

Trends and projections in Europe 2019

The EU Emissions Trading System in 2019: trends and projections



The European Union (EU) Emissions Trading System (ETS) governs about 40 % of total EU greenhouse gas emissions. It sets a cap on emissions from industrial activities (e.g. power and heat production, cement production, iron and steel production and oil refining), as well as aviation. Based on the latest available data, this briefing provides an overview of past and projected emission trends under the EU ETS, and of the balance between the supply of and demand for emission allowances on the EU carbon market.

Key messages

- Total ETS emissions from stationary installations declined by 4.1 % between 2017 and 2018. Emissions from combustion installations declined by 5.9 %, mainly due to the phasing out of coal use in power plants, while those from other industrial installations decreased by 0.7 %. ETS emissions from airline operators continued to increase, up 4.0 % in 2018 relative to 2017, reflecting mainly the increasing demand for air travel.
- Under measures currently in place, Member States, Iceland and Norway project that ETS emissions will continue to decrease, albeit slower than the historical rate. The overall 36 % projected reduction by 2030, compared with 2005 levels, is not yet in line with the 43 % reduction objective. Ten countries project increasing ETS emissions until 2030.
- Despite fewer EU emission allowances (EUAs) being auctioned in 2018 than in 2017, revenue from auctions increased from EUR 5.5 billion to EUR 14.1 billion. This increase reflects the increase in the average allowance price, from EUR 5.8 per tonne in 2017 to EUR 15.5 per tonne in 2018.
- In 2018, the surplus of emission allowances was the same as in 2017, amounting to around 1.65 billion. If the net demand for allowances from aviation is also taken into account, then the number of allowances available to operators was lower in 2018 compared to the previous year. About 397 million allowances are expected to enter the Market Stability Reserve (MSR) between September 2019 and August 2020. According to EEA estimates based on the latest Member State projections, with measures currently in place, the total number of allowances in circulation (TNAC) might not fall below the lower MSR threshold of 400 million before 2030.

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This briefing is based on data and information available as of June 2019: verified emissions and compliance by operators under the EU ETS for the years up until 2018, extracted from the EU Transaction Log of the European Commission and projections of national ETS emissions until 2030, reported by EU Member States, Iceland and Norway to the European Environment Agency.

A more detailed report on "Trends and projections: the EU Emissions Trading System in numbers in 2019" is currently under preparation by the European Topic Centre on Climate change Mitigation and Energy (ETC/CME) and will be available as of mid-November.

Emissions

Historic trends

Total ETS emissions from stationary installations declined by 4.1 % between 2017 and 2018. Over a longer period, total ETS emissions from stationary installations have declined by around 29 % between 2005 and 2018 (Figure 1).

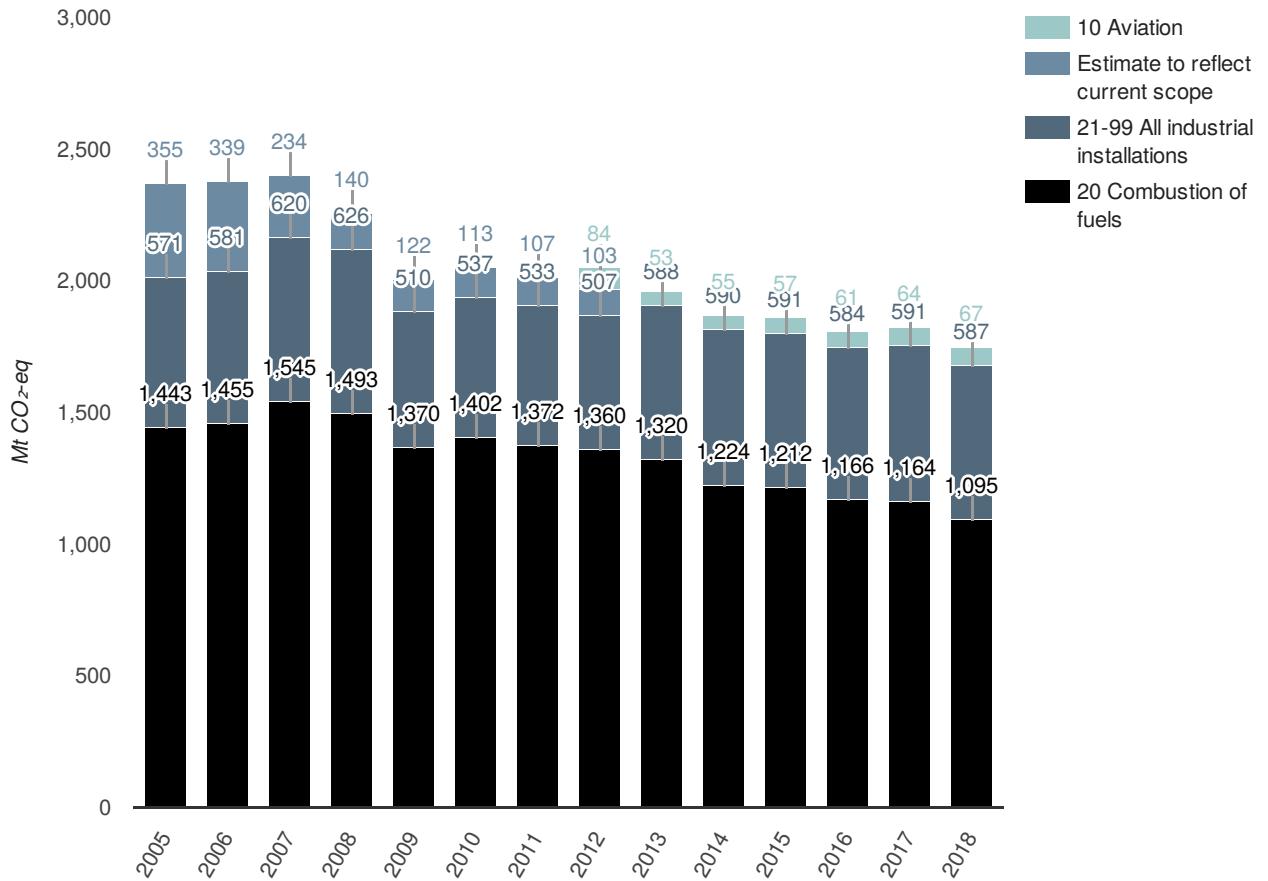
Combustion installations (mainly power plants)^[1] remain the main source of emissions in the EU ETS (65 % of total ETS emissions in 2018). This is also the sector where the main emission reductions have taken place (5.9 % reduction in 2018 compared to the previous year). This decline partly reflects the phasing out of coal use in several Member States. In 2018, the 30 highest emitting power plants alone emitted 329.2 Mt CO₂, 30 % of the total EU combustion emissions in that year. The top emitting power plants are located mainly in Poland and Germany, and burn lignite fuel.

The ETS emissions of other industrial installations decreased by an average of 0.7 % in 2018 compared with 2017^[2]. This annual change in industrial ETS emissions, however, varied by industrial sector, reflecting changes in production output, rates of energy efficiency and the extent to which biomass, including waste from biological origin, were used as energy sources in production processes.

The ETS emissions from the aviation sector continued to increase year on year throughout the third trading period^[3], and in 2018 were 4.0 % higher than in the previous year. This primarily reflects the increasing demand for air travel.

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Figure 1 - EU ETS emissions by activity type



Data sources: a. European Commission. European Union Emissions Trading System (EU ETS) data from EUTL
 b. EEA. EEA greenhouse gas data viewer

[Explore chart interactively](#)



Source: EEA (2019a).

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Projected trends

While total stationary ETS emissions decreased by 29 % between 2005 and 2018^[4], the rate of reduction is projected to slow, according to national projections reported by Member States, Iceland and Norway in 2019 under EU legislation. ETS stationary emissions are projected to decline by 7 % between 2018 and 2030, with existing measures in place. This means a decrease of 36 % in 2030 compared to 2005. With additional measures, emissions are projected to be reduced by an additional 5 %. So even with additional measures, emission reductions will amount to approximately 41 %, slightly less than the 43 % reduction target.

Emissions are expected to decline in 20 countries between 2018 and 2030 with existing measures, with the highest relative reductions of 40 % forecast in Estonia (Figure 2). However, ten countries still anticipate increases in their ETS emissions between 2018 and 2030 with existing measures. The reasons for these increases include:

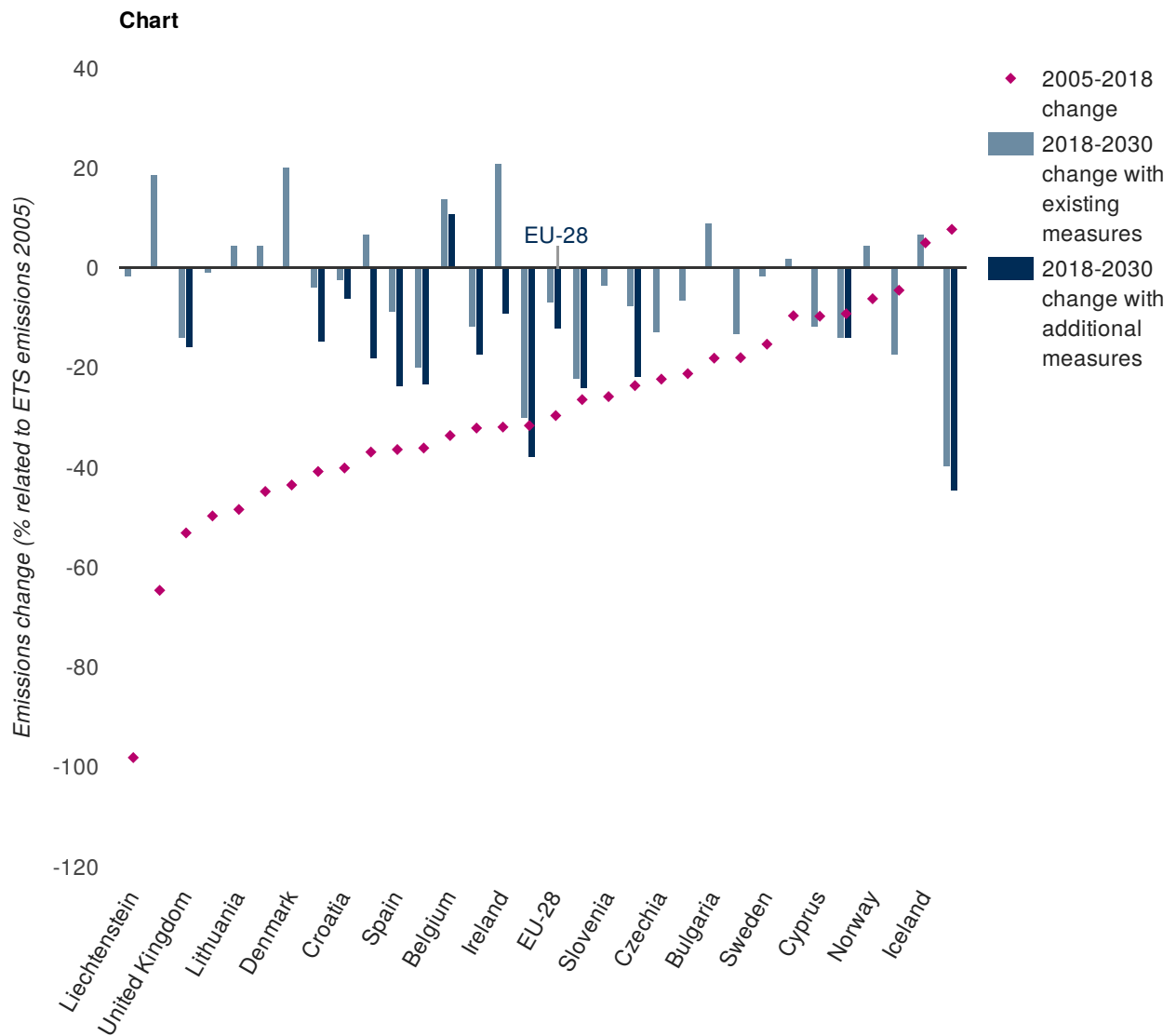
- the planned phase out of nuclear energy, to be replaced by new fossil production plants (e.g. Belgium);
- the increase in carbon intensive energy production (e.g. Ireland, Denmark, Malta);
- the increase in emissions from industrial processes (e.g. Ireland, Lithuania, Poland, Romania).

Some of these countries are planning to adopt and implement additional measures to reduce emissions. Additional policies and measures offering greater reductions are:

- the growth and more widespread use of renewable energies (e.g. Ireland);
- the phase out of coal-fired power plants (e.g. France, Spain);
- the phase out of direct oil shale combustion and the increase in the efficiency of oil shale combustion plants for electricity generation (Estonia);
- the increase in biomass co-firing (e.g. Ireland).

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Figure 2 - Historic and projected changes in ETS emissions relative to 2005 levels



Note: Projections of EU Member States, Iceland and Norway, compiled by ETC/CME

Data sources: a. European Commission. European Union Emissions Trading System (EU ETS) data from EUTL
 b. European Commission. Publication of the total number of allowances in circulation in 2018 for the purposes of the Market Stability Reserve under the EU Emissions Trading System established by Directive 2003/87/EC.

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Balance of allowances

According to the European Commission (EC, 2019), the total number of allowances in circulation (TNAC) amounted to 1.65 billion in 2018. The overall supply of allowances in the EU ETS in 2018 remained lower than the overall annual demand, if the net demand for allowances from the aviation sector is also taken into account. This was due, in part, to fewer allowances being allocated for free (reflecting the planned annual reduction in the ETS cap) and the limited use of international offsets that installations can use for compliance. Furthermore, fewer allowances were auctioned in 2018 than in 2017. This is partly due to the fact that Germany sold fewer allowances via auctions than expected.

Despite the lower number, revenues from the auctioning of EU allowances increased from EUR 5.5 billion in 2017 to EUR 14.1 billion in 2018, reflecting the increase in the allowance price (i.e. the average allowance price increased from EUR 5.8 per tonne in 2017 to EUR 15.5 per tonne in 2018)^[5].

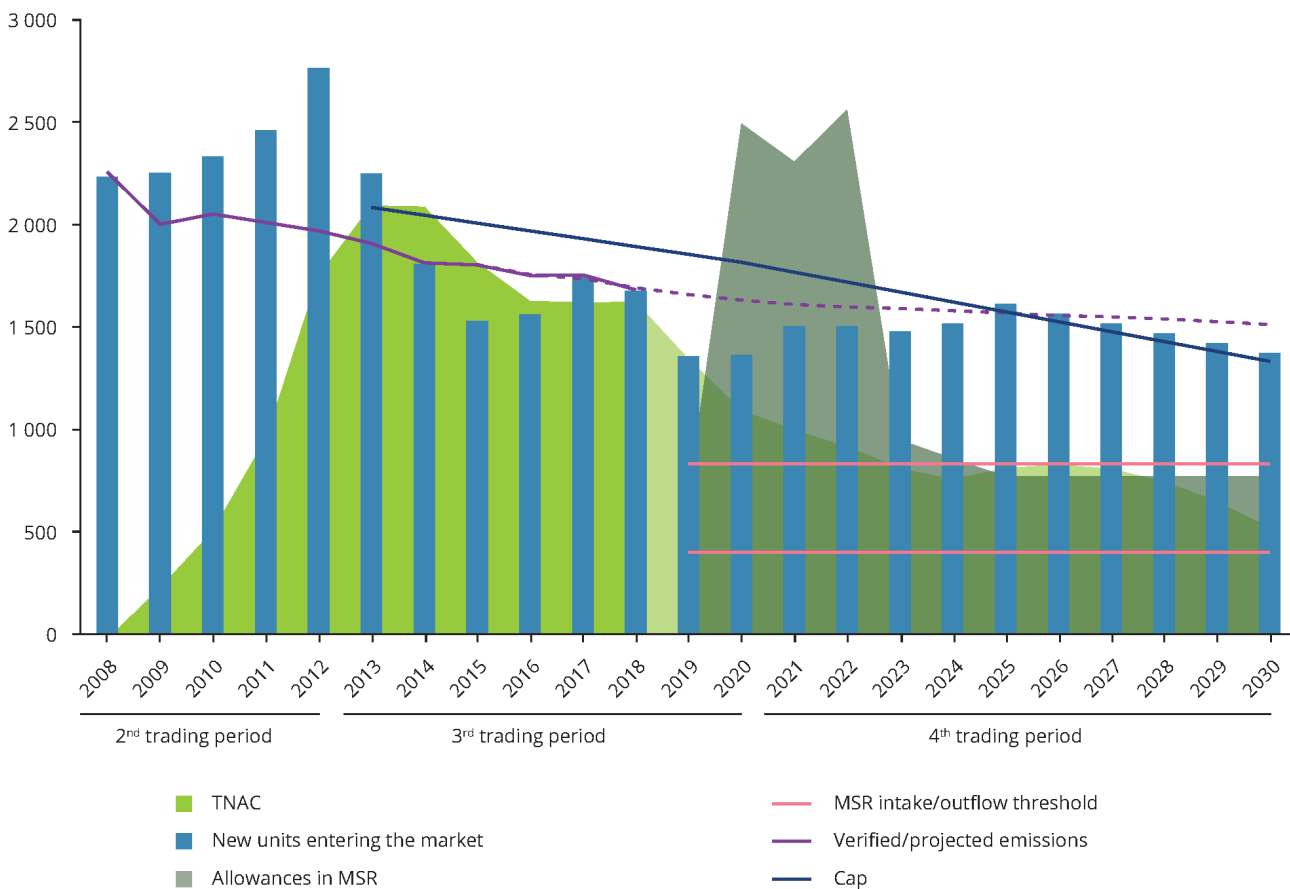
To ensure the orderly functioning of the market and address the structural supply-demand imbalance, the Market Stability Reserve (MSR) began operations in January 2019. The MSR places a proportion of the total allowances (holdings) of the market into a reserve when the number of allowances is exceeding the demand above a certain threshold. In May 2019, the European Commission announced that a total of 397 178 358 allowances will be placed in the MSR between 1 September 2019 and 31 August 2020 (EC, 2019).

The EEA prepares estimates based on national projections of ETS emissions reported by Member States. According to these EEA estimates, the TNAC will decrease, as a consequence of allowances moving into the reserve over the coming years (Figure 3). From 2023 onwards, certain holdings in the reserve will lose their validity^[6]. As EU ETS emissions are projected^[7] to be higher than the cap from 2026 onwards, the demand for allowances will contribute to further reducing the TNAC. With measures currently in place, the EEA also estimates that the TNAC might not fall below the lower MSR threshold of 400 million before 2030.

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Figure 3 - EEA outlook of the supply and demand of allowances until 2030


Mio. emission units / Mt CO₂-eq



Notes: For the period from 2019 to 2030, the TNAC is an estimate based on Member States projections. New units entering the market include free allocation, allowances auctioned and sold, and the use of international credits.

Sources: Authors' calculation based on the projections of EU Member States, Iceland and Norway, which were compiled by the ETC/CME and the EEA (2019b). Download the figure [here](#).

Footnotes and references

EC, 2010,  Guidance note on interpretation of Annex I of the EU ETS Directive (excl. aviation activities), European Commission, accessed 10 November 2018.

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EEA - European Environment Agency (ed.) (2019c): EEA - European Environment Agency. EU Emissions Trading System (ETS) data viewer, 2019. Online available at <https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1>, last accessed on 28 Oct 2019.

[1] 'Combustion installations' refers to any oxidation of fuels, regardless of the way in which heat, electricity or mechanical energy produced by this process are used, and any other directly associated activities including waste gas scrubbing (EC, 2010).

[2] This is the average decrease by ETS activity codes 21 to 99, which cover specific industries. It does not include the industrial installations with no specific ETS activity, which are covered under combustion (ETS activity code 20).

[3] The third trading period runs from 2013 to 2020.

[4] The emission reductions between 2005 and 2018 are estimated based on the current scope of the EU ETS in the third trading period EEA (2019b).

[5] The average EUA price for a given year is calculated by taking EEX prices and supplementing this with ICE prices for days only where the EEX price is not available.

[6] A small intermediate decrease is also anticipated in 2021, when the new entrant reserve for the period 2021-2030 is taken out of the MSR.

[7] With existing measures.

Identifiers

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