



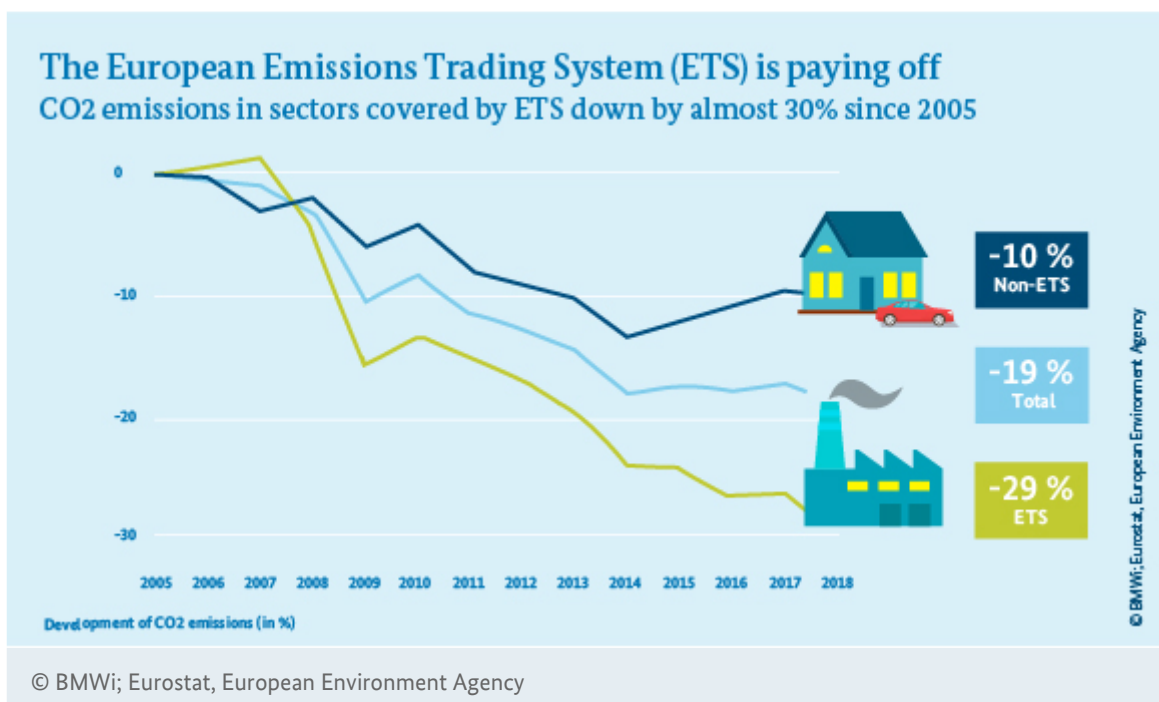
Full of energy – Germany's Presidency of the Council of the EU



During its Presidency of the Council of the European Union, Germany wants to lend a fresh stimulus for clean growth and innovation to Europe's ambitious energy policy. [Find](#)

The success story of emissions trading

Since the European Emissions Trading System (ETS) was established in 2005, CO₂ emissions in the sectors covered by the ETS have fallen by almost 30% – a decrease that far exceeds the EU-wide target of 21%.



According to Eurostat, the statistical office of the European Union, and the European Environment Agency, the CO₂ emissions covered by the European Emissions Trading system (ETS) have declined far more markedly than in other sectors. Emissions from the electricity, industry and intra-EU aviation sectors are subject to a cap set by the EU ETS. For other sectors such as transport, heat and land use, there is no common trading system in place. At just 10%, the decrease in the sectors that are not being covered by the EU Emissions Trading System, such as transport and buildings, has been considerably smaller.

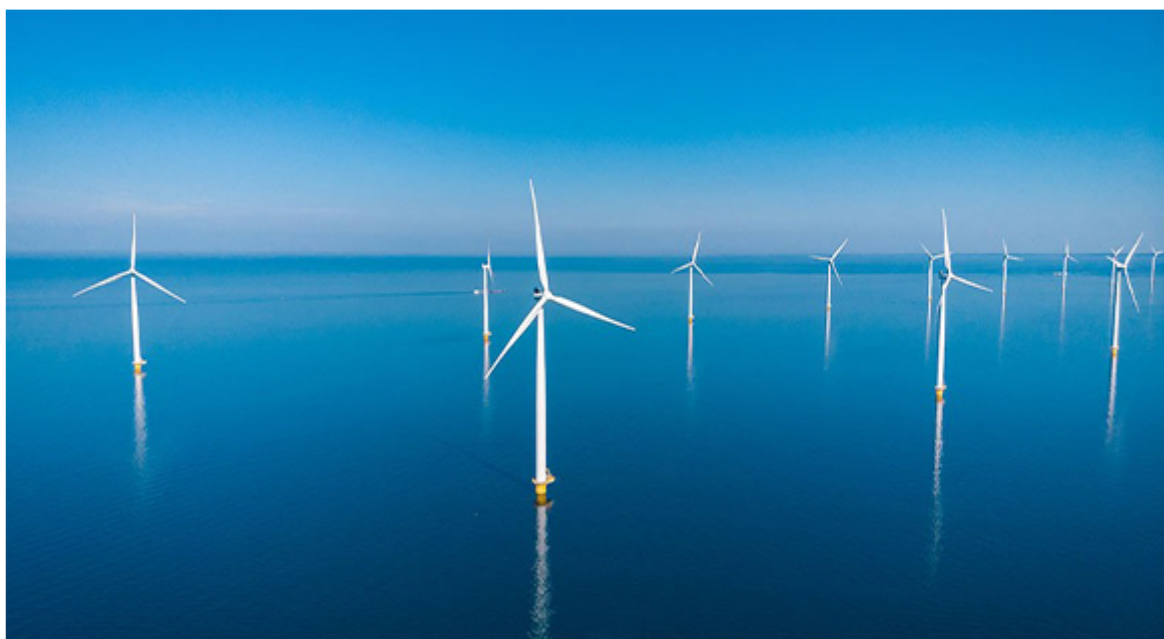
The aim of the European Emissions Trading System is to help reduce greenhouse gas emissions from the participating energy sector and energy-intensive industries. Covering almost half of all greenhouse gas emissions generated in Europe, the scheme is the key instrument of European climate policy. In 2005, the ETS was established as a means of implementing the Kyoto Protocol. Participating companies are required to submit allowances for any emissions they generate, and they can trade in these allowances with each other. Here are some resources that explain how exactly the ETS works.

FURTHER INFORMATION

- [\[> Information on the EU Emissions Trading System \(EU ETS\) by the European Commission](#)
- [\[> Article by the Federal Ministry for Economic Affairs and Energy: The EU emissions trading system essential for the energy transition](#)

The winds of change are blowing over the North Sea

The North Seas countries agree that offshore wind power is key to reaching carbon neutrality. That is why they are calling for a European policy framework to improve cooperation on the use of offshore wind energy.



In a [joint declaration](#) at the ministerial meeting of the [North Seas Energy Cooperation \(NSEC\)](#) held on 6 July 2020, the ministers and the European Commissioner for Energy, Kadri Simson, highlighted the pivotal role played by offshore wind power in achieving the goals of renewable energy expansion and Europe's climate targets for 2050. The ministers agreed that the vast potential of the North Sea could make a major contribution towards increasing the use of offshore wind energy.

The member states believe that speeding up the implementation of cross-border offshore wind projects in a way that links the North Seas countries together will help to harness this potential. It would thus be possible to reduce both costs and demand for offshore areas. Also, positive effects are expected for electricity trading, industrial growth and employment in the region. All of this, the ministers pointed out, can help to foster Europe's economic recovery.

European Commission called upon to develop an EU-wide framework

Therefore, the ministers stressed the importance of eliminating existing obstacles in order to facilitate the speedy implementation of multinational offshore wind energy projects. In their joint declaration, they call on the European Commission to develop an appropriate EU-wide enabling framework which lays down guidelines for member states on the implementation of cross-border projects, adequate electricity market arrangements, and improved and efficient EU financing. The declaration also serves as a basis for the debate to take place among EU member states during Germany's Council Presidency.

The North Seas Energy Cooperation is a cross-border group that currently comprises nine European states and the European Commission as its members. The focus of the NSEC's work is on the expansion of offshore wind energy and offshore grid infrastructure. In 2020, Germany holds the presidency of the NSEC.

Minister Altmaier: growth rate for offshore wind power must increase considerably

At the meeting, Economic Affairs Minister Peter Altmaier highlighted the essential role played by joint and [hybrid offshore wind projects](#) in reaching the energy and climate targets for 2050. 'The potential European contribution of offshore wind energy by 2050 is more than ten times today's installed capacity of 22 GW. To this end, annual installation rates of currently 3 GW per year will have to scale up considerably in the coming years,' Altmaier said.

A common path that is not without obstacles

However, the path towards this goal is not without obstacles. These include different national provisions regarding the use of the sea bed, substantial coordination efforts in implementing joint and hybrid projects, and potentially unbalanced allocation of costs and benefits across the involved member states. Also, there are competing interests regarding the use of scarce offshore areas for offshore wind infrastructure, on the one hand, and for international trade on the other.

Therefore, in addition to calling for an EU-wide enabling framework, the member states also pledged to enhance coordination on the design and timing of offshore wind auctions and methodologies to

assess the distribution of costs and benefits of the joint and hybrid projects. Apart from that, the ministers and the European Commissioner want to better dovetail offshore grid planning with onshore grid connections of offshore wind farms. Also, maritime spatial planning and offshore grid planning are to be better coordinated in order to further speed up the expansion of offshore wind power across the region.

Specific proposals to be further elaborated by end of 2020

European Commissioner Kadri Simson is certain: 'Only by stronger cross-border cooperation, such as between the North Seas countries, will we be able to sufficiently scale up renewable energy production and make Europe the first climate-neutral continent.'

To this end, the second half of Germany's NSEC presidency will offer the opportunity to further elaborate specific proposals for enhanced maritime spatial planning, offshore grid planning and the role to be played by offshore renewable energy generation, including hydrogen, up to 2050.

Belgium's Minister of Energy Marie-Christine Marghem has offered to take over the NSEC presidency in 2021. The ministers and the European Commissioner will reconvene at the next Ministerial Meeting of the North Seas Energy Cooperation in Brussels in December.

FURTHER INFORMATION

[\[→ Joint press release \(Federal Ministry for Economic Affairs and Energy/NSEC\): North Seas countries call for European enabling framework for offshore wind energy cooperation on the way to climate neutrality](#)

[\[→ Joint press release by North Seas countries and the European Commissioner for Energy \(PDF download, 609 KB\)](#)

[\[→ Article by the Federal Ministry for Economic Affairs and Energy: The North Seas Energy Cooperation](#)

[\[→ Article by the Federal Ministry for Economic Affairs and Energy: What exactly is the North Seas Energy Cooperation?](#)

How does the European Emissions Trading System actually work?

A precision landing for climate efforts: the European Emissions Trading System has a reputation for reliable results when it comes to reducing emissions in the long term. Find out here why it acts both as an incentive and as an insurance guarantee.



This is what it's all about: harmful greenhouse gas emissions are to be cut to protect the climate – at the lowest possible costs for the economy.

It is the central instrument of European climate policy and aims for nothing less than the reduction of GHG emissions that is urgently needed for climate change mitigation. In 2003, the European Emissions Trading System (ETS) was established by the European Parliament and the Council of the European Union; on 1 January 2005, the Emissions Trading Directive went into force. As of 2019, 31 European countries were participating in the scheme with about 11,000 high-emission installations from electricity production and carbon-intensive industries. And this has paid off: since 2005, emissions generated within the world's largest emissions trading system have decreased by nearly 30%, surpassing the EU's target of 21%. But how exactly does the ETS work and how can it be steered?

This is how the ETS works in practice

Anyone who operates a high-emission installation registered in the ETS is required to possess an allowance for each tonne of CO₂ that is emitted. Some operators obtain a certain annual amount of allowances free of charge so that their international competitiveness is not put at risk. Apart from this, however, operators have to buy their emission allowances, either at auctions or from other market participants. Thus, each tonne of carbon that is saved (or 1 EUA) is given a direct monetary value that

is determined by means of supply and demand. Every year by the end of April, operators have to take stock of their emissions record. If the number of allowances does not equal the actual amount of CO₂ that has been emitted, a fine of €100 is payable for each excess EUA. The disclosed figures are also used to forecast emissions for the next year.

Allowances from the digital drawer

Operators use a kind of digital drawer to store the CO₂ allowances they have been assigned. This is because trade in emission allowances takes place exclusively in electronic form. It is conducted via trading exchanges – in a way similar to the electricity market – but also outside of them. Business dealings of the latter kind most often take place on a long-term and direct basis and are also known as 'over-the-counter' trading. The most important trading places for CO₂ allowances are the ECX (European Climate Exchange) in London, the EEX in Leipzig and the EXAA in Vienna. Every day at 11 a.m., the EEX publishes its EEX Carbon Index, the market price for short-term trading (spot market price) relative to the development of the carbon price in Europe.

'Cap and trade' – the most effective concept for handling the long-term challenge of climate change

The emissions trading system is based on a principle known as 'cap and trade'. A cap is set on the total amount of greenhouse gas emissions that installations subject to the ETS are allowed to generate. Member states allocate a certain amount of emission allowances to the installations – some of them free of charge, some via auctions. The allowances can be freely traded in the market, which leads to the creation of a price for GHG emissions. Consequently, trading provides the necessary flexibility to ensure emission reductions take place where this causes the lowest costs. Moreover, the carbon price and the symbolic effect of the cap both help to promote investment in clean, low-carbon technologies. Among the large number of approaches to emission reduction that have been devised, 'cap and trade' stands out as the most effective and reliable instrument. The ETS therefore creates an incentive to cut down on emissions. But it also acts as an insurance guarantee that ensures emission targets will be met even if other measures across the sectors covered by the ETS – such as the expansion of renewable energy or the closure of coal-fired power plants – prove insufficient. The latter measures are primarily relevant in terms of the impact they have on the price of emission allowances. That is why low prices for allowances do not necessarily mean that the goals set for the emissions trading system are not ambitious enough. They may also be the result of other measures leading to lower emissions and thus decreasing the overall demand for emission allowances.

Stability reserve against price volatility

In 2015, a market stability reserve was introduced in order to enhance the flexibility of the EU ETS with regard to strong fluctuations in demand and prices. The reserve is to gradually remove surplus allowances from the market. A surplus of allowances can build up if the need for allowances decreases significantly in times of economic downturn. In such an event, the market stability reserve ensures that the unutilised allowances cannot be saved for a later point in time when they would unnecessarily cause higher emissions.

Not all emissions are covered by the ETS

The participating sectors are, however, collectively responsible for about 50% of carbon emissions generated in Europe. These sectors include, for example, fossil-based energy generation facilities with a capacity of 20 MW or more; the coal industry with its refineries, coking and cracking plants; the metals industry with its iron, steel and aluminium works; the cement and lime industry as well as the production of plaster and mineral fibre; the glass, ceramics, and brick and tile industry; the paper and cellulose sector; the chemical industry; the production of technical gases (such as nitrous oxide and hydrofluorocarbons); and, since 2012, the European aviation sector.

The ETS has proven its efficiency throughout the past fifteen years. Therefore, current debate is focusing on the medium-term possibility of extending the EU ETS to the heat and transport sectors, and possibly to agriculture and land use as well. In addition, the possibility of integrating 'negative' emissions is being considered. This could provide a further financial incentive for those companies that manage to remove CO₂ from the atmosphere in a way that is reliable, permanent, sustainable and measurable.

National emissions trading system established as part of Germany's climate package

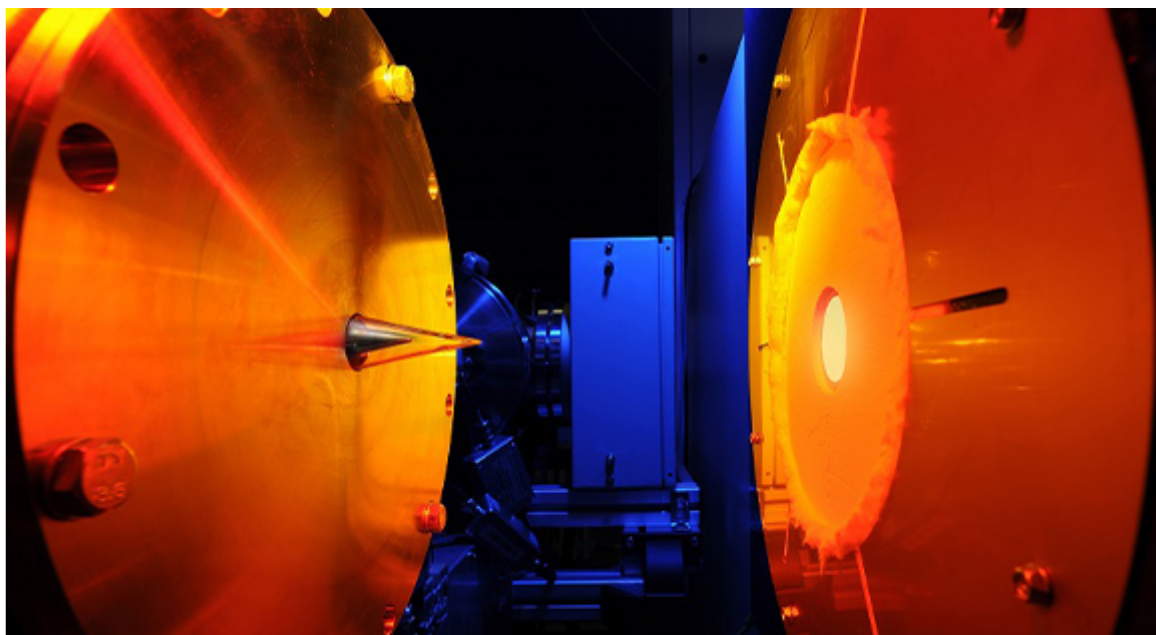
In autumn 2019, the Federal Government decided to establish a national emissions trading system as part of its climate package. This national scheme is independent of the European Emissions Trading System. It principally applies to the transport and buildings sectors, which are not covered by the EU ETS. From 2021, the fuel trade will thus be required to buy emission allowances for its products. In the medium to long term, it is conceivable that both systems will be linked by means of a common cap.

FURTHER INFORMATION

- [\[→ Information on the EU Emissions Trading System \(EU ETS\) by the European Commission](#)
 - [\[→ Article by the Federal Ministry for Economic Affairs and Energy: The EU emissions trading system](#)
 - [\[→ essential for the energy transition](#)
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Innovations for the energy transition

Research and development activities are instrumental in delivering the energy transition and in paving the way for more climate action. The 2020 Federal Report on Energy Research presents the latest findings.



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By 2050, Germany wants to achieve greenhouse gas neutrality. By 2030, the share of renewables in electricity consumption is to amount to 65%. The foundation for tomorrow's climate-friendly energy system is laid by energy research. Research and development are supported by the [7th Energy Research Programme of the Federal Government](#). Since it often takes a lot of time before research findings can be applied in practice, the Research Programme places particular emphasis on the promotion of measures that can speed up the transfer of technology and innovation into practice. The 'regulatory sandboxes for the energy transition', which foster applied energy research, are a case in point. These are large-scale projects that test forward-looking energy technologies in real-life conditions on an industrial scale. In December 2019, of the twenty winners of the competition for regulatory sandboxes for the energy transition, SmartQuart was the first project to be launched.

These and many other breakthroughs and current priorities of the [7th Energy Research Programme](#) are presented in the [latest issue of the Federal Report on Energy Research](#). In 2019, the Federal Government is reported to have invested around €1.15 billion in the programme, which represents a further 9% increase in funding compared to the previous year. The participating ministries pursue a twofold approach that consists of institutional research funding, on the one hand, and the key instrument of project funding on the other. Teams of scientists that are organised through partnerships between companies and research institutions work on issues that are of great importance to the practical implementation of the energy transition. At the same time, the participation of the business community is to ensure that the transfer of the innovations can take place whilst the project is still ongoing. In 2019, the Federal Government funded 5,903 ongoing projects and approved funding for 1,622 new projects.

SMEs as catalysts for the energy transition

Small and medium-sized enterprises (SMEs) play a key role along the path of innovations from scientific research to their commercial application. SMEs have a particular aptitude for swiftly transferring innovations from research into practice and making them fit for the market. Thus, they become a catalyst for the success of modern technologies and for more climate action. They use energy-efficient solutions in their own operations, opt for modern forms of power and heat supply from renewable sources of energy, and offer applications, products and services on the market. SMEs account for a total of 28% of beneficiaries from the new projects approved in 2019 within the framework of the 7th Energy Research Programme. Of the ongoing projects in 2019, they had a share of 25%.

From digitalisation to sector coupling

The Federal Government's 7th Energy Research Programme seeks to orient research funding more towards cross-sector and cross-system issues. These include digitalisation, sector coupling and the interactions between the energy system and society. It is precisely the focus on interfaces and interdisciplinary areas of research that drives the energy transition. By promoting a better understanding of the interactions between the various stakeholders within an energy supply system shaped by renewables, it helps to increase efficiency and security. Therefore, the successful transformation of the energy system requires both scientific advances in individual technologies (e.g. optimising the components of wind energy installations) and a kind of research that focuses on the big picture and on the interconnections between systems.

Keeping up to date with energy research

These broad-based topics are also addressed by the new website energiesystem-forschung.de. It provides information on energy research across a wide range of areas, including hydrogen and sector coupling, electricity storage, power grids, systems analysis, digitalisation, the energy transition and society, and the energy transition in the transport sector. By reporting on current projects, funding measures and trends, and by publishing a newsletter, the portal supports the transfer of research findings into commercial applications. Further information on the topic of energy research is available on specialised portals such as strom-forschung.de and projektinfos.energiewendebauen.de, and on the websites of the [energy research networks](#).

FURTHER INFORMATION

[\[→ 2020 Federal Report on Energy Research\]](#)

[\[→ 7th Energy Research Programme of the Federal Government\]](#)

[\[→ Press release by the Federal Ministry for Economic Affairs and Energy: Energy research lays](#)

[groundwork for energy transition – Federal Cabinet adopts 2020 Federal Report on Energy Research\]](#)

Renewables Global Status Report reveals record numbers for growth of renewables

According to the report, electricity generation from renewables has risen 'impressively' over the past five years. However, the report also shows that too little is being done in the heating, cooling and transport sectors: 'Overall, global hunger for energy keeps increasing and eats up progress. The journey towards climate disaster continues, unless we make an immediate switch to efficient and renewable energy in all sectors in the wake of the COVID-19 pandemic,' the paper says. What the world needs, it is argued, is a full fossil lockdown. The Renewables 2020 Global Status Report (GSR) is authored by a global community of around 350 experts (REN 21) from academia and research, governments, NGOs and all industries related to renewable energy. It is considered to be the world's most comprehensive report on renewable energy.

International Energy Agency: special report on the impact of the coronavirus pandemic

In June 2020, the International Energy Agency published the World Energy Outlook Special Report on Sustainable Recovery, which addresses the impact of the coronavirus pandemic. It proposes a plan for the years 2021 to 2023 which makes recommendations on how the thirty IEA member states can revive their economies by promoting clean and sustainable energy technologies. The report was developed in cooperation with the International Monetary Fund. During the presentation of the report, IEA Director Fatih Birol said the COVID-19 pandemic was a 'a once-in-a-lifetime opportunity to reboot their economies and bring a wave of new employment opportunities while accelerating the shift to a more resilient and cleaner energy future'. Over the coming three years, member states are encouraged to invest a total of \$3 trillion from public and private sources in power lines, building modernisation measures and renewable energy. A third of the sum is to be invested in energy efficiency measures for the transport, buildings and industrial sectors.

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