International Carbon Action Partnership
ETS Detailed Information

EU Emissions Trading System (EU ETS)

General Information

Summary	**Status:** ETS in force **Jurisdictions:** Member states: 28 EU Member States and three European Economic Area-European Free Trade Association (EEA-EFTA) states: Iceland, Liechtenstein and Norway The European Union Emissions Trading System (EU ETS) is a cornerstone of the EU's policy to combat climate change and a key tool for cost-effectively reducing GHG emissions from the regulated sectors. The system covers ~45% of the EU's emissions, from the power sector, manufacturing industry, and aviation limited to flights within the European Economic Area. It is the oldest and largest ETS operating worldwide. Introduced in 2005, now approaching the end of the third trading phase, the EU ETS has gone through several reforms. The revision of the system's framework, completed in 2018, will be implemented with the start of the fourth trading phase in January 2021. In January 2020, the EU ETS became linked to the Swiss ETS, the first linking of this kind for both parties.
Year in Review	Following the adoption of the revised ETS Directive setting the cornerstones of the post-2020 policy framework, in 2019, the focus shifted towards implementing the agreed provisions ahead of the next trading phase (2021-2030). New implementing legislation on the carbon leakage list, free allocation rules, the Innovation Fund, auctioning, monitoring, reporting, verification and accreditation, and on the Union Registry was adopted in the past year. On 1 January 2019, the market stability reserve (MSR), the instrument to address the supply–demand imbalance of allowances in the EU ETS and improve its resilience against future shocks, became operational. In 2019, the MSR absorbed around 397 million allowances from auction volumes. From January to August 2020 another 265 million allowances are due to be placed in the reserve. Following final regulatory changes in the design of the Swiss ETS in late 2019, a link between the Swiss and EU ETS took effect on 1 January 2020, allowing regulated entities in both systems to use allowances from either ETS for compliance. The launch of the provisional link between the registries of the Swiss and EU emissions trading systems that will enable the transfer of allowances, initially postponed due to COVID-19, will become operational as of 21 September 2020. Transfers between the registries are executed on pre-announced dates that are released at least one month in advance. The provisional solution will remain in effect until a direct link between both systems is established. Despite the provisional link not being operational until September 2020, EU and Swiss operators can already use allowances from either system for compliance in 2020. As part of the EU's Green Deal in line with the EU's commitment to reach carbon-neutrality by 2050, and as enshrined in the proposed European climate law, the Commission will review and propose to revise where necessary all relevant climate-related policy instruments by June 2021. This includes the EU ETS and a possible extension of emissions trading to new sectors. Moreover, discussions have started on introducing a carbon border adjustment mechanism for selected sectors to reduce the risk of carbon leakage and a

	legislative proposal has been planned for mid-2021. The carbon border adjustment would form an alternative to current measures, free allocation and compensation for indirect carbon costs in electricity prices, of addressing the risk of carbon leakage due to the EU ETS. Following its departure from the EU on 31 January 2020, the UK effectively also withdrew from the EU ETS. However, during the transition period until the end of 2020, the UK still participates in the EU ETS, and UK installations will therefore continue to face compliance obligations for their 2019 and 2020 emissions. In early February 2020, the European Commission published a negotiating mandate to begin talks with the UK on a deal governing post-Brexit relations. The mandate encourages the parties to consider linking a UK national ETS with the EU ETS. Linking would need to be based on conditions agreed within the EU to ensure a level playing field and the integrity of the EU ETS. After the end of the transition period, emissions from stationary installations fall outside the scope of the EU ETS and Union law. Flights between the UK and EU will remain within the scope of the EU ETS following a derogation (Article 28a) in the EU ETS Directive. Operators located or based in the United Kingdom that want to continue holding EUAs beyond 30 April 2021 would have to open a trading account in the Union Registry administered by an EU Member State and move their assets accordingly. Financial firms and institutions wanting to continue their participation in EU ETS auctions beyond this date would similarly need ensure establishment in the EU.
Overall GHG emissions (excluding LULUCF)	**Emissions:** 4,323 $MtC0_2e$ (2017)
Overall GHG emissions by sector	Sector Name — MtCO2e Energy — 3368 Industrial Processes — 377 Agriculture — 439 Waste — 139
Overall GHG reduction target	**By 2020:** 20% below 1990 GHG levels **By 2030:** At least 40% below 1990 GHG levels; emissions regulated by the EU ETS 43% below 2005 levels **By 2050:** EU leaders have committed to reaching climate neutrality by mid-century
Carbon Price	*Current Allowance Price (per t/CO2e):* EUR 24.84 (USD 27.81) (average 2019 price on secondary market [EEX]; updated prices available here)

ETS Size

Emissions covered by the ETS	0.45
GHG covered	CO2, N2O, PFCs
Sectors covered and thresholds	**PHASE 1 (2005-2007):** Power stations and other combustion installations with >20MW thermal rated input (except hazardous or municipal waste installations), industry (various thresholds) including oil refineries, coke ovens, and iron and steel plants, as well as production of cement, glass, lime, bricks, ceramics, pulp, paper, and board. **PHASE 2 (2008-2012):** Aviation was introduced in 2012 (>10,000 tCO2/year for commercial aviation; >1,000 tCO2/year for non-commercial aviation since 2013) (see below). NOx emissions from the production of nitric acid were included by a number of countries. The EU ETS also expanded to include Iceland, Liechtenstein, and Norway. **PHASE 3 (2013-2020):** Carbon capture and storage installations, production of petrochemicals, ammonia, nonferrous and ferrous metals, gypsum, aluminum, as well as nitric, adipic, and glyoxylic acid (various thresholds) were included. **PHASE 4 (2021-2030):** Based on the current legislation, no changes to the scope have been agreed on for Phase 4. **Aviation**: Emissions from international aviation were included in the EU ETS in 2012. In November 2012, the EU temporarily suspended enforcement of the EU ETS requirements for flights operating from or to non-EEA countries ("stop the clock") while continuing to

	apply the legislation to flights within and between countries in the EEA. Exemptions for operators with low emissions have also been introduced. In light of the progress made under the International Civil Aviation Organization (ICAO) towards a global measure to reduce emissions from the aviation sector (the Carbon Offsetting and Reduction Scheme [CORSIA]), the EU will maintain the intra-EEA scope for the ETS Aviation until 31 December 2023. A further review and assessment will be carried out once there is clarity surrounding the content and nature of CORSIA, as well as the extent of participation by Europe's international partners.
Point of regulation	Downstream
Number of liable entities	10,744 power plants and manufacturing installations. No information available yet.
Cap	**PHASE ONE (2005-2007) and PHASE TWO (2008-2012):** The cap was established bottom-up, based on the aggregation of the national allocation plans of each member state. Phase One started with a cap of 2,096 MtCO2e in 2005, Phase Two with a cap of 2,049 MtCO2e in 2009. **PHASE THREE (2013-2020):** A single EU-wide cap for stationary sources: 2,084 MtCO2e in 2013, which is annually reduced by a linear reduction factor (currently 1.74% or ~38.3 million allowances). This amounts to a cap of 1,816 MtCO2e in 2020. **Aviation Sector Cap:** The aviation sector cap was originally set at 210 MtCO2e/year. This cap was meant to reflect the initial inclusion of all flights from, to, and within the EEA in the EU ETS. However, following the "stop the clock" temporary suspension until the end of 2016, the number of aviation allowances put into circulation in 2013-2016 was reduced to 38 million allowances annually and set considerably below verified intra-EEA aviation emissions. In 2017, the intra-EEA scope for aviation was prolonged until 2023. The adjusted annual aviation cap still applies. **PHASE FOUR (2021-2030):** A linear cap reduction factor of 2.2% annually applied to both stationary sources and the aviation sector. The linear reduction factor does not have a sunset clause and the cap will continue to decline beyond 2030.

Phases & Allocation

Trading period	**Phase 1:** 3 years (2005-2007) **Phase 2:** 5 years (2008-2012) **Phase 3:** 8 years (2013-2020) **Phase 4:** 10 years (2021-2030)
Allocation	**PHASE 1 (2005-2007):** Allocation established through the member state national allocation plans. Allocation through grandfathering. Some member states used auctioning and some used benchmark-based allocation. **PHASE 2 (2008-2012):** Similar to Phase One, with ~90% of allowances allocated for free. Some benchmark-based free allocation; and some auctioning in eight member states (Germany, United Kingdom, The Netherlands, Austria, Ireland, Hungary, Czech Republic and Lithuania), amounting to ~3% of total allowance allocation. **PHASE 3 (2013-2020):** 57% of allowances auctioned over the entire trading period with the remaining allowances allocated through the benchmark approach. 88% of the allowances to be auctioned are distributed to EU Member States based on verified 2005 or average 2005-2007 emissions. 10% allocated to lower-income EU Member States and 2% distributed among nine Member States who reduced 2005 emissions by 20% compared to the base year. **Auctioning**: Authorities have the right to cancel auctions when the highest bidding price is significantly below the prevailing secondary market price to avoid market distortion. In such a situation, allowances are transferred to subsequent auctions scheduled at the same trading platform.

Power Sector: 100% auctioning with an optional derogation for the modernization of the electricity sector in certain Member States. Those Member States whose GDP per capita was below 60% of the EU average in 2013 may continue to make use of this optional free allocation (through benchmarking) in Phase Four. Some Member States chose to monetize these allowances or to use these allowances to boost their share of the Modernization Fund.

Manufacturing /industry: Free allocation follows product-based benchmarks. Benchmarks are based on activity levels in 2007-2008 and are set at the average of the 10% most efficient installations in the (sub)sector.

Subsectors deemed at risk of carbon leakage receive free allocation at 100% of the predetermined benchmarks. Subsectors deemed not at risk of carbon leakage have free allocation phased out gradually from 80% of the respective benchmarks in 2013 to 30% by 2020. If free allocation exceeds the amount reserved for free allocation, a cross-sectoral correction factor is applied.

Carbon leakage risk is assessed against the following criteria of emissions intensity and trade exposure:
- direct and indirect cost increase >30%;
- or non-EU trade intensity >30%;
- or direct and indirect cost increase >5% and trade intensity >10%.

Cost intensity is determined by the formula
[Carbon price × (direct emissions × auctioning factor + electricity consumption × electricity emission factor)]/ GVA)

Trade intensity is determined by the formula
(imports + exports)/(imports + production)

Aviation Sector: In 2012, 85% of allowances were allocated for free, based on benchmarks. In Phase Three, 15% of allowances are auctioned and 82% allocated for free, based on benchmarks. The remaining 3% constitute a special reserve for new entrants and fast-growing airlines. Due to the temporary derogation applying to flights with third countries, the allocation is adjusted to the intra-EEA scope.

Back-loading: As a short-term measure to address a growing surplus in the EU ETS, the auctioning of 900 million allowances from 2014-2016 was postponed to 2019-2020. In line with the decision to create the market stability reserve, the back-loaded allowances are placed in the MSR, which became operational in 2019.

New Entrants Reserve: 5% of the total allowances are set aside to assist new installations coming into the EU ETS or to cover installations whose capacity has significantly increased since their free allocation was determined.

PHASE FOUR (2021-2030):
Benchmark values will be updated twice to reflect technological progress in different sectors. The first set of benchmark values will apply to the period 2021-2025; the second set of values will cover the period from 2026 to 2030. Member states are required to submit lists of incumbent installations and updated emissions data by 30 September 2019 and 30 September 2024. Based on this data, the European Commission will update Phase Three benchmarks.
- Benchmark values in Phase Four will be adjusted for technological progress year-on-year. An annual reduction rate (0.2% to 1.6%) will be determined for each benchmark. For the steel sector, which faces high abatement costs and leakage risks, the lower end of 0.2% annual benchmark reduction will apply.
- Free allocation may be updated annually to mirror sustained changes in production (if the change is more than 15% compared to the initial level, based on a 2-year rolling average).

Carbon leakage rules:
- The third carbon leakage list adopted in February 2019 will apply for the period 2021-2030. The revised list includes a reduced number of sectors classified at risk of carbon leakage. Free allocation for other sectors will be discontinued by 2030 (except district heating).
- Carbon leakage assessed against a composite indicator of trade intensity and emissions intensity.
- As an additional safeguard for industry, the Phase Four cap breakdown includes a free allocation buffer of over 450 million allowances, initially earmarked for auctioning, which can be made available for free allocation if the initial free allocation volume is fully absorbed (thereby avoiding applying the cross-sector correction factor).
- Carbon leakage risk will be assessed according to the following criteria:
- Trade Intensity * Emissions Intensity > 0.2
- Trade intensity * Emissions Intensity > 0.15 < 0.2; qualitative assessment will follow based on abatement potential, market characteristics, and profit margins.

	Emissions intensity will be determined by: *[direct emissions + (electricity consumption × electricity emission factor)]/GVA* Trade exposure will be determined by: (*imports + exports*)/(*imports + production*) Out of the allowances to be auctioned in Phase Four, 90% will be distributed to member states based on their share of verified emissions, with 10% distributed among the lower-income EU Member States.

Flexibility

Banking and borrowing	Unlimited banking has been allowed since 2008. Borrowing is not allowed.
Offsets and credits	**PHASE 1 (2005-2007):** Unlimited use of Clean Development Mechanism (CDM) credits and Joint Implementation credits (JI) was provided for in the directive. In practice, no credits were used in Phase One. **PHASE 2 (2008-2012):** **Qualitative Limits:** Most categories of CDM/JI credits were allowed; no credits from LULUCF and nuclear power sectors. Strict requirements for large hydro projects exceeding 20 MW. **Quantitative Limits:** In Phase Two operators were allowed to use JI and CDM credits up to a certain percentage limit determined in the respective country's National Allocation Plans. Unused entitlements were transferred to Phase Three (2013-2020). **PHASE 3 (2013-2020):** **Qualitative Limits:** Newly generated (post-2012) international credits may only come from projects in least developed countries. Credits from CDM and JI projects from other countries are eligible only if registered and implemented before 31 December 2012. Projects from industrial gas credits (projects involving the destruction of HFC-23 and N2O) are excluded regardless of the host country. Credits issued for emission reductions that occurred in the first commitment period of the Kyoto Protocol were no longer accepted after 31 March 2015. **Quantitative Limits:** The total use of credits for Phase Two and Phase Three may amount up to 50% of the overall reduction under the EU ETS in that period (~1.6 Gt CO2e). **PHASE 4 (2021-2030):** Based on the current legislation, the use of offsets is not envisaged.
Market Stability Provisions	**Market Stability Reserve (MSR):** The MSR started operating in January 2019. Its purpose is to address any supply–demand imbalance of allowances prevailing in the EU carbon market and to improve the EU ETS's resilience to future shocks. **Thresholds:** The European Commission publishes the total numbers of allowances in circulation (TNAC) by 15 May. Allowances will be added to the reserve if TNAC is higher than 833 million. Allowances will be reinjected into the market if the number of allowances in circulation falls below 400 million. - When the TNAC is above 833 million, 12% (24% up to 2023) of the surplus is withdrawn from future auctions and placed into the reserve over a period of 12 months. - When the TNAC is less than 400 million allowances, 100 million allowances are taken from the reserve and injected into the market. From 2023 onwards, the number of allowances held in the reserve will be limited to the auction volume of the previous year. Holdings above that amount will lose their validity. Between 1 January 2019 and 1 September 2020, a total of 662 million allowances will have been placed in the reserve. Swiss allowance supply is not taken into account when the annual EU withdrawal amount is calculated and Swiss auction quotas will not be reduced by the mechanism. **Cancellations:** As of Phase Four, a Member State may also cancel allowances from their auction share in the event that they take additional policy measures that result in closure of electricity generation capacity. The quantity of allowances invalidated shall not exceed the average verified emissions of the installation from five years preceding the closure.

Compliance

Compliance Period	One year (1 January to 31 December): every year, operators must submit an emissions report. Data for a given year must be verified by an accredited verifier by 31 March of the following year. Once verified, operators must surrender the equivalent number of allowances by 30 April of that year.
Monitoring, Reporting, Verification (MRV)	**REPORTING FREQUENCY:** Annual self-reporting based on harmonized electronic templates prepared by the European Commission. **VERIFICATION:** Verification by independent accredited verifiers is required before 31 March each year. **MRV FRAMEWORK:** Since Phase Three, the MRV framework for the EU ETS has been further harmonized. European Commission regulations now apply for emissions monitoring and reporting, as well as verification and accreditation of verifiers. A monitoring plan is required for every installation and aircraft operator (approved by a competent authority). In preparation for Phase Four, MRV procedures are currently under review.
Enforcement	Regulated entities must pay an excess emissions penalty of EUR 100/tCO2 (USD 112/tCO2) for each tonne of CO2 emitted for which no allowance has been surrendered, next to buying and surrendering the equivalent amount of allowances. The name of the noncompliant operator is also made public. Member states may enforce different penalties for other forms of noncompliance.

Linking

Links with other Systems	Following final regulatory changes in the design of the Swiss ETS, a link between the Swiss ETS and EU ETS took effect on 1 January 2020. The link caps a 10-year process of negotiations and agreement on regulatory alignment. Formal negotiations began in December 2010, culminating in the conclusion of a linking agreement in late 2017. Both sides announced on 12 December 2019 that the link would become operational in January 2020, enabling covered entities in both systems to use allowances from either ETS for compliance.

Other Information

Institutions involved	The European Commission and the relevant authorities of the 28 Member States, Iceland, Liechtenstein, and Norway.
Evaluation / ETS review	The European Commission publishes annual reports on the functioning of the European carbon market (2019 report). Two major EU ETS reviews—before Phase Three and before Phase Four—have been conducted to date, introducing changes to the system's operational framework. The directive establishing the EU ETS stipulates that the system be kept under review in light of the implementation of the Paris Agreement and the development of carbon markets in other major economies.
Revenue	**Since beginning of program:** EUR 50.54 billion (USD 58.98 billion) **Collected in 2019:** EUR 14.64 billion (USD 16.39 billion) In the EU ETS, revenues from the auctioning of allowances accrue to Member States. At least 50% of revenues should be used for climate- and energy-related purposes. Member States are obliged to inform the European Commission about how they use the revenues. In 2018, on average Member States spent ~70% of their revenues on domestic and international climate-related purposes. **PHASE THREE (2013-2020):**

	300 million allowances were reserved for auction to fund demonstration of environmentally safe carbon capture and storage and innovative renewable energy technologies through the NER300. **PHASE FOUR (2021-2030):** The latest revision of the EU ETS set up two new multi-billion-euro funds to support EU stakeholders in the low-carbon investment challenge. **Innovation Fund:** Supporting demonstration of innovative technologies to breakthrough innovation in industry, as well as carbon capture and storage/use and renewable energy. The fund will be monetized through the sale of at least 450 million allowances, and the remaining budget from the NER300. In 2020, the first batch of 50 million allowances will be auctioned to capitalize the Innovation Fund. **Modernization Fund:** Supporting investments in modernizing energy systems and improving energy efficiency in 10 lower-income Member States, including investments to support a socially just transition to a low-carbon economy (e.g., upskilling/reskilling of affected workers).
Implementing Legislation	Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for GHG emission allowance trading within the Community and amending Council Directive 96/61/EC. Decision concerning the establishment and operation of a market stability reservefor the Union GHG emission trading scheme and amending Directive 2003/87/ECU (6 October 2015). Consolidated Auctioning Regulation (25 February 2014): Commission Regulation EU No 176/2014 amending Regulation (EU) No 1031/2010 in particular to determine the volumes of GHG emission allowances to be auctioned in 2013-2020 (26 February 2014); All other legislation and documentation can be found here.

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