state of their choice. Every shipping company should surrender allowances that cover their position in their compliance account at their corresponding national administrative authority. The company can seek reimbursement of the cost from the entity responsible for the ship emissions. Furthermore, shipping companies can acquire allowances from the primary market by participating in auctions that are held by the European Energy Exchange (EEX), or from secondary market. Companies can access the EU-ETS market directly or indirectly through intermediaries, such as banks, brokers, or professional access providers, noting that the minimum size in primary auctions is 500 EUAs (= 500 MT CO2). The EU-ETS compliance cycle is summarized in the figure below.

[6] A shipping company represents shipping owners or any entity who has assumed the responsibility of the operations of the ship as dictated in the ISM code.

[7] Other GHG, such as Methane (CH4), Nitrous oxide (N2O), emissions will be converted to their CO2 equivalent.

Shipping EU-ETS Compliance cycle for 2024



Source: ABN AMRO, shipping coverage team

For shipping, the usage of biofuels is attributed to a zero CO2 emission factor under the EU-ETS. Other renewable fuels of nonbiological origin and recycled carbon fuels are also permitted under the EU-ETS but the rules governing the usage of these fuels was still under negotiation at the time of writing.

Decarbonizing technologies for the maritime sector

Based on current cost of available technologies and the EUA price of 90 euros, the maritime sector will likely buy allowances until available technologies for the future energy carrier become feasible to invest in. That is, with a higher demand for allowances and a higher ETS price, the adoption of less-hard-to-decarbonise technologies such as carbon capture and storage will be encouraged. As the EUA price climbs higher, other technologies come into play.

Conclusion

This report provides an overview of carbon pricing and markets. It zooms in on the European Union Emission Trading scheme (EU-ETS), which is the is the largest carbon market globally. The report features several aspects of the EU-ETS, such as its development phases, the main mechanisms at play, factors affecting the EUA price, together with the link to the transition process and upcoming reforms. The reforms under the 'fit for 55' package and the REpowerEU plan entail higher emission reductions from covered sectors. Furthermore, the linear emission reduction factor was made stricter with a goal to earlier and faster emission reductions and a quicker transition in the covered sectors. In both systems auctioning is the main allocation mechanism. Free allocation will still play a role in the sectors with high risk of carbon leakage based on newly updated benchmarks. EUA prices are driven by many supply and demand factors such as emission reduction factors, abatement efforts, weather conditions, fossil fuels prices, and investments in renewables. Noting that higher ETS prices will positively affect the feasibility and business case for low carbon technologies in the covered sectors. The system will be extended to include the maritime shipping sector in the EU-ETS, while a separate ETS covering emissions from road transport and the building sectors, under the name EU-ETS II, will be established.