

European Commission

Climate Action

Progress Report 2026

From ambition to delivery: building a clean, competitive and independent Europe

November 2026

◀◀ Wind and solar added since 2021 displaced an estimated 14 bcm of gas in 2025, saving the EU more than EUR 5 billion.

EUROPEAN COMMISSION

Directorate-General for Climate Action
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Europe is stepping up, not slowing down. The EU's emissions continue to fall and use of clean technologies is expanding across the economy. But the climate crisis is accelerating too, and we need to move faster and prepare better for impacts.

Climate action, competitiveness and independence go hand in hand. By accelerating the transition to clean, home-grown energy, we can cut emissions, strengthen our resilience and reduce our dependence on imported fossil fuels.

The next step is faster implementation and investment across Europe. That is how we can meet our targets and secure a cleaner economy, stronger industry and greater prosperity for Europeans.

Wopke Hoekstra
Commissioner for Climate Action European Commission





Kurt Vandenberghe
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Becoming climate neutral is in the EU's existential interest, ecologically, economically and geopolitically. The direction towards climate neutrality by 2050 is clear and binding. We are now putting in place the policies, financing and practical tools to make this transition work for European businesses and citizens. The Commission is developing a new climate and energy policy framework for the next decade, with a strong focus on investment, innovation and industrial competitiveness. We have proposed to make the EU Emissions Trading System an engine for innovation and investment, including a new Industrial Decarbonisation Bank that will mobilise EUR 100 billion, starting with an Investment Booster, to de-risk European industry's investment in clean technologies. Together with the Clean Industrial Deal and the proposed Industrial Accelerator Act, we help create the conditions for European businesses to modernise and remain competitive.

We are also stepping up efforts to better prepare Europe for the impacts of climate change. Our recently presented EU Framework for Climate Resilience, including a proposal for a first-ever European Climate Resilience Law, will help governments and businesses better understand and manage climate risks and integrate resilience into planning and investment decisions. Investing in resilience is not only about preventing damage and economic losses. It also creates opportunities for innovation, new technologies and improved quality of life.

The coming years will be about turning these initiatives into results. We look forward to closely cooperating with Member States, businesses and investors to mobilise public and private investment, remove barriers and ensure that our policies deliver real benefits across Europe.

Why do we publish this report?

The European Commission monitors and assesses progress in meeting climate targets, as required by EU legislation. Under Articles 29(1) and 29(5) of the Governance Regulation, it must assess and report on progress annually by the end of October, starting from 2021. This Climate Action Progress Report serves as this assessment.

Summary

Europe is increasingly experiencing the consequences of climate change. Severe heatwaves, drought, wildfires and record ocean heat affected the continent in 2025, with preliminary information pointing to even more severe impacts in 2026. At the same time, the global temperature increase is expected to exceed 1.5 °C above pre-industrial levels within the next years. This makes faster emission reductions, stronger carbon removals and greater resilience to climate impacts increasingly urgent.

The EU continues to make progress towards climate neutrality. EU greenhouse gas emissions decreased by around 1.6 % in 2025 compared with 2024. This continues the long-term downward trend but the pace of reductions needs to accelerate to reach the 2030 climate target. Emissions covered by the EU Emissions Trading System fell by 2%, while emissions in the effort sharing sectors remained broadly stable. Further efforts will be needed to meet the 2030 targets, particularly in the effort sharing and land use sectors.

The transition to a cleaner energy and transport system is gaining momentum. Wind and solar capacity reached 611 GW in 2025, while registrations of battery-electric cars increased to 1.9 million, around one in six new cars sold in the EU. The deployment of clean technologies is helping reduce fossil fuel dependence, strengthen energy security and protect the European economy from external shocks. Around 260 GW of additional wind and solar capacity have been installed since 2021. EU clean-tech manufacturing has also expanded, although European industry has not yet fully captured the economic opportunities created by growing demand for these technologies. Fossil fuel imports have dropped in recent years. Nevertheless, the sharp increase in fossil fuel prices has meant that the EU has spent around EUR 100 billion extra on the fossil fuels it has imported this year, without receiving any additional energy in return.

EU climate policy advanced substantially in 2025 and 2026, confirming that the EU is staying the course on its long-term targets, and putting in place the policies to meet them. EU decision makers agreed a legally binding 90% net greenhouse gas reduction target for 2040. The EU continued developing the policy framework with further work on emissions trading, industrial decarbonisation, carbon management and support for households and industry. The EU ETS remains a central instrument of this framework. It generated EUR 43.2 billion in auction revenues in 2025, supporting national climate measures and EU programmes such as the Innovation Fund, Modernisation Fund and Social Climate Fund.

Important challenges nevertheless remain. Emissions from sectors covered by the Effort Sharing Regulation are currently projected to be cut by around 38.5% by 2030 compared with 2005, below the EU-wide 40% target. Member States need to fully implement all current and planned climate policies to meet the targets. Carbon removals from land have improved recently but remain well below the level needed to meet the 2030 target. Major investment will also be required to strengthen the EU

carbon sink, develop CO_2 transport and storage infrastructure, accelerate industrial decarbonisation and expand clean technologies.

Preparing for the impacts of climate change is equally important. Climate-related extreme events have caused EUR 822 billion in losses in the EU since 1980. Around EUR 69 billion of investment per year is estimated to be needed for adaptation up to 2050. All Member States now have national adaptation policies, although their level of preparedness remains uneven. The recently adopted EU Framework for Climate Resilience strengthens the European approach to preventing and preparing for growing climate risks, with a common future temperature reference scenario, clear identification of responsibilities by national authorities, and tools to understand and respond to risks.

Mobilising investment from both public and private sources is essential. Companies invested EUR 273 billion in environmentally sustainable activities in 2024, while green bond issuance reached EUR 287 billion in 2025. EU funding programmes are helping deploy innovative clean technologies and support a fair transition, including around 240 projects supported by the Innovation Fund and at least EUR 86.7 billion to be mobilised through the Social Climate Fund by 2032.

Climate action also remains a central element of the EU's international engagement. Global greenhouse gas emissions still increased by 0.7% in 2025, although emissions growth continued to slow as renewable energy deployment and clean energy investment accelerated. The EU continued to support implementation of the Paris Agreement, promote carbon pricing and strengthen climate partnerships worldwide. Candidate countries also continued aligning their climate legislation with EU rules, although progress remains uneven. The EU and its Member States remained the largest provider of international climate finance in 2025.

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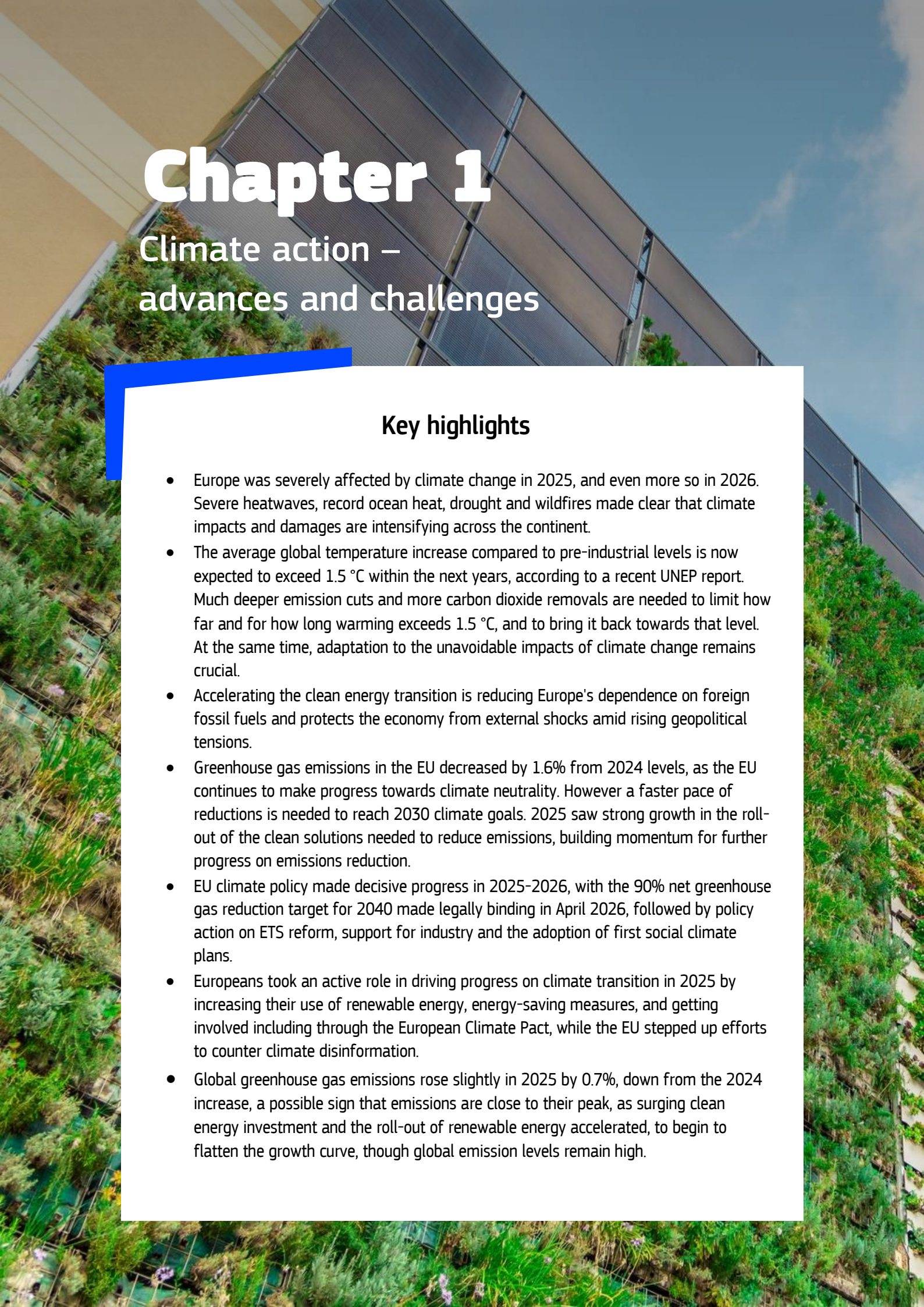
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Chapter 1

Climate action – advances and challenges

Key highlights

- Europe was severely affected by climate change in 2025, and even more so in 2026. Severe heatwaves, record ocean heat, drought and wildfires made clear that climate impacts and damages are intensifying across the continent.
- The average global temperature increase compared to pre-industrial levels is now expected to exceed 1.5 °C within the next years, according to a recent UNEP report. Much deeper emission cuts and more carbon dioxide removals are needed to limit how far and for how long warming exceeds 1.5 °C, and to bring it back towards that level. At the same time, adaptation to the unavoidable impacts of climate change remains crucial.
- Accelerating the clean energy transition is reducing Europe's dependence on foreign fossil fuels and protects the economy from external shocks amid rising geopolitical tensions.
- Greenhouse gas emissions in the EU decreased by 1.6% from 2024 levels, as the EU continues to make progress towards climate neutrality. However a faster pace of reductions is needed to reach 2030 climate goals. 2025 saw strong growth in the roll-out of the clean solutions needed to reduce emissions, building momentum for further progress on emissions reduction.
- EU climate policy made decisive progress in 2025-2026, with the 90% net greenhouse gas reduction target for 2040 made legally binding in April 2026, followed by policy action on ETS reform, support for industry and the adoption of first social climate plans.
- Europeans took an active role in driving progress on climate transition in 2025 by increasing their use of renewable energy, energy-saving measures, and getting involved including through the European Climate Pact, while the EU stepped up efforts to counter climate disinformation.
- Global greenhouse gas emissions rose slightly in 2025 by 0.7%, down from the 2024 increase, a possible sign that emissions are close to their peak, as surging clean energy investment and the roll-out of renewable energy accelerated, to begin to flatten the growth curve, though global emission levels remain high.

1. Climate action – advances and challenges

1.1 Climate change impacts and greenhouse gas emissions: recent trends

Over the last year, the impact of climate change continued to intensify across Europe. This annual report was prepared during the exceptionally intense summer heatwave of 2026. Experts warn that 2026 might become the warmest year ever recorded. It is a clear **reminder that the impacts of global warming are accelerating, making the planet's climate increasingly extreme**. Europe is warming twice as fast as the global average, and almost the entire continent saw above-average annual temperatures in 2025. Several northern European countries recorded their warmest or second-warmest year. Sea surface temperatures in the European ocean region were the highest on record, while snow cover was the third lowest on record.

Globally, 2025 was the third-warmest year on record, with 2024 remaining the warmest year ever observed. The average global temperature increase relative to pre-industrial levels is set to exceed 1.5 °C, likely within the next few years. Yet if we act collectively now to reduce greenhouse gas emissions, **we can still bring the temperature increase back to 1.5 °C or below** by the end of the century. This remains the goal, alongside adapting to the unavoidable impacts of climate change.

Extreme heat was a major feature of the year. Heatwaves affected Europe from the Mediterranean to the Arctic Circle. In July 2025, **Europe experienced its second most severe heatwave to date**, lasting 25 days and affecting a large part of the continent. Sub-Arctic regions in Finland and Sweden experienced their most severe heatwave on record, with temperatures reaching 30 °C close to and within the Arctic Circle. Heat stress also increased across Europe. In 2025, 41% of Europe saw more days than average with at least strong heat stress, where the feels-like temperature is 32 °C to 38 °C. Parts of southern Europe, including the Iberian Peninsula and southeastern Europe, also saw more days than average with very strong heat stress. In 2026, these conditions intensified. May saw a severe heatwave that broke all-time records, June brought the most severe heatwave ever recorded across Western and central Europe, and the summer closed off with August as the world's joint hottest month on record.

Exceptional heat also affected Europe's surrounding marine environment. In 2025, a record 86% of the European ocean region experienced strong marine heatwaves during the year. The Mediterranean Sea had its second warmest year on record, with an average sea surface temperature of 21.5 °C. Marine heatwaves are increasingly affecting marine and coastal ecosystems, particularly including biodiversity in the Mediterranean. They can cause mass mortality of heat-sensitive species, favour the spread of non-indigenous species and alter marine food webs. Shifting fish distribution threatens fisheries, aquaculture and coastal communities. At the same time, ocean acidification and declining oxygen levels place additional pressure on shellfish, corals and other marine organisms.

The year was also marked by strong regional contrasts in hydrological conditions. Widespread drought affected parts of Europe in spring and summer. It was among the three driest years recorded since 1992, in terms of soil moisture. Spring was very dry in much of northwestern Europe, with some areas in Belgium, Germany, southern Sweden and Denmark recording their lowest levels of spring precipitation since 1979, if not earlier. Central and eastern Europe also saw drier conditions. At the same time, other regions experienced wetter-than-average conditions, including parts of the Iberian Peninsula, northern Italy and the Baltic countries. Extreme rainfall and flooding occurred in several parts of Europe, though this was less widespread than in recent years. In 2026, summer was widely dry across Europe, particularly in western, central and south-eastern regions. Spring showed stronger regional contrasts, with wetter-than-average conditions in some areas and dryness already emerging in others.

Wildfires were particularly severe in 2025. The burnt area in Europe reached an unprecedented level of over 1 million hectares, in large part due to fires on the Iberian Peninsula in August. Fire emissions in Europe also reached a record high. In 2026, wildfire activity remained exceptionally high, as vigorous vegetation growth during the wet winter and early spring in some regions, followed by persistent dryness and repeated heatwaves, created favourable conditions for extensive fires, particularly in Spain, France, Portugal and Italy. At the same time, glaciers in all European regions saw a net mass loss.

These developments clearly demonstrate that climate impacts are already affecting people, ecosystems, infrastructure and economic activity across Europe, underlining the need to step up both climate mitigation and adaptation.

Climate action is also increasingly linked to Europe's **energy security and geopolitical resilience**. Russia's war of aggression against Ukraine exposed the risks of the EU's dependence on imported fossil fuels, while renewed tensions in the Middle East have reinforced concerns over supply disruptions and volatile prices.

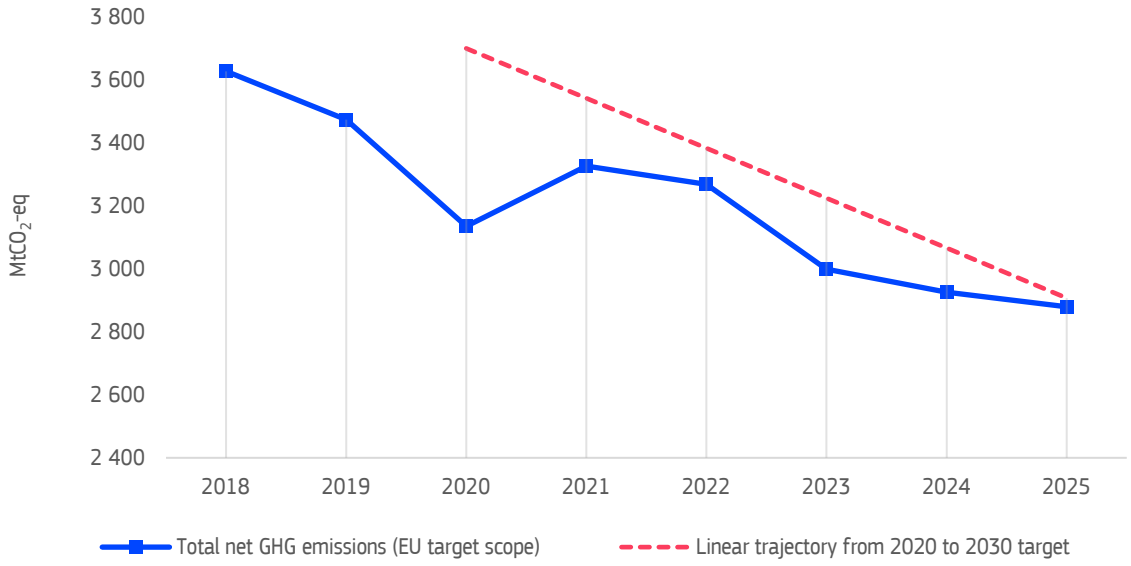
At the same time, **Europe is becoming more resilient**: since 2021, around 260 GW of additional wind and solar capacity has been installed, helping to reduce fossil fuel demand. During the first six months of the 2026 energy shock, EU fossil fuel spending was 31% lower than during the comparable period of the 2022 crisis, partly because imported fossil fuel demand fell by 10%. Accelerating the clean energy transition therefore helps not only to cut emissions, but also to reduce Europe's exposure to external shocks and strengthen its economic security.

Trends in the EU

Total GHG net emissions	Total GHG net emissions	GHG intensity of the economy
-1.6% vs 2024	**-39%** vs 1990	**-2.7%** vs 2024
		Ratio between total GHG net emissions and GDP

EU total net greenhouse gas (GHG) emissions in 2025 **fell by 1.6% compared to 2024**, continuing their downward trend, albeit **at a slower pace** than in previous years, according to provisional data submitted by the EU Member States. **Emissions were 39% lower than in 1990, while GDP was 74% higher**, meaning that the economy has grown as emissions continue to fall.

Figure 1: Total EU GHG net emissions (EU target scope, 2018-2025)



Note: Emissions under the EU target scope includes emissions from international aviation and maritime activities, as regulated under EU law, which have been estimated by the European Commission (see Chapter 2 of the accompanying staff working document).

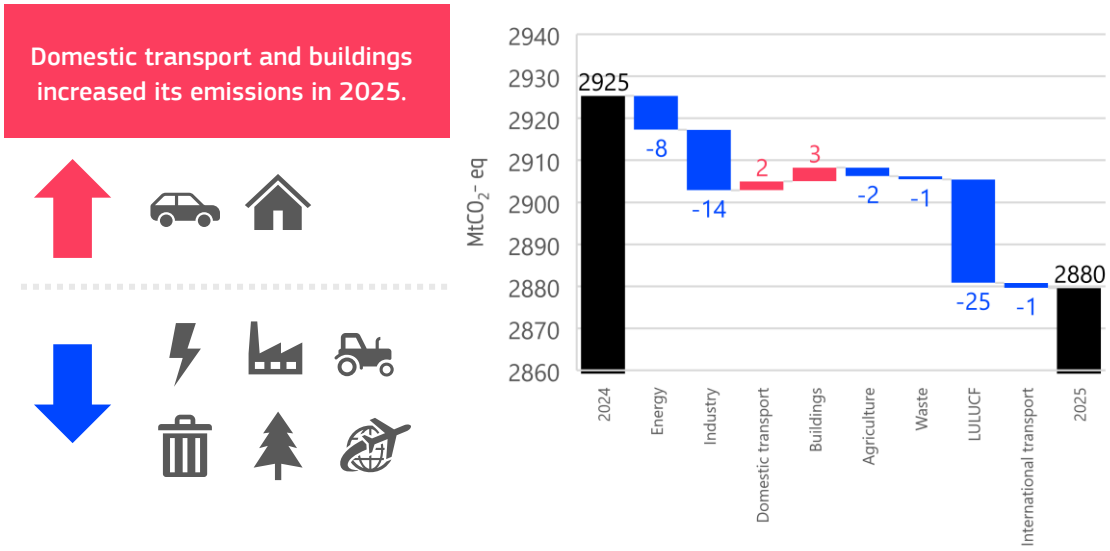
Source: 2026 GHG emissions inventory including approximated values for 2025 as reported by the EU Member States, our estimates.

The **EU Emissions Trading System (ETS)** remains successful in cutting emissions, with ETS emissions **falling by approximately 2.0% in 2025** following greater reductions in previous years. Since its launch in 2005, the ETS has halved emissions in the sectors it covers. The slower pace of reduction in 2025 appears to mainly reflect changes in the energy system. These changes include a greater use of gas to meet peak demand as variable renewable generation increases, and increased electrification of industry and transport. **Aviation** emissions covered by the EU ETS

slightly **increased by 0.2%** since 2024. By contrast, **maritime** emissions **fell by around 4%**, according to reported data (see Chapter 2).

In the **Effort Sharing sectors**, emissions remained at a similar level compared with 2024 (see Chapter 3). Provisional 2025 data for GHG emissions and removals from the land use, land-use change, and forestry (LULUCF) sector show an increase in net carbon sinks of around 11% (or 25 million tonnes of CO_2 equivalent, $MtCO_2$-eq) compared to 2024, although approximated data remain subject to revisions (see Chapter 4).

Figure 2: Change in the EU GHG net emissions in 2025 by sector



Notes: (1) Energy sector refers to electricity and heat production and petroleum refining (1.A.1 GHG inventory code). It also includes indirect CO2 emissions, emissions from other sectors (1.A.5 GHG inventory code), and fugitive emissions (1.B GHG inventory code). (2) Industry includes fuel combustion in manufacturing and construction (1.A.2 GHG inventory code) and emissions in industrial processes and product use. (3) Buildings include emissions from energy use in residential and tertiary buildings, and energy use in agriculture and fishery sectors (1.A.4 GHG inventory code).
Source: 2026 GHG emissions inventory and GHG approximated inventory values for 2025.

A more granular sectoral breakdown shows that in 2025, emissions in the **energy sector** fell by 1.2% (equivalent to 8 $MtCO_2$-eq) with emissions from **electricity and heat generation** declining by 1.7% despite a 1.2% increase in total EU net electricity produced. Solar energy generation had the most growth with a 19% year-on-year increase. This increase balanced out a decline in wind and hydroelectric generation, which suffered from lower wind speeds and reduced rainfall in northern Europe (see Figure 3).

Industrial emissions, mostly of which are covered by the EU ETS, also declined by 2.4% (14 $MtCO_2$-eq) compared with 2024. These emissions come from two main sources: fuel-combustion for on-site heat, steam, and power, and non-energy related industrial-process emissions such as cement clinker calcination, lime production, and metal or chemical manufacturing. Emissions from these two sources declined by 1.8% and 3.2%, respectively. The largest decline in non-energy related emissions was

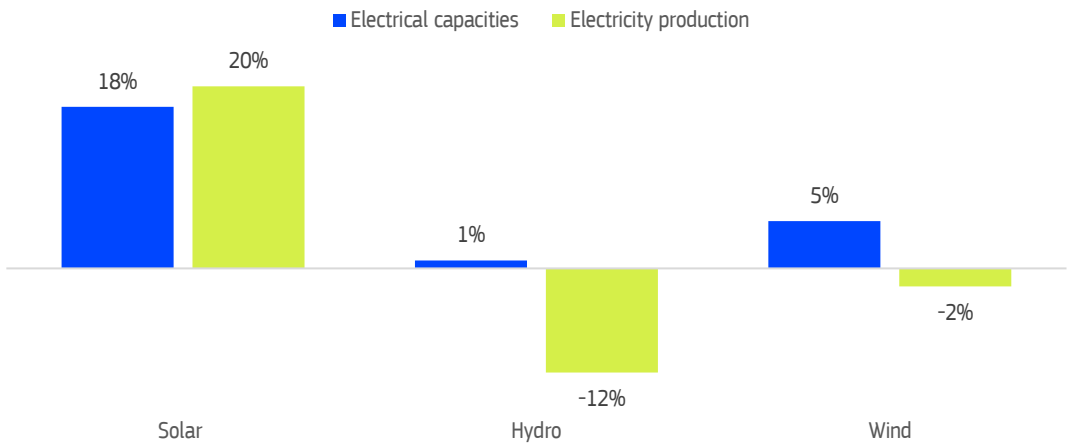
reported in the chemical industry (5.8%) followed by the metal industry (4.8%). In the chemical sector, output fell by 3.2%, while in the metal sector it rose slightly (+0.4%). This is in line with the overall trend of emissions in **energy intensive industries declining at a faster pace than production** (see Box 2 on industry decarbonisation).

The **agriculture** and **waste** sectors also contributed to the overall decline in emissions in 2025, with emissions falling by 0.6% (2.1 MtCO2-eq) and 0.7% (776 $KtCO_2$-eq), respectively, compared with the previous year. By contrast, emissions from **buildings** increased by 0.8% (3.3 $MtCO_2$-eq), reversing the recent downward trend, mainly due to the relatively colder winter in 2025 compared with previous years. Finally, **transport** emissions, the largest source of emissions in the EU, did not show any sign of trend reversal: emissions from domestic transport increased slightly, by 0.3% (2.1 $MtCO_2$-eq) while emissions from international maritime and aviation remained broadly unchanged.

There are several factors behind the **recent slowdown** in greenhouse gas emission reductions, some of which may be beyond direct policy influence, such as weather conditions. Increasing geopolitical tensions have also sparked **energy crises** that disrupted markets, drove up costs, and in some cases, **delayed the phase-out of fossil fuels** (see also Box 1 on energy crises).

As shown in Figure 3, solar generation increased significantly in 2025, especially across Southern and Central Europe. The boom was mainly driven by rapid new installations of solar panels, boosted by exceptionally clear, sunny skies.

Figure 3: Change in electrical capacities and electricity production from renewable energy sources between 2024 and 2025



Note: Figure 3 compares the electricity produced by key renewable sources against their maximum capacity, the amount they would generate if running continuously.
Source: Eurostat (nrg_ind_pehnf, nrg_inf_epc), Ember

Conversely, despite ongoing expansions of wind capacity and stable hydropower capacities, both technologies underperformed on generation due to exceptional weather conditions, including low wind and rainfall.

According to data from the Copernicus report, a severe winter snow shortage left high-altitude reservoirs heavily depleted, and a subsequent spring drought dropped most river levels well below their normal flows, causing a major drop in hydropower generation across the Nordic, Alpine, and Central European regions. Wind output also fell across Northwestern and Western Europe because prolonged, stable high-pressure weather systems reduced average wind speeds well below normal operational levels.

To compensate for this shortfall in hydro and wind power, the European energy grid relied on a combination of the record-breaking solar surge and an increase in fossil fuel generation. While coal power continued to fall to historic lows, natural gas generation was ramped up, recording a 12% increase for the year across the EU.

According to the IEA's 2026 Global Energy Review, if hydropower and wind had generated in 2025 the levels generated in 2024, this would have avoided over 65 $MtCO_2$-eq cutting emissions by an additional 2.2 percentage points.

Nonetheless, the **broader deployment of clean technologies continued apace**. The installation of solar photovoltaics has accelerated compared with the rate achieved in the previous years, while wind energy capacity remains stable (see Table 1). Furthermore, the uptake of heat pumps in 2025 marked a significant recovery and acceleration following the 2024 slowdown. New electric vehicle registrations have surged, significantly higher than prior levels.

Table 1: Additional installed capacity of renewables and new electric vehicles

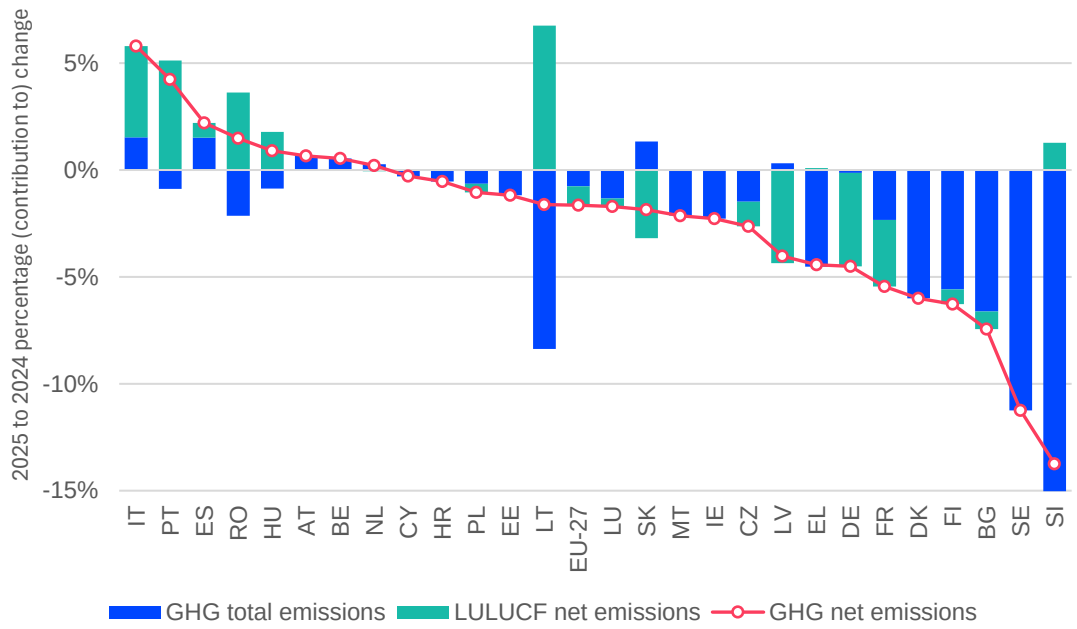
Rate of deployment of clean technologies (annual change)	2018-2022	2023	2024	2025
Annual additional solar PV installed capacity (GW)	20	54	60	56
Annual additional wind installed capacity (GW)	11	15	12	12
Additional heat pump installed capacity (GW)	30	33	26	41*
Annual new electric vehicles registrations (thousands passenger cars)	590	1 550	1 460	1 890

Source: For energy renewable capacities: Eurostat until 2024 (nrg_inf_epcrw) and IRENA for 2025. For heat pumps: Eurostat (nrg_inf_hptc) until 2024 and for 2025 (*) our estimates based on annual sales from EHPA. For annual electric car sales: Eurostat (road_eqr_carpda).

In 2025, according to preliminary data, **net greenhouse gas (GHG) emissions fell in most EU Member States**, with 19 countries recording a decrease (see Figure 4). The largest reductions were observed in Slovenia (-13.7%), Sweden (-11.3%), Bulgaria (-7.4%), Finland (-6.3%), Denmark (-6.0%) and France (-5.5%).

By contrast, eight Member States recorded an increase in net emissions. The largest rises were in Italy (+5.8%), Portugal (+4.2%) and Spain (+2.2%), followed by smaller increases in Romania, Hungary, Austria, Belgium and the Netherlands.

Figure 4: Annual changes in net GHG emissions, contribution of LULUCF net emissions, and GHG total emissions in EU Member States



Note: For both total emissions and LULUCF net emissions, the figure shows their relative contribution to the overall change in net emissions. This is calculated as the absolute change divided by the 2024 net emissions level.
Source: EU GHG emissions are based on the EEA's 2026 GHG inventory (for 2024 data) and its 2025 approximated inventory. As Bulgaria did not submit approximated inventory, the analysis is based on gap-filled estimates, prepared by the European Environment Agency (EEA) to ensure complete EU-27 coverage.

In several Member States, changes in net emissions were driven mainly by developments in the land use, land-use change and forestry (LULUCF) sector. This was the primary driver behind emission increases in Italy, Portugal, Romania and Hungary. Conversely, Slovakia's declining net emissions were largely linked to an enhanced LULUCF sink. In Germany and Latvia, where the sector is a net source, the improvement reflected a reduction in LULUCF emissions.

Box 1: Reducing economic vulnerability through climate action: lessons from recent shocks

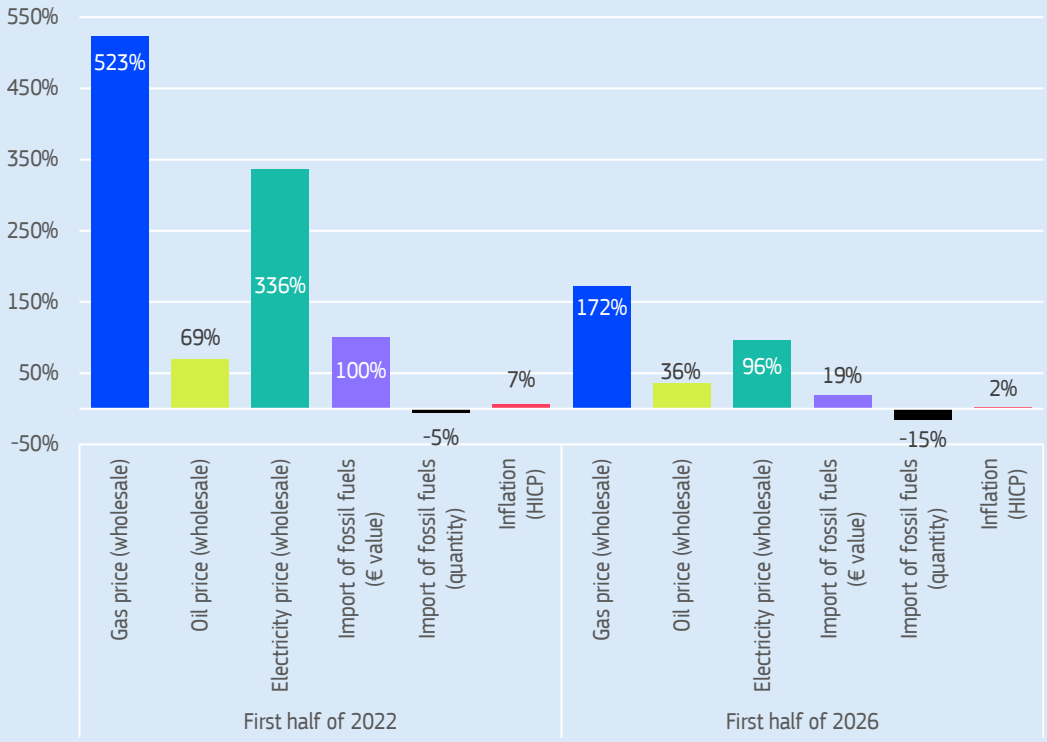
Recent energy shocks have shown how **geopolitical instability amplifies the costs of fossil fuel dependence in the EU**. Russia's war of aggression against Ukraine, followed by renewed tensions in the Middle East, exposed the EU's continued reliance on imported fossil fuels and its vulnerability to supply shortages and international price volatility.

These crises show that **sharp increases in energy prices affect the economy through multiple channels.** They strain public finances indirectly by raising the cost of import and directly via government support measures, raise inflation and erode households' purchasing power. Higher energy prices also increase production costs for firms, undermining the global competitiveness of European industry. Since the start of the conflict in Iran in 2026,

imported fossil fuels have cost the EU "*an additional EUR 100 billion, without a single molecule of energy added*" [i].

Figure A compares the effects of Russia's 2022 invasion of Ukraine and the 2026 Hormuz energy shock during the first half of each year, using the corresponding months of 2019 as a benchmark for selected climate and energy indicators. It shows that the 2022 shock had much stronger impacts across most indicators, with especially sharp increases in gas and electricity prices and the value of fossil fuel imports. Inflation also rose more in the 2022 shock than it did in the first half of 2026. So far, the 2026 Hormuz shock has led to a less pronounced spike in prices, and a steeper fall in the volume of fossil fuel imported compared with the 2019 benchmark. However, the closure of the Strait of Hormuz may turn out to be much more severe than the 2022 energy supply crisis, as it involves significantly larger flows of oil and gas.

Figure A: Impact of the energy price crisis on main climate and energy indicators (changes compared with the first half of 2019)



Source: Eurostat (import of fossil fuel, inflation), Ember (fuel and electricity price).

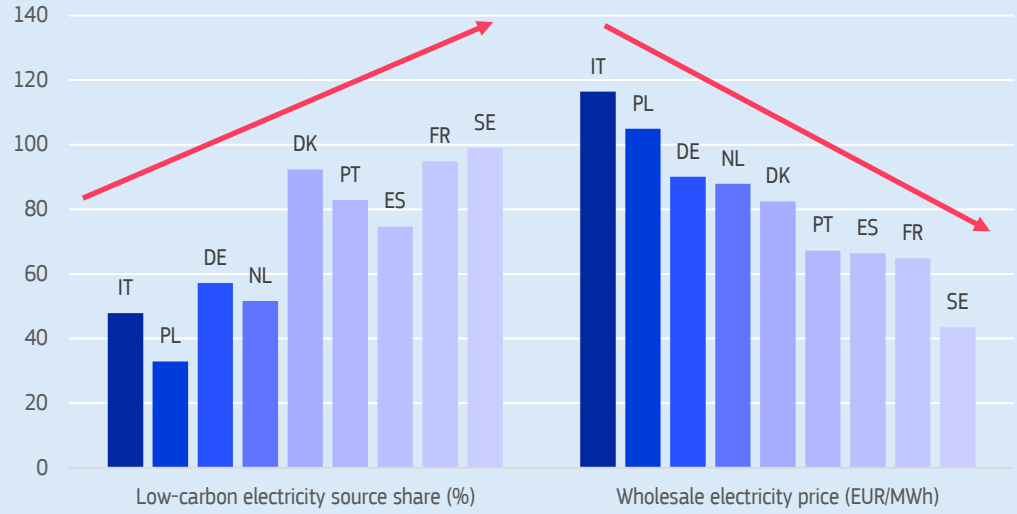
Evidence indicates that the ongoing climate and energy transition strategy is already delivering results. The expansion of renewable energy and stronger energy efficiency measures had enabled the EU to reduce imports of fossil fuels. Action under the **REPowerEU** initiative has increasingly shifted from short-term emergency measures to accelerated action on renewables, grid upgrades and clean technology investment, which helped dampen the impact of energy price shocks in 2026. Over the first six months of the crisis, total fossil fuel spending was 31% lower than during the 2022 energy shock triggered by Russia's invasion of Ukraine, largely because demand for imported fossil fuels

has fallen by 10%. If fossil fuel imports had remained at 2022 levels, Europe would have spent EUR 14 billion more in the first half of 2026 alone.

Renewable electricity expansion, especially solar, alongside continued wind growth, further reduced the use of fossil fuels in power generation. Since 2021, an additional 260 GW of wind and solar capacity has been installed in the EU, displacing an estimated 14 bcm of gas in 2025 alone – equivalent to the annual gas consumption of almost 10 million European households – and **generating savings of over EUR 5 billion** [ii].

Countries that rely less on imported fossil fuels for electricity generation are feeling the energy crisis less strongly. Data from 2025 shows that the lowest electricity prices in the EU are found in markets with a high share of clean electricity, including renewables and nuclear, as these systems are less affected by fossil fuels that typically set wholesale electricity prices (Figure B). For instance, in Spain, gas set the electricity price in only 15% of hours in 2026 so far, against 89% in Italy [iii]. As a result, all else being equal, a higher share of renewables lowers electricity prices by reducing the number of hours in which expensive gas-fired power plants set the wholesale market price.

Figure B: Wholesale electricity prices vs low-carbon electricity source share (2025)



Source: Eurostat, Ember, own calculations.

By lowering exposure to volatile global markets, EU energy and climate policies not only keep costs down for households and for public finances. They also support the competitiveness of European industry by bringing more predictable and, over time, lower energy prices.

Although some Member States temporarily increased coal use or reactivated coal capacity in response to supply security concerns in recent years, the trend is for continued, and in some sectors accelerated, emissions reductions. Taken together, these developments illustrate that the EU's climate and energy transition is proving resilient even under severe supply constraints.

[i] AccelerateEU to strengthen EU energy resilience - Energy

[ii] Commission's Communication on the EU Electrification Action Plan (COM(2026) 595 final)

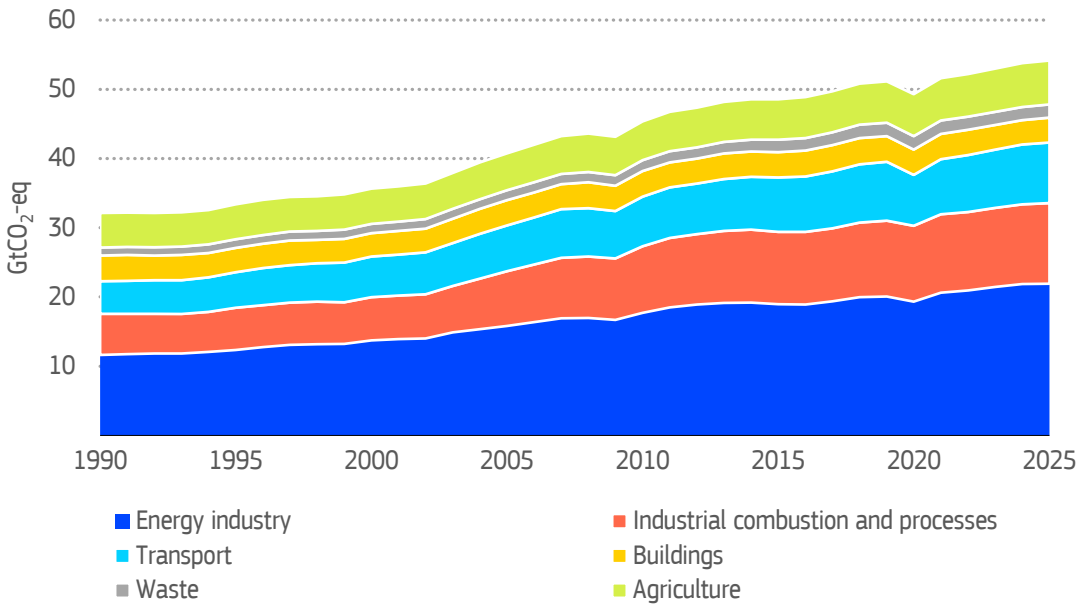
[iii] Rosslowe C. and Petrovich B., Latest energy shock reminds Europe of its risky gas reliance. Ember. March 2026

Global trends

According to the EDGAR report, **global greenhouse gas emissions continued to rise in 2025** reaching 54.1 billion tonnes of CO_2 equivalent. This 0.7% increase represents a slower growth rate than previous years.

By sector, industrial combustion and processes were the largest contributor to the increase in global emissions in 2025, rising by 1.4% or 156 $MtCO_2$-eq, followed by transport, which increased by 1.5%, or 128 $MtCO_2$-eq. By contrast, emissions from the power sector declined by 0.3% or 51 $MtCO_2$-eq, consistent with wider evidence of a surge in global clean investment, which in 2025 was double the level of investment in fossil fuel. Clean energy deployment increasingly offset the emissions impact of rising electricity demand. 2025 was the first year in which renewable power production as a whole exceeded coal power production in the global electricity mix.

Figure 5: Global GHG emissions by main sectors (excluding LULUCF) (1990-2025)



Note: Emissions from energy industry include both fuel production and power industry.
Source: EDGAR.

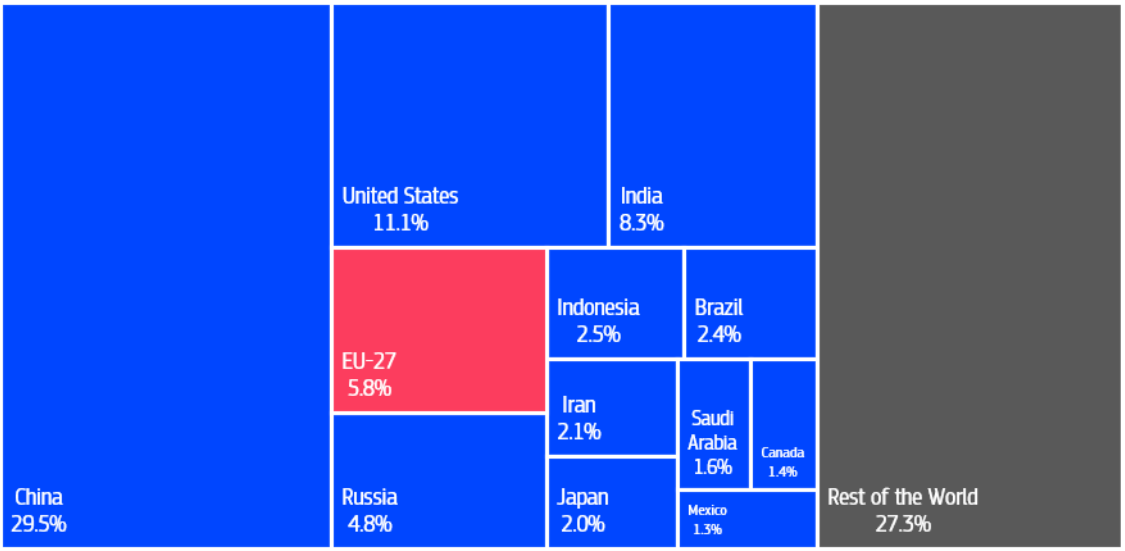
EDGAR estimates of GHG **differ** from the officially reported GHG emissions (i.e. GHG inventories submitted by the parties to the UNFCCC) mainly for two reasons:

- The source of data;
- The estimation methodology.

Only the **officially reported data** submitted to the UNFCCC should be used to assess the EU's climate progress. For more detailed information see the comparative analysis of EDGAR and UNFCCC GHG emissions inventories.

The six largest emitters in 2025 were China (generating 29.5% of global emissions), followed by the United States (11.1%), India (8.3%), the EU (5.8%), Russia (4.8%) and Indonesia (2.5%). Together, they produced 62% of global emissions in 2025 (see Figure 6).

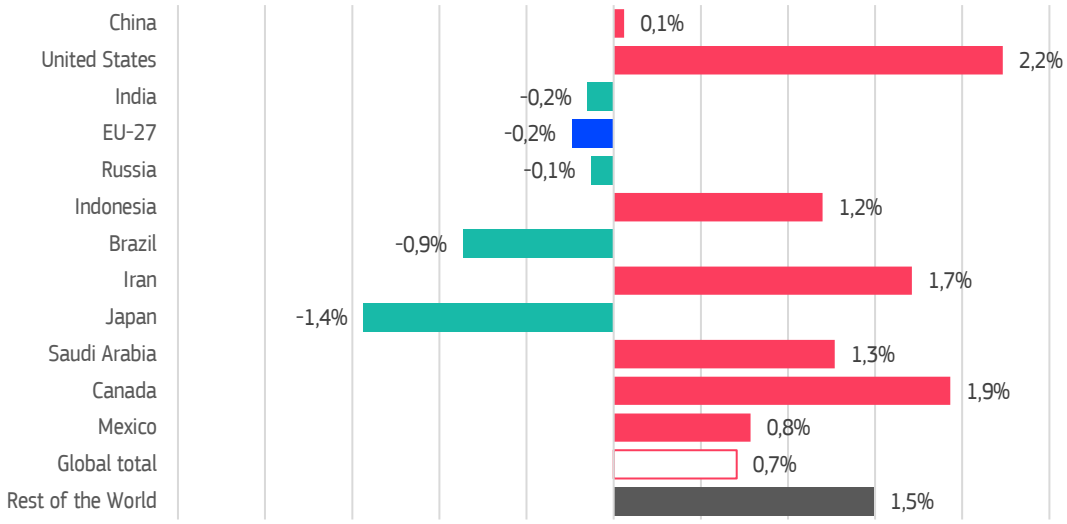
Figure 6: Share of global GHG emissions by largest emitters



Source: EDGAR.

Annual emission changes varied markedly across the largest emitters. Several major economies achieved a reduction, including Japan at -1.4%, Brazil at -0.9%, and both the EU and India at -0.2%. By contrast, emissions continued to rise in others. **The United States recorded the largest absolute increase between 2024 and 2025**, rising by 2.2% or 131.5 $MtCO_2$-eq, while Iran, Saudi Arabia and Canada recorded increases of 1.7%, 1.3% and 1.9%, respectively. **China's emissions were broadly stable**, increasing by just 0.1% (see Figure 7).

Figure 7: Annual change in global GHG emissions by largest emitters (2024-2025)



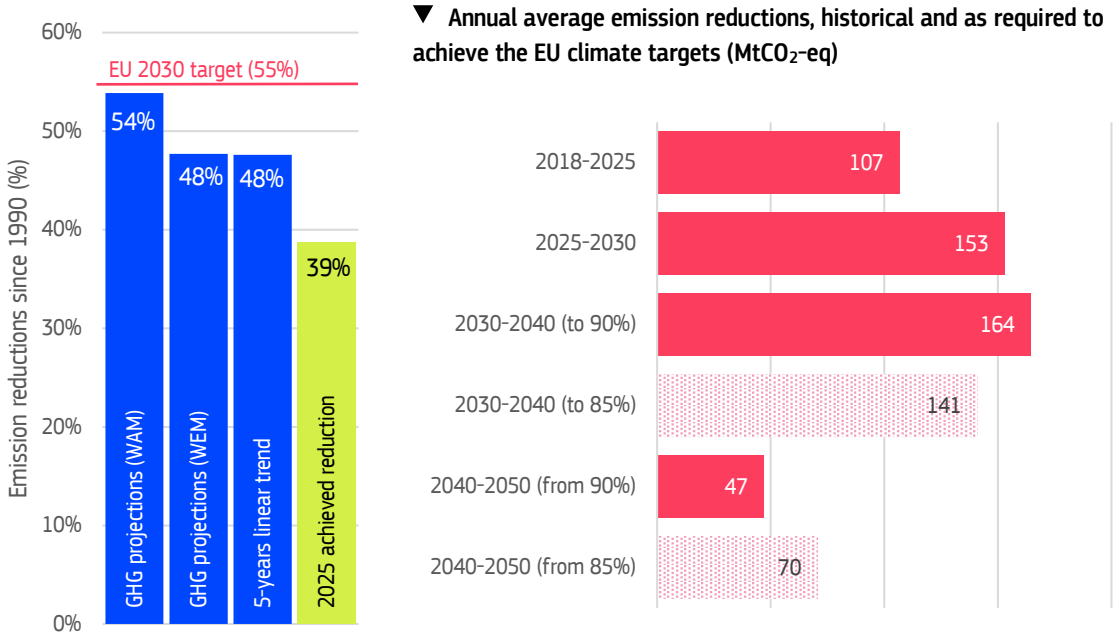
Source: EDGAR.

1.2 Towards the climate objectives

Progress towards the 2030 climate target

In 2026, only eight EU Member States updated their emissions projections. The assessment of the projected gap to the 2030 target therefore still relies largely on projections submitted in 2025 and provides only a limited update of the expected 2030 outcome. As a result, the expected gap to the 2030 climate target of a 55% emission cut, remains largely unchanged from last year's assessment. However, the slower pace of emissions reductions means meeting the 2030 target will now require additional effort. **To remain on track, the EU would need to cut emissions by an average of 153 $MtCO_2$-eq per year between 2026 and 2030.** This requires substantial and sustained annual progress, though reductions on the scale needed have been achieved in some years over the past decade.

Figure 8: Projected and required emission reductions by 2030 and post-2030

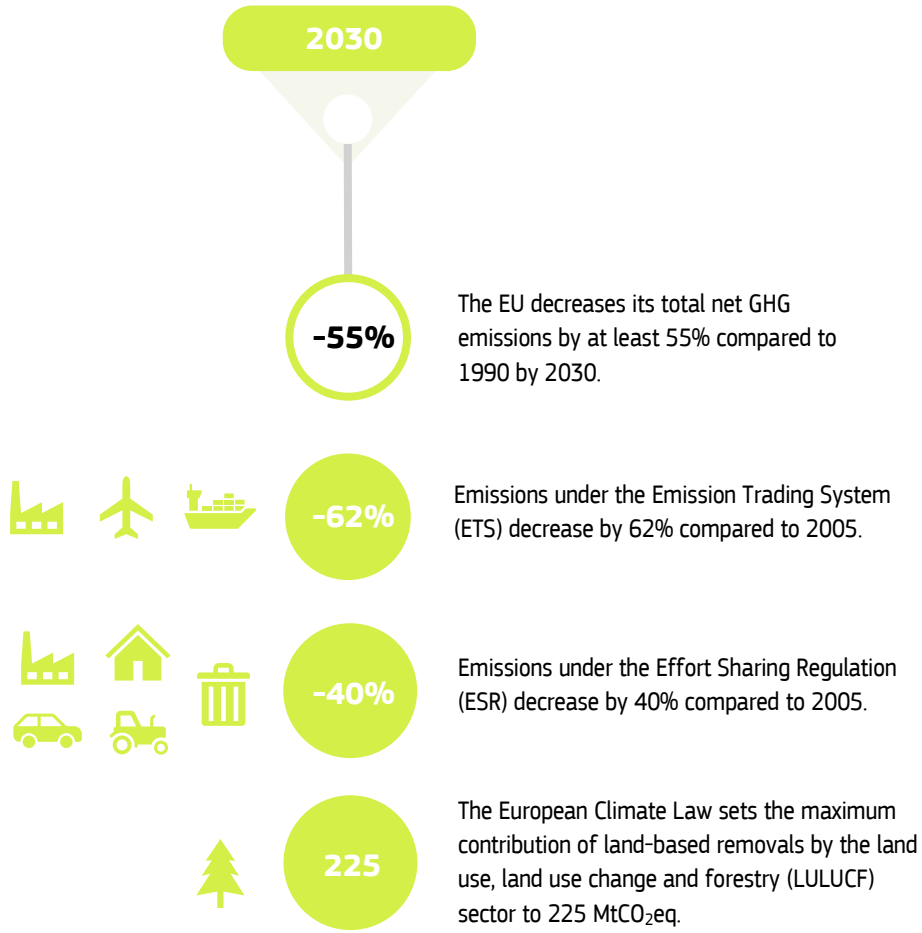


Note: The EU 2030 target scope includes LULUCF net removals and estimated emissions from international aviation and maritime activities regulated under EU Law. EU Member States are not required to provide projections for such emissions. They are estimated assuming a constant proportion of such emissions to the total emissions from international transport (CRT category 1.D.1.a and 1.D.1.b).
Source: 2026 GHG emissions inventory, GHG approximated inventory values for 2025, Member States' 2025 and 2026 GHG projections, own calculations.

Progress by policy instruments

The EU has three main policies to ensure it meets its target of reducing emissions by 55% by 2030:

- **The EU Emissions Trading System (ETS)** aims to cut emissions by **62%** compared to 2005 levels (see Chapter 2).
- **The Effort Sharing Regulation (ESR)** sets a target of **40%** reduction from 2005 levels (see Chapter 3).
- **The Land Use, Land Use Change and Forestry (LULUCF) Regulation** provides for an **additional 42 MtCO2-eq** land-based net removal compared to the 2016-2018 average. However, the European Climate Law sets a maximum contribution to the EU economy-wide 2030 target of 225 $MtCO_2$-eq for land-based removals (see Chapter 4).



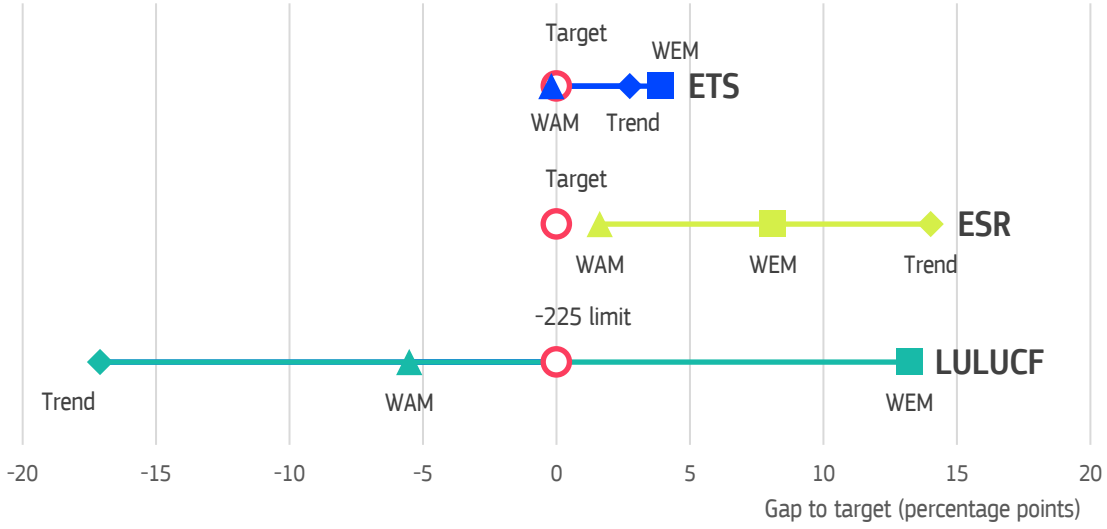
Progress on closing the gap to the 2030 target varies by policy instrument. The EU Emissions Trading System (ETS) is designed with a predefined trajectory that reduces emission allowances on a yearly basis. The remaining gaps are in sectors covered by the Effort Sharing Regulation (ESR), including domestic transport, buildings, agriculture, and waste, where both the ambition and implementation remain insufficient. Under current policies, the projected shortfall for ESR sectors stands at around 8 percentage points, a gap that will be largely closed only if Member States fully implement the additional planned policies in a timely way.

A particularly **acute challenge** arises from the **international aviation and maritime emissions under the EU ETS**. This requires targeted strategies to reverse the current trajectories. The European Union and its Member States are actively pursuing initiatives to address these challenges, including ReFuelEU Aviation and FuelEU Maritime; as these instruments have only recently been introduced, their full effects are not yet reflected in the projections, but they are expected to contribute to emissions reductions over time (see Chapter 2).

To ensure that sufficient direct action to mitigate the effect of climate change is taken across the economy, the European Climate Law limits the **LULUCF sink's contribution to 225 $MtCO_2$-eq**. Therefore, the current trend does not threaten the EU's ability to meet the overall 2030 target to reduce net emissions by 55%. **However, the land-use sector itself faces significant hurdles in meeting its own**

2030 objective to remove an additional 42 $MtCO_2$-eq, requiring urgent action to bridge the gap between current trajectories and policy ambitions (for more information see Chapter 4).

Figure 9: Expected gap to EU 2030 target by main policies



Notes: (1) Gaps to policy targets are presented as a range of projected values based both on GHG projections and on linear trends. (2) Gaps to target are based on Member States' 2025 and 2026 GHG projections, both 'with existing measures' (WEM) and 'with existing and additional measures' (WAM) scenarios, and the linear extrapolation of past 5-years observed trend. (3) The EU 2030 target scope includes LULUCF net removals and emissions from international aviation and maritime activities regulated under EU Law. The latter are included in the EU ETS projected emissions. (4) For LULUCF the gap refers here to the maximum contribution of 225 MtCO2-eq net removals as provided in the European Climate Law. Trend and WAM show higher sink than WEM.
Source: 2026 GHG emissions inventory, GHG approximated inventory values for 2025, Member States' 2025 and 2026 GHG projections, own calculations.

Progress towards the 2040 climate target

In March 2026, the EU agreed to revise the European Climate Law to incorporate the EU's next major milestone: **its legally binding commitment to reduce net greenhouse gas emissions by 90% by 2040**, against the baseline of 1990 levels.

Current projections – even under the more ambitious scenario 'with additional measures' planned by the Member States – show that significant further action will be needed to meet this target. But these estimates do not yet reflect several critical factors:

- the post-2030 policy framework, which is still under development;
- the potential **use of eligible international carbon credits**;
- the rollout of the new Emissions Trading System for buildings and road transport (ETS2).

Protecting the ozone layer

The ozone layer protects humans and ecosystems from harmful ultraviolet (UV) radiation. Ozone-depleting substances, such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), damage the ozone layer and contribute significantly to global warming.

Since 2010, the EU has largely phased out the production and consumption of ozone-depleting substances. In 2025, the EU consumption of ozone-depleting substances controlled under the Montreal Protocol was negative, amounting to −1 804 metric tonnes, down from −469 metric tonnes in 2024. The EU consumption of ozone-depleting substances, expressed in metric tonnes, has been negative every year since 2010 with a few exceptions.

The phase-out of ozone-depleting substances is a major success of climate policy. The negative volumes reported means that more of these harmful chemicals are now being destroyed or exported than produced or imported.

1.3 Progress on climate policies and legislation

In April 2026, the amendment to the European Climate Law entered into force. It now sets a legally binding climate target of a 90% reduction in net GHG emissions by 2040 compared to 1990 levels, with an adequate contribution of up to 5% of high-quality international credits. The 2040 climate target secures a clear and steady trajectory to decarbonise the economy by 2050. It provides certainty to people, businesses and investors to drive forward the EU's clean transition, industrial competitiveness, energy security and independence.

The focus in 2025 and 2026 has been on continuing to implement the 2030 legislative package and preparing proposals for a robust post-2030 climate policy framework. This will be needed if the EU is to achieve its 2040 climate target and improve climate resilience, which in turn will also boost Europe’s competitiveness and independence.

Climate and energy policies are closely interconnected, as progress on renewable energy, electricity grids and energy storage is essential for reducing greenhouse gas emissions. Progress in EU policies and legislation in these areas, including the European Grids Package and the Electrification Action Plan, is covered in the State of the Energy Union Report.

Strengthening the Emissions Trading System

In November 2025, the Commission proposed targeted adjustments to the **Market Stability Reserve** for the EU's emissions trading system for additional sectors including buildings and road transport (ETS2). The aim of these adjustments is to prevent severe price volatility, protect consumers from high fuel and heating costs and support a smoother start to the ETS2 in 2028. The proposal was adopted in October.

In July 2026, the Commission adopted a **proposal to update the EU Emissions Trading System (ETS)** to create an even stronger engine for investment and innovation in Europe and to align its ambition with the EU's 2040 and 2050 climate targets.

The proposal adjusts the pace at which the ETS emissions cap declines after 2030. It gives industry a **more gradual pathway** but maintains a **strong incentive to cut emissions**. It also integrates high-quality permanent domestic carbon removals into the ETS, providing additional flexibility for sectors where emissions are particularly difficult to reduce. It proposes to continue free allocations of allowances and compensation for indirect carbon costs beyond 2030, with new requirements for companies to make tangible investments to decarbonise. The proposal also significantly increases public support for industrial decarbonisation. A new **Industrial Decarbonisation Bank** will support the roll-out of clean technologies, aiming at EUR 100 billion in funding and starting with an Investment Booster backed by 400 million ETS allowances worth around EUR 30 billion for the first period up to 2030. Member States are also required to spend at least 50% of the auction revenues on investments in decarbonising the ETS sectors in the EU, giving better visibility and transparency of the use of ETS revenues.

The proposal to update the ETS also aims to modernise the functioning and scope of the system. The Market Stability Reserve, which adjusts the supply of allowances when there is a large surplus or shortage in the market, would become **more responsive as the ETS market becomes smaller**. The proposal strengthens carbon pricing for aviation, including a wider coverage of international flights from 2029 and more support for sustainable aviation fuels. For maritime transport, it extends coverage to selected smaller ships, supports cleaner fuels and technologies. It proposes to gradually include municipal waste incineration in the ETS from 2031 to reach full coverage in 2034. The proposal includes further measures to simplify monitoring and reporting rules and to improve the incentives for carbon capture and use.

The Commission also proposed a targeted amendment to the ETS Directive to adjust the method of calculating free carbon allowances for operators. By raising the benchmarks, the update increases the volume of free allowances granted to companies using heat and fuel. This comes on top of the updated EU ETS benchmark values for 2026-2030 which were revised in June 2026.

EU climate policy also includes action to ensure that the transition to a decarbonised economy is socially fair (a just transition). To put into practice the aim of a just, efficient and inclusive green transition that leaves no one behind, the Member States draw up **social climate plans**. Eleven EU Member States have now submitted their national social climate plans to the Commission (see Chapter 7). These plans unlock funding to protect vulnerable households and businesses. Sweden's plan was adopted in December 2025, followed by Lithuania in June 2026, Latvia and Malta in July and Greece in August, with additional plans due to be approved in the coming months.

Supporting European industry

The EU also provides support to industry in this transition. In March 2026, the Commission proposed the '**Industrial Accelerator Act**' to boost demand for low-carbon, EU-made technologies and industrial products in strategic sectors such as steel or cement. It sets low-carbon and 'Made in EU' requirements in public procurement and public support schemes, streamlines permitting industrial projects, and sets conditions for major foreign investments to stimulate job creation and innovation. Member States and the European Parliament are currently discussing the proposal.

In December 2025, the Commission presented the **Automotive Package** to support the sector's transition to clean mobility. The package includes the revision of the CO_2 emission standards for cars and vans and a targeted amendment of the CO_2 emission standards for heavy-duty vehicles to provide manufacturers with additional flexibility in meeting the targets, and a proposal on clean corporate vehicles, among others. You can find all details in Chapter 3.

Member States and the European Parliament are currently discussing both the Industrial Accelerator Act and the Automotive Package.

Support for the transition is not limited to businesses. It also aims to help workers adapt to changes in the economy and benefit from new opportunities. A recent review of the Council Recommendation on ensuring a fair transition towards climate neutrality found that Member States implemented more than 500 measures over three years, including measures on upskilling, reskilling and support for workers moving between jobs in sectors undergoing decarbonisation.

The Clean Industrial Deal further strengthens this focus. Under the Union of Skills, the new Skills Guarantee supports training in strategic sectors, including pilot projects for workers at risk of job displacement. The Commission is also preparing a **Quality Jobs Act**, planned for the fourth quarter of 2026, to improve working conditions and workers' rights and help ensure that restructuring linked to the green and digital transitions is fair for workers.

In 2025, the Commission proposed a **targeted extension of the Carbon Border Adjustment Mechanism** (CBAM) to certain downstream goods to reduce the risk of carbon leakage from more processed products and to preserve the effectiveness of the instrument as the definitive regime entered into force on 1 January 2026. The

proposal focused specifically on selected derivatives of iron and steel and aluminium, including certain semi-finished and finished goods such as industrial machinery and car parts, and a limited number of consumer goods, including washing machines, rather than expanding the CBAM scope to new sectors. Alongside this proposal, the Commission proposed a **Temporary Decarbonisation Fund** to support EU producers of selected CBAM goods that are particularly exposed to remaining carbon leakage risks. The Fund is designed to provide support conditional on decarbonisation efforts. Member States and the European Parliament are currently discussing both proposals.

Taking EU climate policy forward into next decade

Following the adoption of the EU's 2040 climate target, the Commission is developing the climate and energy policy framework for the period after 2030. The first legislative proposal to revise the EU ETS was published in July 2026. Further proposals on national climate targets and flexibilities, international carbon credits, energy and climate governance, development of the CO_2 transportation infrastructure and markets, renewable energy and energy efficiency are expected by the end of 2026.

In October 2026, the Commission adopted the **EU Framework for Climate Resilience** (see Chapter 5), in response to the findings of the 2024 European Climate Risk Assessment. It takes a robust, cross-sectoral approach to adaptation that addresses vulnerabilities in infrastructure, ecosystems, and public health systems.

Monitoring the application of EU climate law

In 2025 and 2026, the Commission continued to monitor how Member States apply EU law. This included checks of measures that bring the revised EU ETS Directive into national law, covering ETS1, ETS2 and aviation aspects. Under EU law, Member States had until 31 December 2023 and 30 June 2024 to put the amended ETS Directive and the amended ETS Directive on aviation into national law.

In June 2026, the Commission took the decision to refer Poland to the Court of Justice, because it had not incorporated the revised ETS aviation rules into its national law. In the same month, the Commission took Spain to the Court for not incorporating the revised ETS rules for aviation and also for ETS1 into its national law.

The Commission closed ETS-related infringement cases for Austria, Cyprus, Denmark, Germany, Greece, Ireland, Italy, Netherlands, and Sweden.

In addition to the ETS-related cases, in October 2025, the Commission took Poland to the Court of Justice because it had not submitted its long-term climate strategy.

1.4 Progress in the Member States

European Semester

In June 2026, the European Commission published its Spring Package under the European Semester, with country reports and recommendations for each Member State. This year's recommendations again called on Member States to speed up action on the affordable green transition across a broad range of policy areas.

The most common area in which progress is needed is in **renewable energy and energy infrastructure**. Accelerating the roll-out of renewable, strengthening grids and improving energy system planning should be central priorities for national governments. **Transport** is the second most frequent area of recommendations, reflecting the continued need to reduce emissions from transport and to invest in cleaner, more efficient transport systems.

The **buildings sector** also features strongly. Many Member States received recommendations on renovation, energy efficiency and cleaner heating and cooling. **Adaptation and resilience** is another important area to monitor, as the Semester increasingly covers not only emissions reduction, but also preparedness for climate risks.

Several recommendations also address the phase-out of fossil fuel subsidies. This is important to align public spending and price signals with climate and energy objectives. The Commission also made recommendations on **industry** to a smaller but still significant group of Member States. They emphasised the close link between decarbonisation and competitiveness. It made targeted recommendations on **agriculture** and **land use** for selected Member States only, reflecting more specific national challenges in these areas.

Looking ahead to the 2028–2034 multiannual EU budget, the Commission proposes that Member States prepare **national and regional partnership plans** setting out how they intend to use EU funds and which reforms they will carry out. These plans need to respond to the main economic, social and other policy challenges identified by the Commission, including through the European Semester and its country-specific recommendations and national energy and climate plans. Member States will then receive payments when they meet agreed targets for these investments and reforms.

Table 2 summarises the climate-related recommendations for each country. It also highlights other key findings of the European Semester process and identifies additional significant challenges based on Commission assessments outside the European Semester.

Table 2: 2026 climate-related priority areas for Member State

Member State	Priority areas							
	Renewables, energy infrastructure	Fossil fuel subsidy phase-out	Industry	Buildings	Transport	Agriculture	Land use	Adaptation and resilience
Belgium	✓	✓	✓	✓	✓			
Bulgaria	✓	✓	✓		✓			✓
Czechia	✓		✓	✓	✓			✓
Denmark	✓					✓		
Germany	✓		✓	✓	✓			
Estonia	✓			✓	✓			
Ireland	✓			✓	✓	✓		
Greece	✓	✓	✓		✓			✓
Spain	✓		✓	✓	✓		○	✓
France	✓			✓	✓			✓
Croatia	✓	✓	✓	✓	✓			✓
Italy	✓	✓	⊕		⊕			✓
Cyprus	✓			⊕	✓			✓
Latvia	✓			✓	✓		⊕	
Lithuania	✓	✓	✓	⊕	✓			
Luxembourg	✓			✓	✓			✓
Hungary	✓	✓		⊕	✓			✓
Malta	✓	✓		✓	✓			✓
Netherlands	✓		⊕	✓		✓		
Austria	✓		✓		✓			
Poland	✓	✓	✓	✓	✓		✓	✓
Portugal	✓	✓	✓	✓	✓			✓
Romania	✓	✓	○	✓	✓			✓
Slovenia	✓			✓	✓			✓
Slovakia	✓		✓	⊕	✓			✓
Finland			✓		✓		✓	
Sweden	✓		⊕		✓		✓	

✓ Country specific recommendation

⊕ Key finding in European Semester Country Reports

○ Additional significant challenges

National energy and climate plans

National energy and climate plans are 10-year strategic documents in which Member States set out national targets, contributions and policies and the measures needed to reach EU climate goals. All Member States have submitted their final plan, since Poland has submitted it in June 2026. The Commission's assessment of the Polish NECP is ongoing.

Green and digital EU

Digital technologies can support climate action, for example through better energy management, environmental monitoring and more efficient use of resources. At the same time, their own environmental footprint, including the energy and water use of data centres and telecommunications networks, needs to be managed. The 2026 State of the Digital Decade report highlights ongoing EU and Member State work to develop common environmental indicators for digital technologies and infrastructure and to better integrate digital sustainability into national planning.

Member States are increasingly taking action, but progress remains uneven. While some countries have introduced dedicated strategies, monitoring tools and measures for greener digital infrastructure, many still lack a coherent approach to measuring both the environmental footprint of digital technologies and the emission reductions they can enable.

1.5 Public opinion and engagement

Public opinion

In the latest flash Eurobarometer survey, more than half of respondents (56%) said they believe that developing more renewable energy capacity can help the EU to transition away from fossil fuels. 40% of respondents cited energy efficiency measures and 32% also saw nuclear energy as a potential solution.

In terms of practical measures that Europeans have taken following the increase in energy prices, almost one in three respondents (31%) have reduced their overall electricity consumption and more than one in four (27%) have started monitoring their energy consumption more closely or reduced their heating or cooling use (26%). Some 20% of respondents adjusted energy use to different times of day to benefit from lower prices (20%), invested in more energy-efficient appliances (16%), compared or changed energy supplier or contract (14%), and have installed or are considering installing renewable energy solutions (14%).

European Climate Pact

Action continued in 2025 under the European Climate Pact – the EU initiative that helps people, communities and organisations turn climate goals into practical action. This involved bridging policy and grassroot action and fostering practical action across communities, schools, workplaces and local organisations.

As a volunteer-driven movement, the Climate Pact expanded its reach through its network of over 1100 Climate Pact Ambassadors and 100 partner organisations active in all 27 Member States, running over 350 events engaging 23 000 participants in 2025. Throughout the year, the Pact helped making climate policy and action more accessible by running activities such as online learning resources provided by the **EU Climate Action Academy**, practical citizen engagement tools, youth activities, and local initiatives such as community gatherings, workshops, climate challenges and joint projects.

In June 2026, the Pact won the European Ombudsman Award for Good Administration in the category 'Excellence in citizen and civil society participation' and it won the public vote award.

Education, skills and youth engagement for climate action

Public awareness and engagement also extend to education and training, where the EU supports, coordinates and complements Member States' action through policy cooperation and programmes. Under the European Education Area, learning for the green transition and sustainable development was a key priority in 2021–2025, with the school education sustainability subgroup concluding four years of peer learning in 2025 and delivering practical outputs, including policy messages, factsheets and online courses.

The Education for Climate Coalition continued to expand as a community of practice for teaching and learning on the green transition, reaching over 10 000 registered users, while 2026 activities included work on intergenerational fairness and eco-anxiety. Through Erasmus+, environmental sustainability also remained a core priority, supporting greener mobility and projects. The proposed future Erasmus+ programme for 2028–2034 further underlines the role of education in raising climate awareness and supporting behavioural change.

Countering climate disinformation

Climate disinformation is the intentional spread of false or misleading information about climate change and climate action. It can take many forms, from denial and conspiracy theories to softer, more insidious arguments that seek to muddy the waters.

Almost half (49%) of Europeans find it difficult to differentiate between reliable information and disinformation about climate change on social media, according to 2025 Special Eurobarometer survey on climate change.

The Commission is responding to the threat of disinformation through public awareness campaigns, education tools, research funding and policy action. In 2026, the Commission launched a pilot campaign called **#ClimateFactsMatter** to raise awareness on climate disinformation and help the public recognise and counter it. The campaign ran in France, Finland, Italy and Poland and reached over 11 million people. The Commission also regularly publishes online articles and social media content on topics that are commonly subject to mis- and disinformation.

To build resilience to disinformation, the EU funds projects such as **FactCRICIS**, a platform that identifies and reports climate disinformation campaigns or **CLIMAware**, which provides tools for media literacy and critical thinking. A new research call on climate communication and disinformation was introduced in the Horizon Europe work programme 2026, to fund three research projects on countering mis- and disinformation.

The EU also fosters cooperation between EU institutions and stakeholders through policy initiatives such as the **European Centre for Democratic Resilience** established in 2026 and the EU Code of Conduct on Disinformation for very large online platforms, whose signatories commit to take measures against disinformation.

In January 2026, the EU endorsed the Declaration on Information Integrity on Climate Change, which makes international commitments to promote evidence-based and reliable information on climate change.

Project in focus

Crete-Attica Interconnector



Greece

EUR 183 million

European Regional Development Fund

For decades, Crete relied heavily on local oil-fired power plants because its electricity system was isolated from mainland Greece. The Crete–Attica electricity interconnection changes this by linking the island to the national transmission grid through a 1 000 MW high-voltage direct current connection.

The interconnection improves the security of electricity supply, reduces the need for expensive and carbon-intensive oil-fired generation and makes it easier to integrate more renewable electricity. It also helps lower electricity system costs and strengthens the wider Greek power grid.

Construction was completed in late 2024 and the interconnection entered operation in 2025.

Chapter 2

Emissions Trading System

Key highlights

- The EU ETS provides a clear, stable and long-term signal that serves the EU decarbonisation, energy security and competitiveness goals.
- It brings down emissions from industry, power, aviation and maritime sectors by rewarding investments in innovative solutions.
- In 2025, total verified emissions from these sectors decreased by 2% compared to the previous year. Emissions from the power sector and industrial installations continued decreasing. Transport emissions from the aviation and maritime activities falling under the EU ETS were reduced thanks to larger use of sustainable fuels as the implementation of policies start to bring tangible results.
- The revenues raised by the ETS auctions provide EU Member States with important resources to finance national measures supporting companies and households to reduce energy consumption and transition away from fossil fuels.
- In 2025 alone, the EU ETS raised EUR 43.2 billion. This went primarily to the national budgets of the Member States (EUR 23.9 billion) but also funded the ETS funded programmes for clean transition (the Innovation Fund and the Modernisation Fund), the Social Climate Fund and part of the Recovery and Resilience Facility, in line with RePowerEU plan.
- The remarkably high compliance rate among companies participating in the EU ETS (99.5% over the past year) confirmed the system as a robust and well-functioning carbon market.

▲ Energy-intensive industries are the largest group of projects supported by the EU ETS Innovation Fund.

2. Emissions Trading System

2.1 ETS target and assessment of progress

For over 20 years, the EU Emissions Trading System (ETS) has been the backbone of the EU's climate action, providing a stable and long-term signal to countries, markets and investors of the plan to decarbonise the economy. The current system (ETS1) covers emissions from electricity and heat generation, industrial manufacturing, flights operated in Europe and, since 2024, maritime transport. A new, separate system (ETS2) was adopted by the EU co-legislators in 2023 to also cover emissions from fuels combusted in buildings, road transport and industrial emissions falling outside the scope of ETS1 (see Section 2.5).

The EU ETS helps reduce greenhouse gas emissions by capping the number of emissions allowances that can be issued each year and then decreasing the cap each year, to reach the climate targets.

In line with the polluter-pays-principle, companies covered by the EU ETS must obtain and surrender one allowance for each tonne of emissions they emitted the previous year. This encourages them to cut emissions and invest in low-carbon technologies.

A comparison of the annual verified emissions of the sectors covered by ETS1 confirms that the emissions generated by these sectors have fallen and remain below the maximum allowed by the cap (see Figure 10).

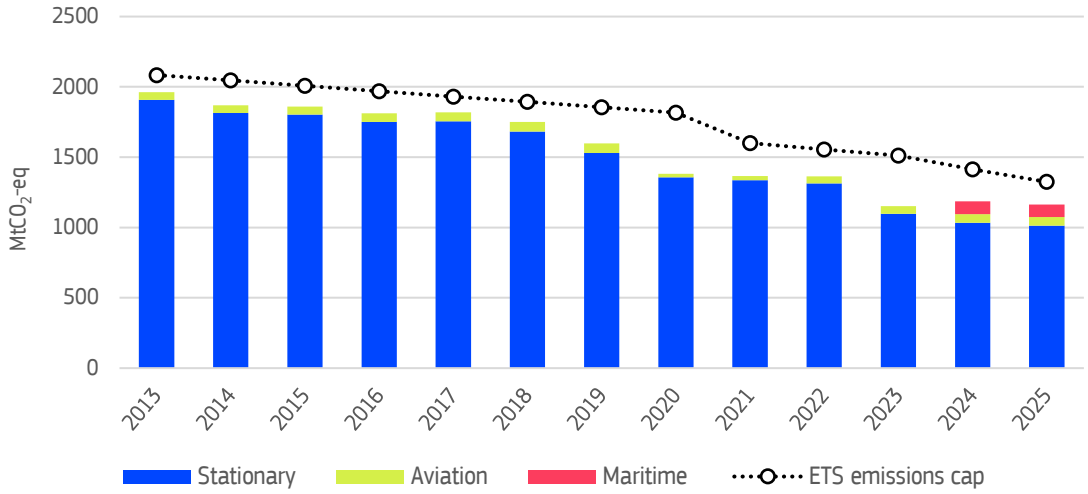
Cap on emissions under the EU ETS

The maximum number of allowances issued (i.e. the cap) decreases each year following a publicly available trajectory that allows operators to adapt their decarbonisation investments accordingly.

The current legislation sets the maximum volume of emissions in 2030 at a 62% reduction from the volume of emissions in 2005 when the current EU ETS (ETS1) was introduced (for ETS2, see Section 2.5).

Each year, the volume of emissions emitted can be compared against the maximum allowed under the cap. Figure 10 shows that in 2025, as in the previous years, the total volume of verified emissions under ETS1 was below the cap.

Figure 10: EU ETS cap and verified emissions (2013-2025)



Source: EU ETS and Swiss Registry.

With the price of allowances set by the market and the number of allowances decreasing over time, the EU ETS rewards decarbonisation in a technologically neutral way (it does not specify how emissions should be reduced). Reducing emissions in the sectors where it costs the least to do so benefits the overall economy by bringing down both greenhouse gas emissions and abatement costs.

Emissions trends

Emissions from ETS stationary installations

-2.0% vs 2024

Emissions from aviation under the ETS

+0.2% vs 2024

Emissions from maritime under the ETS

-4% vs 2024

The EU ETS relies on a robust monitoring and verification system whereby independent accredited verifiers check the annual emissions reported by businesses. As of 30 September 2026, data for 2025 show an overall reduction in ETS1 verified emissions of 2.0%, compared with 2024 levels.

The reduction trends vary across sectors, reflecting energy efficiency, industrial production and energy sources variations. In the transport sectors covered by ETS1, for example, maritime emissions fell in 2025 by around 4% while emissions from aviation slightly increased by 0.2%. Emissions from the power and industry sectors continued to fall, decreasing in 2025 by 2.0%.

This confirms a continued and long-lasting downward trend, which keeps the system **aligned with the 2030 target of reducing emissions by 62% in the ETS1 sectors**.

Box 2. Competitive decarbonisation of Europe's manufacturing sector, including energy-intensive industries

The analysis in this box relies primarily on Eurostat data and includes all manufacturing industry, extending beyond installations covered by the EU ETS [i].

Economic importance

Industry plays an important role in the EU's economy. In 2024, the overall manufacturing sector generated EUR 2.6 trillion in gross value added, 16% of the EU total, and employed 30.1 million people.

Energy-intensive industries refer to industrial sectors where energy costs make up a significant portion of production value. This definition specifically covers **five core manufacturing sectors**: chemicals and chemical products, basic metals like steel and aluminium, non-metallic mineral products such as cement, glass, and ceramics, paper and pulp products, and refined petroleum products. In 2024, the five main energy-intensive industries employed 4.1 million people, nearly one in seven manufacturing workers, and generated around 16% of manufacturing value added, 2.1% of the EU total. These figures understate the strategic importance of the energy-intensive industries, because they are key suppliers of essential materials to many downstream industries. Tracking and supporting the decarbonisation of these sectors is central to achieving our broader climate goals, as they account for around three quarters of EU industrial greenhouse gas (GHG) emissions.

The share of energy-intensive industries in total EU gross value added has declined from 2.6% to 2.1% between 2010 and 2024, while manufacturing as a whole has increased from 15.7% to 16.2% over that period. This indicates that the manufacturing sector as a whole has managed to maintain its role in the economy, in part driven by a shift in its composition towards higher value-added activities. At the same time, most energy-intensive segments of European manufacturing industry have lost competitiveness in the face of adverse external conditions, notably fierce global competition, import pressure and high prices on imported fossil fuels [ii].

Progress on decarbonisation

Between 2010 and 2024, direct emissions from the five energy-intensive industries fell by 27%, from 764 to 567 $MtCO_2$-eq. Looking at a breakdown by sector, reductions ranged from 21% to 35%. In industry, direct emissions result from high-temperature heat and industrial processes and are particularly hard to abate.

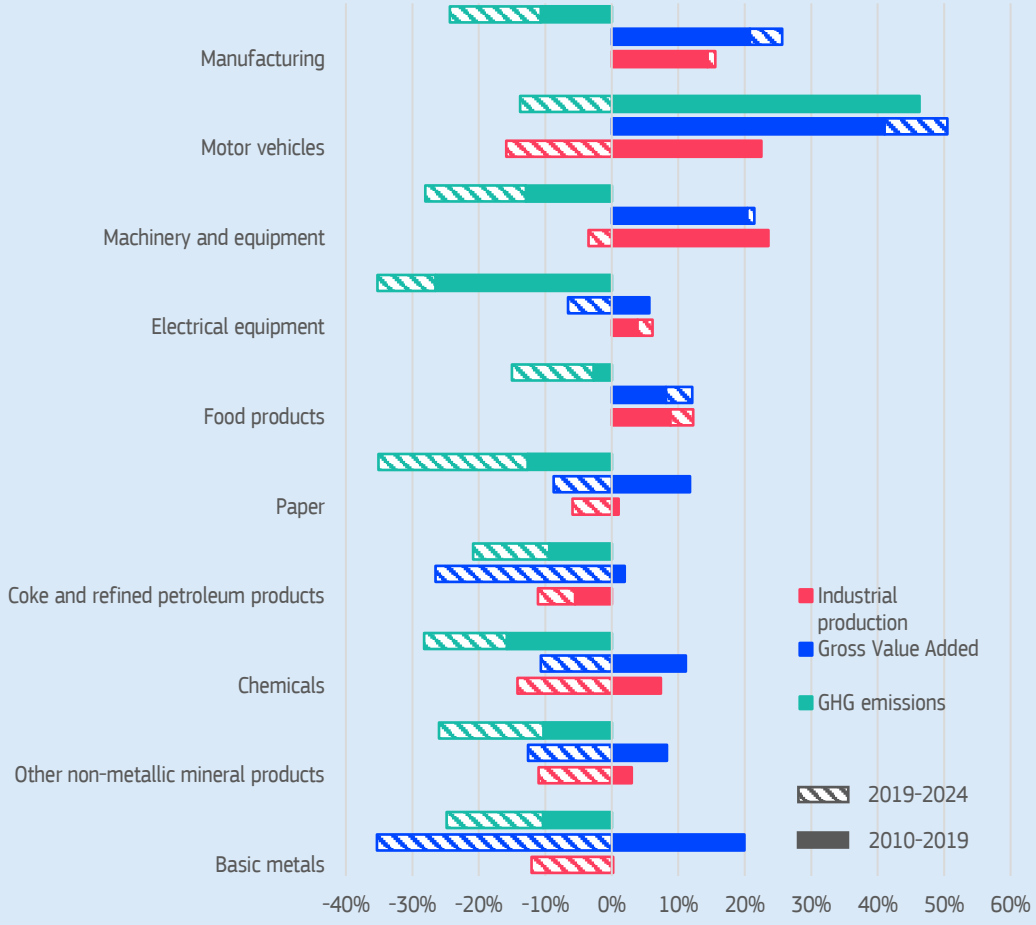
Including indirect emissions from electricity use shows a stronger decline in industrial emissions, of 40% over the period 2010-2024. This comes from improvements in both energy efficiency, with electricity consumption declining by 24%, and in the emission intensity of the power grid, which fell by 49%.

Figure A below shows that emissions from energy-intensive industries have fallen considerably faster than output. Between 2010 and 2024, of the five EIIs, the paper

industry saw the smallest contraction of production, by 5%, and the largest decrease in emissions, by 35%. On the other hand, the basic metals sector saw the largest contraction of production, of 12%, but achieved to reduce emissions by 25%.

A decomposition analysis [iii] using Eurostat and GHG emissions inventory data suggests that **between 2014 and 2024 decarbonisation has been driven by real improvements in emissions efficiency and to some extent by economic activity**. A more granular analysis reveals that **reduced economic activity played a relatively greater role in driving emissions cuts within the metal sector** over the same period. Conversely, emission reductions in the **chemical** and **mineral** industries were driven largely by **improvements in process efficiency**. This points to technological change, efficiency gains and changes in input use as central drivers of industrial decarbonisation.

Figure A: Change in GVA, industrial production, and GHG emissions, between 2010 and 2024



Source: (i) ESTAT (STS_INPR_A for industrial production, NAMA_10_A64 for GVA, ENV_AC_AINAH_R2 for GHG emissions). Note: GVA for the chemical and refinery sectors is calculated as the sum of available Member State figures. Data are missing for Sweden, Malta and Ireland in the chemical sector, and for Poland, Luxembourg and Ireland in the refinery sector. For both GVA and GHG emissions, the food sector also includes beverages and tobacco products. For GVA, the motor sector also includes other transport equipment. (ii) The bars in the chart show the contribution of the two respective periods, to the overall change between 2010 and 2024.

Nonetheless, analysis of **the 2019–2024 crisis period reveals a more pronounced decline in production volume and Gross Value Added (GVA) within the basic metals and chemical sectors**, and associated decrease in emissions, demonstrating the need for policies focused on these sectors in the context of the Clean Industrial Deal. Additionally, the impact assessment of the Industrial Accelerator Act provides a targeted analysis of the steel sector.

Competitiveness and outlook

Trade and production indicators suggest that EU manufacturing industry has remained broadly competitive, despite higher structural pressures from changing geopolitical and economic context. There is also little evidence that production is moving abroad at scale. Between 2019 and 2025 volumes of extra-EU imports of paper in tonnes fell by 7% and remained virtually flat for chemicals (+1%) and basic metals (+4%).

However, the energy cost competitiveness of energy-intensive industries has been severely affected by the two energy crises (see Box 1), and costs of imported fossil fuels in the EU remain above those of many international competitors.

In addition to energy costs, energy-intensive industries have faced weak domestic demand [iv] and global overcapacities [v], resulting in increasing imports, especially for chemicals and basic metals.

Nevertheless, some manufacturing industry profits and margins have remained high due to significant use of long-term energy contracts by energy-intensity industries, which largely insulates them from energy price spikes. In terms of profitability, between 2019 and 2023, the net operating surplus as a share of gross value added increased from 21% to 30% in 2022 (the highest since 2005) before dropping back to 22%. In 2009, the collapse of demand resulted in net operating surplus dropping to 11%.

Further evidence that the pressures facing energy-intensive industries are structural and global comes from **comparing EU and US production volume indices**. Despite much lower industrial gas prices and no federal economy-wide carbon price, US output followed a broadly similar pattern between 2019 and 2024, as shown in Table A.

Table A: Evolution of industrial production between 2019 and 2024 in the EU and United States

Sector	EU	US
Paper	-6%	-16%
Refining	-6%	-10%
Non-metallic minerals	-11%	-6%
Chemicals and pharmaceuticals	+3%	+15%
Basic metals	-12%	-1%

Source: Eurostat ComExt.

Basic metals is the only industry where EU production has fared significantly worse that US production. US metals have operated under Section 232 import restrictions since 2018. The comparison suggests that EU-specific energy and carbon costs alone cannot explain the

downturn, and indicates that weak demand, global overcapacity and trade pressures played a significant role.

Further improving the competitiveness of EU energy and intensive industries while deepening industrial decarbonisation will require continued investment in breakthrough technologies, affordable low-carbon energy, enabling infrastructure and market conditions that support demand for low-carbon materials.

Notes

[i] The chosen time horizon focuses on identifying the main drivers of medium-term development, rather than assessing immediate competitiveness challenges arising from recent economic headwinds.
[ii] The 2026 Annual Single Market and Competitiveness Report.
[iii] Decomposition analysis is a mathematical method used in economics to quantify the impact of drivers to a change in value in a rigorous way. The method ensures that the sum of the drivers is equal to the total change of the GHG emissions. This analysis uses the Logarithmic Mean Divisia Index (LMDI) with the following factors: economic activity (GVA), production per unit of GVA (PVI/GVA), energy use per unit of product (FEC/PVI), emission intensity of energy used (GHG_E/FEC), process emission per unit of product (GHG_P/PVI). As with all methods of this style, the effects should not be understood as an actual causality but rather a useful indication of the drivers' contribution.
[iv] For example, construction volume has remained constant since 2019.
[v] More detailed analysis of energy-intensive industry competitiveness, including global overcapacity, can be found in the Impact Assessment to the Proposal for a Regulation of the European Parliament and of the Council establishing a framework of measures for the acceleration of industrial capacity and decarbonisation in strategic sectors (Industrial Accelerator Act) SWD(2026) 71 final.

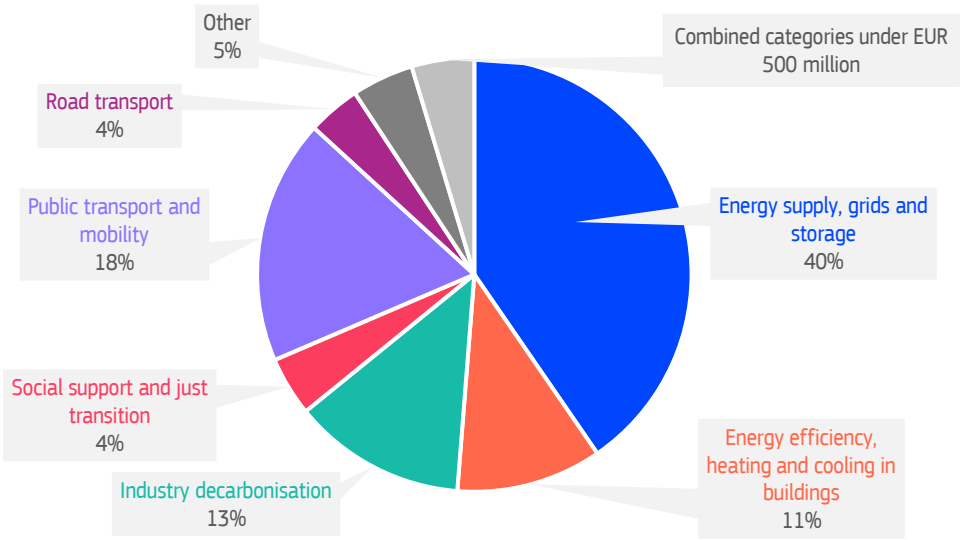
Data sources for this box

Eurostat: nama_10_gdp and nama_10_a64 (GVA, output and net operating surplus), sbs_sc_ovw (employment), sts_inpr_a (production volumes), sts_inpp_a (producer prices), env_ac_ainah_r2 (GHG emissions), nrg_bal_c and nrg_pc_203/205 (energy consumption and prices), sts_copr_a (construction), and Comext ds-045409 (extra-EU trade); EEA ENER038 for electricity carbon intensity. US production: Federal Reserve G.17, NAICS 322/324/325/327/331 (IPG322A, IPG324A, IPG325A, IPG327A, IPG331A), rebased to 2019=100; EU C20+C21 combined using 2019 production-value weights to match US NAICS 325.

2.2 Auction revenues

Since 2013, the EU ETS has raised over EUR 288 billion through the auctioning of emission allowances, as of mid-October 2026. **In 2025, ETS revenue reached over EUR 43 billion**. This went primarily to national budgets of the Member States (EUR 23.9 billion) and other countries in EU ETS (EUR 0.3 billion) but also funded the ETS programmes for a clean transition (the Innovation Fund and the Modernisation Fund) and part of the Recovery and Resilience Facility, in line with RePowerEU plan. Since 2025, a portion of allowances from the EU ETS was also auctioned to finance the Social Climate Fund (see Chapter 7).

Figure 11: Member States' use of ETS revenues by different purposes as reported for 2025 revenues (considering revenues disbursed)



Source: EEA, own calculation.

Member States must use all their ETS revenues (or an equivalent amount) to fund climate action and energy transformation, including support for the people and businesses most affected by the transition. The only exception is for Member States to use ETS revenue to provide aid to electricity-intensive industries to compensate for indirect carbon costs. In 2025, 10 Member States that reported used part of their revenues for this purpose. The EUR 23.9 billion that Member States collected in ETS revenue in 2025 is subject to a reporting obligation on its use, with reports due by 31 July 2026. However, Italy and Cyprus, which together collected EUR 2.7 billion in 2025, have not yet submitted their reports. **Of the EUR 21.1 billion reported on by the EU Member States, EUR 5.1 billion of the 2025 revenue was allocated to aid to electro-intensive industries** to compensate for indirect carbon cost, leaving EUR 16.0 billion for climate action and energy transformation. Of that sum, EUR 13.5 billion was spent in 2025, as the revenue may be used over several years.

Member States directed most of their 2025 ETS revenues to **projects to roll-out renewable energy sources, grids and storage (40%)**, the improvement of **energy efficiency in industries and buildings (11%)** and the development of **clean public transport and mobility (18%)**. Examples include financing renewable energy and storage in Spain and Romania, housing renovation and heating-system replacement in France and Austria, and the electrification and modernisation of railway lines in Czechia. For more information on how each Member State used their 2025 ETS revenue, see Chapter 9 in the accompanying staff working document. For the EU analysis, see the Carbon Market Report 2026.

2.3 Aviation

In 2025, aviation emissions covered by the EU ETS increased slightly, reaching 62.7 million tonnes of CO_2 [1]. This is an increase of around 0.2% since 2024, underlining the continuous need to decarbonise the aviation sector. The ReFuelEU Aviation Regulation sets a framework to increase the production and uptake of sustainable aviation fuels (SAF) in the EU. 1.7 million tonnes of CO_2 were saved due to the use of sustainable aviation fuel, which is treated as zero-emission under the EU ETS.

The EU ETS carbon price already provides an incentive of around EUR 250 per tonne for the use of sustainable aviation fuel instead of fossil kerosene. In 2025, the Commission introduced an additional support mechanism under the EU ETS to promote the use of sustainable aviation fuels. A total of 20 million allowances (worth around EUR 1.5 billion) has been reserved for this support. Airlines can claim support of around EUR 500 and up to EUR 7 000 for each tonne of eligible sustainable fuel used on an ETS route. In 2025, the Commission allocated around EUR 100 million to 53 aircraft operators from EU Member States and two operators from Norway to account for the use of eligible aviation fuels in 2024. In 2026, this EU ETS support increased: EUR 430 million were allocated to 130 aircraft operators. By covering all or part of the remaining price difference between fossil kerosene and the eligible aviation fuels, this support system will encourage aircraft operators to use cleaner fuel options.

To accelerate the implementation of the polluter-pays principle, free allocation to the aviation sector has also been gradually phased out (by 25% in 2024 and by 50% 2025), moving to full auctioning for the sector by 2026.

The EU is committed to applying the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and is one of the first jurisdictions in the world to put CORSIA into law. The purpose of CORSIA is to offset aviation emissions from international flights above a certain level [2]. This level was reached in 2024. Airlines therefore have offsetting obligations under CORSIA for the first time for the share of 2024 emissions above the baseline.

The July 2026 proposal **broadens the scope of the EU ETS for aviation**. The current geographical coverage would continue until the end of 2028. From 2029, the ETS is proposed to cover also most flights departing for destinations landing within 5 000 km of the largest airport in the geographical centre of the EU (Frankfurt). The proposal maintains exemptions for least developed countries, small island developing states, the EU outermost regions (for domestic flights) and routes with low emission volumes. The proposal lowers the exclusion threshold for aircraft operators to 1 000

[1] This includes flights within the European Economic Area (EEA) (domestic and between EEA countries) and departing flights from the EEA to Switzerland and the UK. It includes non-domestic flights from an EEA country to and from an outermost region (e.g. Finland – Canary Islands).

[2] The level above which airlines should start to offset emissions is set as 85% of 2019 CO_2 emissions for the years 2024-2035 (where 2019 was the year with the highest ever international aviation emissions).

tonnes of CO_2 emissions per year, bringing most private and business aviation into the system. Where both the EU ETS and the global CORSIA scheme apply, airlines would be able to deduct eligible CORSIA offsetting costs to avoid double charging. The proposal is now being discussed in the European Parliament and in the Council.

Since 1 January 2025, the EU has been the first jurisdiction to require airlines to monitor, report and verify the **non-CO_2 climate effects of aviation**. To support this, the European Commission and EUROCONTROL developed the Non-CO_2 Aviation Effects Tracking System (NEATS). The non-CO_2 emissions significantly increase the impact on the climate of aviation, which is currently estimated to be at least as significant as the impact of CO_2 emissions alone. By 31 December 2027, the Commission will publish a report based on the initial results of the monitoring, reporting and verification framework and, if appropriate, propose further mitigation action.

2.4 Maritime

Maritime transport accounts for around 3-4% of the EU's CO_2 emissions. **Since 1 January 2024, the EU Emissions Trading System covers emissions from large ships** engaged in maritime transport activities and calling at ports under the jurisdiction of the EU, Iceland and Norway, irrespective of their flag. In 2025, shipping companies reported a total of 87.4 $MtCO_2$-eq under the EU ETS, based on emissions data reported and verified under the broader maritime monitoring, reporting and verification system (hereinafter, MRV). This was around 4% lower than figures reported for 2024, a decrease mainly due to the uptake of zero-rated sustainable fuels. **The 2025 reporting cycle was the first to include emissions from offshore ships and small general cargo ships**, following the extension of the MRV scope. These ships accounted for an additional 6.2 Mt CO_2 reported under MRV system. This extension of the MRV scope did not affect the reporting obligations of shipping companies under the EU ETS.

From 2026 onwards, the scope of the EU ETS also covers methane (CH_4) and nitrous oxide (N_2O) emissions from maritime transport. Under the broader MRV scope, emissions of these gases amounted to 2.4 $MtCO_2$-eq and 2.2 $MtCO_2$-eq respectively, in 2025.

The continued disruptions associated with the Red Sea crisis affected global shipping routes and continued to influence the activity and emissions of ships calling at European Economic Area ports.

Compliance with the EU ETS remained high during its first two years of application to maritime transport, with shipping companies surrendering allowances covering over 99% of surrendering requirements.

At international level, following the approval in April 2025 of the **Net-Zero Framework at the International Maritime Organization**, the decision on further proceedings has been adjourned until autumn 2026. In the meantime, countries are

discussing how this framework would work in practice, including how it would be implemented technically.

The European Commission's July 2026 proposal, as regards driving competitiveness and cost-effective decarbonisation, introduces a new mechanism to support the uptake of **sustainable maritime fuels and zero-emission propulsion technologies**. The aim is to provide allowances to shipping companies to cover part of the price differential between sustainable maritime fuels and technologies and maritime fossil fuels. The proposal would extend the scope of ETS from 2031 to certain additional ships between 400 and 5 000 gross tonnage, including general cargo ships, oil and chemical tankers, gas and liquified natural gas carriers, and ships performing or supporting offshore operations. The proposal also brings further safeguards to tackle the risk of evasion and circumvention by container ships and vessels engaged in offshore operations. It simplifies the rules for shipping companies by bringing a single monitoring and reporting and verification system for both EU ETS and FuelEU maritime and provides a review clause to avoid double payments with global measures under development at the International Maritime Organization. The proposal maintains exemptions for the EU outermost regions.

2.5 Buildings, transport and additional sectors

The EU's new ETS2 cap-and-trade system is designed to reduce fossil fuel combustion in buildings, road transport, and industry not covered by the current ETS (ETS1), covering around 40% of the EU GHG emissions. Separate from the original EU ETS, **it aims to cut these sectors' emissions by 42% by 2030 compared to 2005 levels**. All allowances will be auctioned to fund national budgets and the **Social Climate Fund**, which **supports vulnerable households, transport users and micro-enterprises** investing in energy efficiency, the decarbonisation of heating and cooling and clean mobility solutions. The Social Climate Fund will thereby create and support demand for EU-produced clean tech. Operating upstream, ETS2 requires fuel suppliers – not consumers – to monitor emissions and buy allowances. Emissions reporting began in 2025. To achieve a gradual roll-out, auctions will start in 2027, providing an early price signal. The Market Stability Reserve has also been strengthened. The system will become fully operational when the first allowances are surrendered in 2029 to cover 2028 emissions.

In line with the conclusions of the European Council of 15-16 October, the Commission is working to update its assessment of ETS2's impacts, including its design and safeguards.

To accelerate investment, the European Investment Bank has also established a EUR 3 billion ETS2 Frontloading Facility. It allows Member States to finance energy-efficiency and clean-transport measures early, with repayment backed by future ETS2 auction revenues.

2.6 Carbon Border Adjustment Mechanism

The **Carbon Border Adjustment Mechanism (CBAM)** entered into force in its definitive phase on 1 January 2026, marking a major step in the EU's efforts to address carbon leakage and to consolidate the effectiveness of EU climate policy. Building on the experience gained during the transitional period, which started in October 2023, the first year of implementation has focused on rolling out the new system for importers, their suppliers in countries outside the EU and national competent authorities, while pursuing the objective to put a price on embedded emissions in certain carbon-intensive goods imported into the EU.

In preparation for entry into force, the Commission made further refinements to the CBAM framework to improve its effectiveness and reduce unnecessary administrative burden. The refinements included **exemptions for small-scale importers, simplified and clearer rules** to calculate and report embedded emissions and **measures to facilitate implementation** by national authorities and reporting declarants. The changes were designed to preserve the environmental integrity of the mechanism while making compliance more proportionate and workable in practice.

The experience gained during the transitional period has also provided valuable insight into trade flows and embedded emissions covered by CBAM. Between **the fourth quarter of 2023 and the fourth quarter of 2025,** approximately **212 million tonnes** of CBAM goods were reported. **Iron and steel** account for the largest share **(69%)**, followed by **fertilisers (15%), cement (11%)** and **aluminium (5%)**. Over this transitional period, based on unverified data in the CBAM transitional registry, total estimated embedded emissions reached **387 $MtCO_2$-eq**. Taking electricity as a CBAM good, data report a total 117 million MWh, representing 100 million tonnes of CO_2.

Project in focus

Cutting emissions from chemical production



- Ostrava, Czechia
- EUR 60 million
- Modernisation Fund

The Modernisation Fund is supporting the modernisation of nitric acid production. The ageing production units will be replaced by a new, more energy-efficient plant capable of producing 150 000 tonnes of nitric acid per year.

The new technology will recover heat generated during production to produce steam and electricity, reducing the plant's energy consumption and associated CO_2 emissions. Construction progressed during 2026, with major components installed and the new production line completed. The plant produced its first nitric acid at the end of September 2026 and subsequently entered trial operation.

Chapter 3

Effort Sharing Regulation

Key highlights

- In 2025, emissions from the effort sharing sectors were around 20.5% lower than in 2005 and remained stable compared to 2024.
- Emissions decreased slightly, by around 1%, in agriculture, small industry, and waste in 2025, compared with 2024. Emissions stayed at around the same level in transport, the largest effort sharing sector. Emissions increased by 1% in buildings.
- Aggregating the Member State most recently reported projections of ESR emissions shows an expected reduction of around 38.5% in 2030 compared with 2005 levels, short of the EU-wide 40% ESR emissions reduction target.
- Nine Member States have not made sufficient progress towards their ESR obligations. They are expected to exceed their emission limits in at least one year in the period 2021-2030.
- EU emissions of fluorinated gases fell by 36% between 2015 and 2024, including a further 4.3% reduction in 2024. The revised F-gas rules aim to phase out hydrofluorocarbons (HFCs) by 2050.
- Road transport generated around 95% of domestic transport emissions in 2024, and its emissions remained 24% above 1990 levels. However, average CO_2 emissions from new cars and vans fell by more than 9% and 7% respectively in 2025, as the share of zero-emission vehicles increased.

▲ All new city buses in the EU will have to be zero-emission from 2035.

3. Effort Sharing Regulation

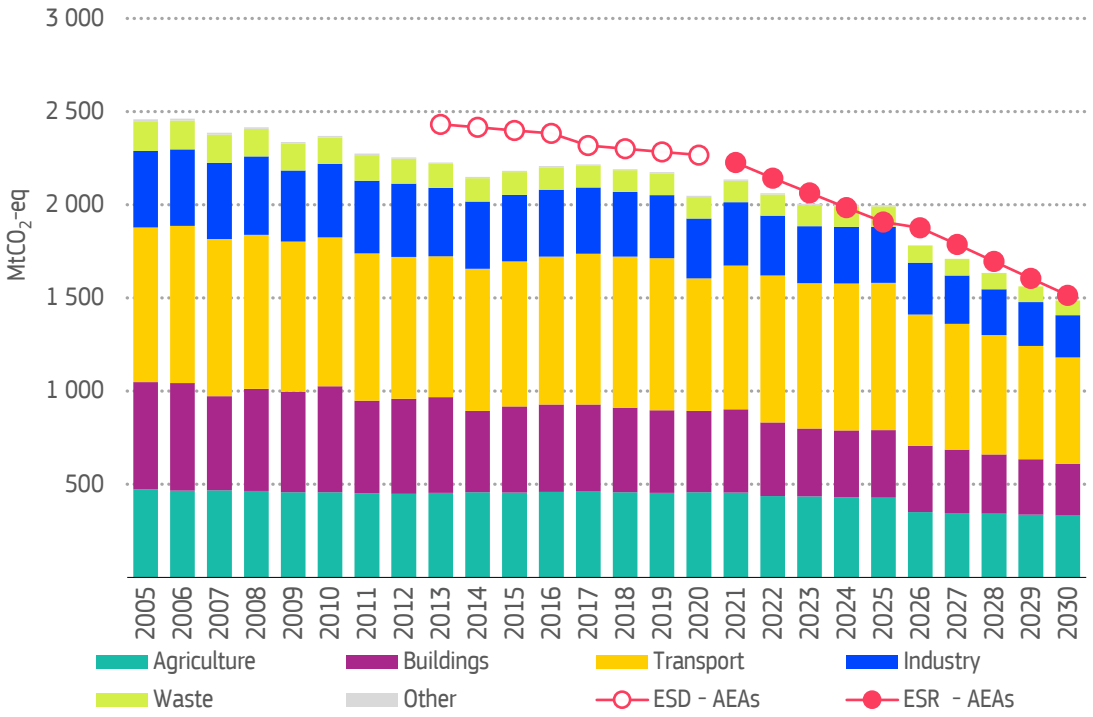
3.1 Target and assessment of progress

The Effort Sharing Regulation (ESR) covers greenhouse gas emissions from domestic transport (excluding aviation), buildings, agriculture, small industry, and waste. Together, these emissions account for 67% of the EU's domestic emissions.

In 2025, based on approximated data, emissions from these sectors remained at a similar level than in 2024, which was around 20.5% lower than in 2005. In 2024 and 2025, the EU's emissions were above the aggregated EU emissions limit for those years, exceeding the emission limit by 5% in 2025.

While EU level effort sharing emissions were broadly unchanged between 2024 and 2025, at sectoral level, buildings emissions increased by 1%. In 2025, the transport sector generated the highest emissions of all sectors under the ESR, accounting for 40% of the EU's ESR emissions, followed by agriculture (21%), buildings (18%), small industry (15%), and waste (6%).

Figure 12: Emissions in sectors covered by effort sharing legislation 2005-2030 and annual emission allocations, EU-27



Note: The figure shows how the EU's historic and projected effort sharing emissions are split between sectors and how they compare to the annual emission limits. The annual emission allocations (AEAs) are the annual emission limits as set in the ESR and the ESR's precursor the Effort Sharing Decision (ESD).
Source: 2026 GHG inventory (2005-2024), approximated GHG inventories (2025), and GHG projections reported by Member States in 2025 and updated in 2026 under Article 18 of the Governance Regulation (2026-2030). The split between ESR sectors is provided by the European Environment Agency (EEA).

Effort sharing targets

The ESR sets the EU target to reduce emissions in the effort sharing sectors by 40% by 2030 compared with 2005 levels. This overall target translates into Member States' national targets for 2030 ranging from 10% to 50% reductions in GHG emissions compared to 2005 and in emission limits for each year in 2021 to 2030 expressed in annual emission allocations. The Commission will check whether Member States met their emission limits in two rounds – first in 2027 (for the years 2021-2025) and second in 2032 (for the years 2026-2030).

Member States can use flexibilities, to a limited extent, to stay within their annual emission limits and meet their 2030 targets. These flexibilities entail banking, borrowing, buying and selling emission allocations, using surplus (credits) from the LULUCF sector and for some Member States the option to cancel allowances from the EU ETS for ESR emission allocations (for more details see Chapter 10 of the accompanying staff working document).

The ESR, as adopted in 2018, was incorporated in the EEA agreement with a few adaptations and applies to Iceland and Norway. Their progress and developments are reflected in the annual climate progress report prepared by the EFTA Surveillance Authority.

Progress towards effort sharing targets

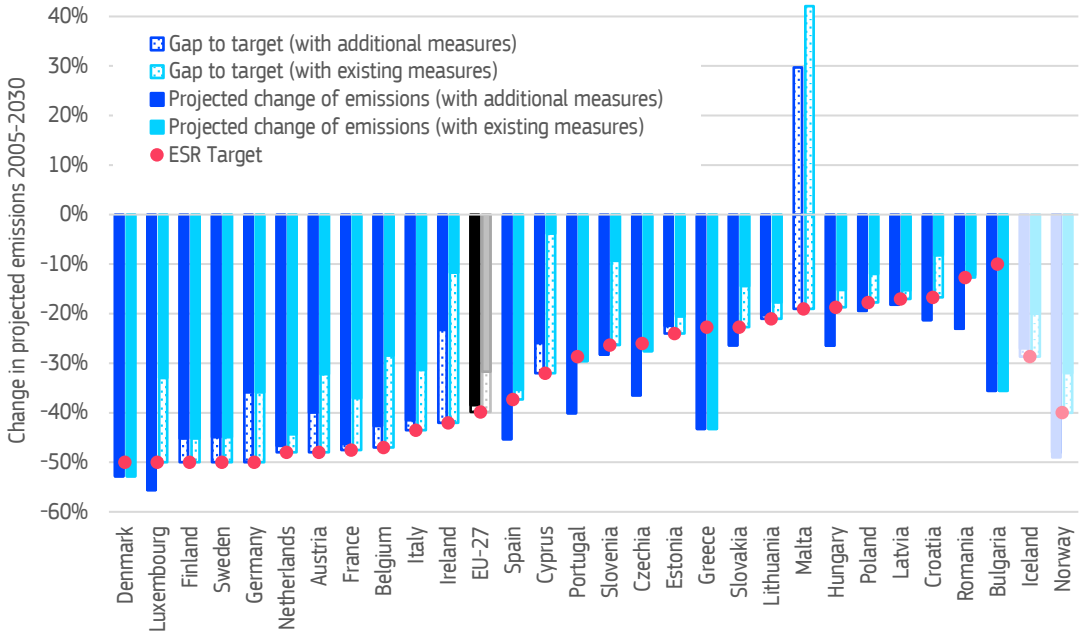
The ESR sets an emission reduction target for 2030 for the EU and each Member State (compared to 2005 levels). Based on Member States' projections from March 2025, the March 2026 updates and the projections provided by Poland in its final updated national energy and climate plan submitted to the Commission on 15 June 2026 (see more details in Chapter 10 of the accompanying staff working document), effort sharing emissions at EU level are expected to fall by around 38.5% by 2030 compared with 2005, including planned measures. This is about 1.5 percentage points short of the EU target and similar to the EU-wide gap in last year's climate action progress report. It is crucial that Member States implement their planned policies and maintain their momentum and action to reach the ESR targets. The aggregated projections based only on existing measures would result in a reduction of 31.7% for the EU.

Before any use of ESR flexibilities by Member States to meet their targets, Germany, Ireland and Malta show the largest projected gaps to the 2030 target. By contrast, Bulgaria, Greece and Portugal show the largest overachievement of their 2030 targets.

To close the gaps to the targets, Member States must step up climate action and fully implement all current and planned climate policies or use the flexible options available under the ESR. This includes the possibility for Member States to transfer emission allocations between each other. The Commission is supporting this process

by helping to connect potential buyers and sellers, including through technical meetings and a compliance workshop in June 2026.

Figure 13: Gap between ESR target and projected emissions reduction in 2030 (%) including existing and additional policies and measures



Note: Malta's gap to target is 49 and 61 percentage points, exceeding its 19% reduction target. This means Malta is projected to emit more in 2030 than in 2005.
Source: GHG projections reported by Member States in 2025 and updated in 2026 under Article 18 of the Governance Regulation (2026-2030). Own calculations.

Emission reductions in 2021-2030

The Commission has assessed Member States' progress towards their ESR obligations by comparing estimated ESR emissions and ESR allocations each year in the period 2021-2030 based on the latest information and the potential use of some of the flexibilities available under the ESR.

The Commission assumes that Member States will implement the additional measures included in their projections 'with additional measures' (WAM). Regarding the use of flexibilities, the Commission assumes that Member States will use emission allocations saved in one year for compliance in future years (banking) first and use emission allocations from a future year if needed in the previous year (borrowing). It also assumes that the Member States that notified their intention to use ETS flexibility will do so when needed before it uses borrowing. The interaction with the LULUCF Regulation is not considered, pending the availability of the relevant data.

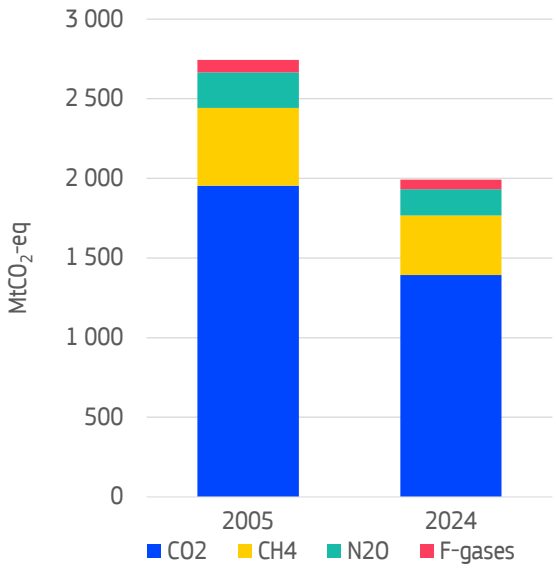
There are nine Member States where emissions exceed their emission allocations in at least one year in the period, after assuming the full use of the flexibilities

mentioned above. Cyprus, Croatia, and Italy would already have excess emissions in the first compliance period (2021-2025), while Austria, Cyprus, Germany, Italy, Malta, Ireland, Lithuania and Sweden are projected to have excess emissions in the second compliance period (2026-2030). At EU level there would still be an expected surplus of emission allocations of around 140 Mt, after the deficit of the nine Member States would be covered by the surplus of the other Member States. However, no transfers of emission allocations between Member States have been reported. Therefore, the Commission concludes that those nine Member States are not making sufficient progress towards their ESR obligations. Accordingly, the Commission will request Austria, Croatia, Cyprus, Germany, Italy, Ireland, Lithuania, Malta and Sweden to submit a corrective action plan in line with article 8 of ESR.

3.2 Non-CO_2 emissions

Over two thirds of all emissions from the effort sharing sectors are CO_2 emissions, the remaining third are non-CO_2 emissions (see Figure 14). Between 2005 and 2024, non-CO_2 emissions from the effort sharing sectors have reduced by 24%. Non-CO_2 greenhouse gases include methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (NF_3, HFCs, PFCs, SF_6). While most of the emissions in the energy sector are covered by the EU ETS, methane emissions in this sector fall under the ESR.

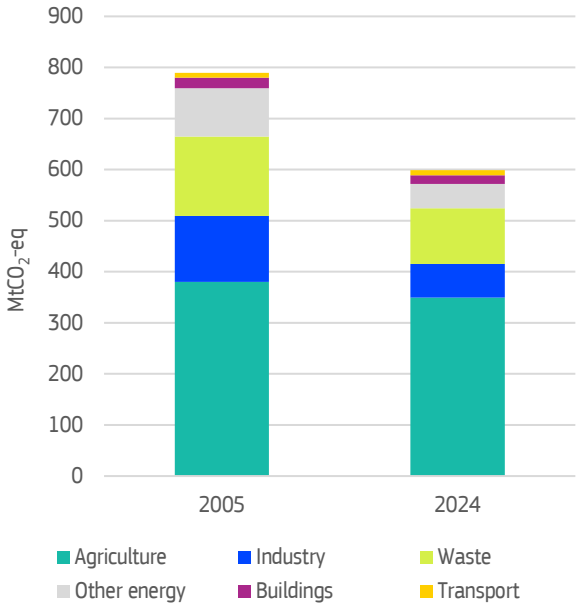
Figure 14: Emissions under the ESR in 2005 and 2024 by gas type



Source: 2026 GHG inventory (2005-2024), approximated GHG inventories (2025).

These non-CO_2 gases are emitted from a range of sectors and processes, and they all have much higher global warming potentials than CO_2 by degrees of tens to tens of thousands depending on the gas. As a result, non-CO_2 emissions have an important impact on climate change and are key sources of potential emission reductions in several sectors (see Figure 15). Reducing non-CO_2 emissions is also crucial to achieve our targets under the ESR.

Figure 15: Non-CO_2 emissions under the ESR in 2005 and 2024 by sector



Source: 2026 GHG inventory (2005-2024), approximated GHG inventories (2025).

Over half of the non-CO_2 emissions come from the agriculture sector. All sectors, except transport, have reduced non-CO_2 emissions from 2005 to 2024. The most significant reductions were made in the non-ETS energy ('other energy'), small industry and the waste sector. Over the same period, non-CO_2 emissions from agriculture, and buildings decreased only slightly, while non-CO_2 emissions from transport slightly increased.

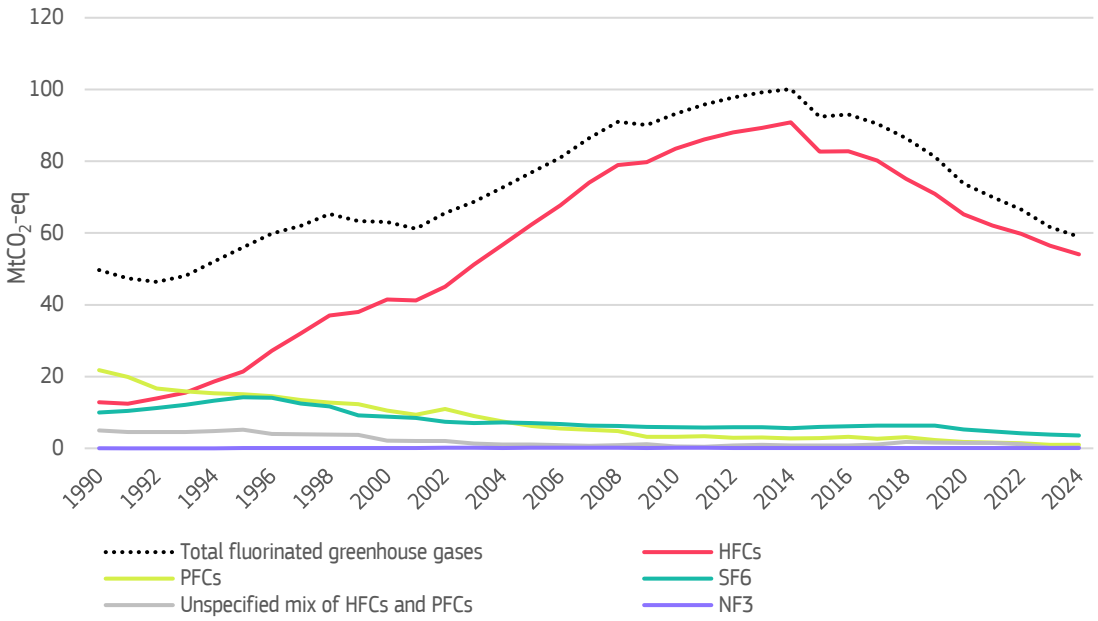
Fluorinated gases

Fluorinated greenhouse gases (F-gases), particularly hydrofluorocarbons (HFCs), have the highest global warming potential of all greenhouse gases and are widely used in refrigeration, air conditioning, heat pumps and industrial applications. HFCs generated around 91% of total F-gas emissions in the EU.

EU emissions of F-gases have been steadily declining since the introduction of the 2015 policy framework that began phasing down the amount of HFCs placed on the EU market. This has driven sustained emission reductions in recent years, including within sectors covered by the ESR.

Between 2015 and 2024, total F-gas emissions in the EU fell by 36.2%, while HFC emissions declined by 34.7%. In the most recent years (2023–2024), emissions decreased by 4.3% for both total F-gases and HFCs.

Figure 16: Emissions of fluorinated greenhouse gases in the EU (1990-2024)



Source: EEA.

These reductions reflect the implementation of the EU F-gas Regulation since 2015. The revised F-gas Regulation which entered into force in 2024, further strengthens the phase-down pathway towards planned phase-out of HFCs by 2050, introduces additional restrictions on high-global-warming-potential gases, and promotes the uptake of climate-friendly alternatives. In 2026, the Commission proposed to reduce administrative burdens under the F-gas Regulation by limiting registration and licensing requirements for importers and exporters of products and equipment, particularly those trading only small quantities.

Methane

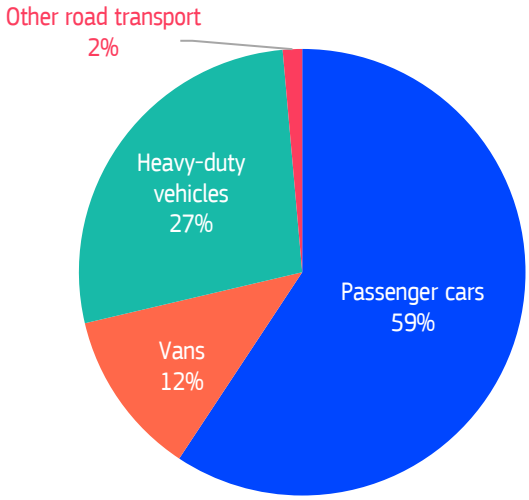
The EU methane strategy aims to reduce methane emissions in the energy sector, agriculture and waste sectors, and thereby to support the achievement of the ESR targets. The Commission continues implementing and further developing policies in all three areas, including, notably the EU Methane Regulation. The EU also supports the monitoring and verification of climate targets through tools such as the CAMS Methane Hotspot Explorer. It allows users to quickly identify major methane emissions and methane hotspots around the world, provides public access to key information such as plume locations, supporting data and mitigation status, and can support efforts to track emissions relevant to climate action.

3.3 Road transport

In 2024, emissions from transport (including emissions from international aviation and maritime transport) generated over a third (35%) of all EU greenhouse gas emissions and almost 40% of ESR emissions. Transport is the only major sector in the EU economy where emissions are still higher than they were in 1990 (+28%). **The transport sector must decarbonise faster for the EU to meet its 2030, 2040 and 2050 climate targets.**

Road transport is the primary contributor to GHG emissions in the transport sector. In 2024, it generated around 95% of domestic transport emissions. Over 70% of road transport emissions come from passenger cars and light commercial vehicles (vans), with cars generating the majority (59%) of these emissions. Heavy-duty vehicles (lorries, buses, coaches and trailers) accounted for around 27% of road transport emissions in that year (see Figure 17).

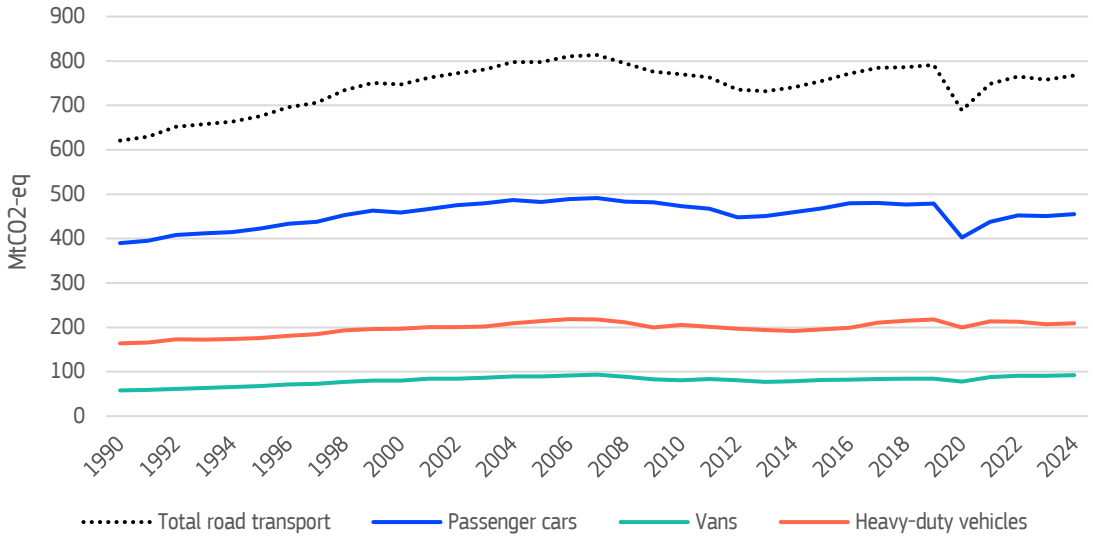
Figure 17: GHG emissions from road transport segments (2024)



Note: Other road transport includes other vehicles, such as motorcycles, mopeds, or three-wheelers.
Source: EEA.

Since 1990, road transport GHG emissions have increased by almost a quarter (24%). In 2020, emissions dropped due to the reduction in road transport activity during the COVID-19 pandemic, but they have rebounded since 2021. Similar trends can be observed in each of the main segments of road transport (see Figure 18).

Figure 18: GHG emissions from road transport broken down by segments (1990-2024)



Source: EEA.

The key policy instruments in the EU to gradually reduce road transport CO_2 emissions are the **CO_2 emission performance standards** for light-duty vehicles (cars and vans) and heavy-duty vehicles (lorries, buses, coaches and trailers). These standards apply to vehicles that are newly registered in the EU, Iceland and Norway (not to vehicles already in circulation).

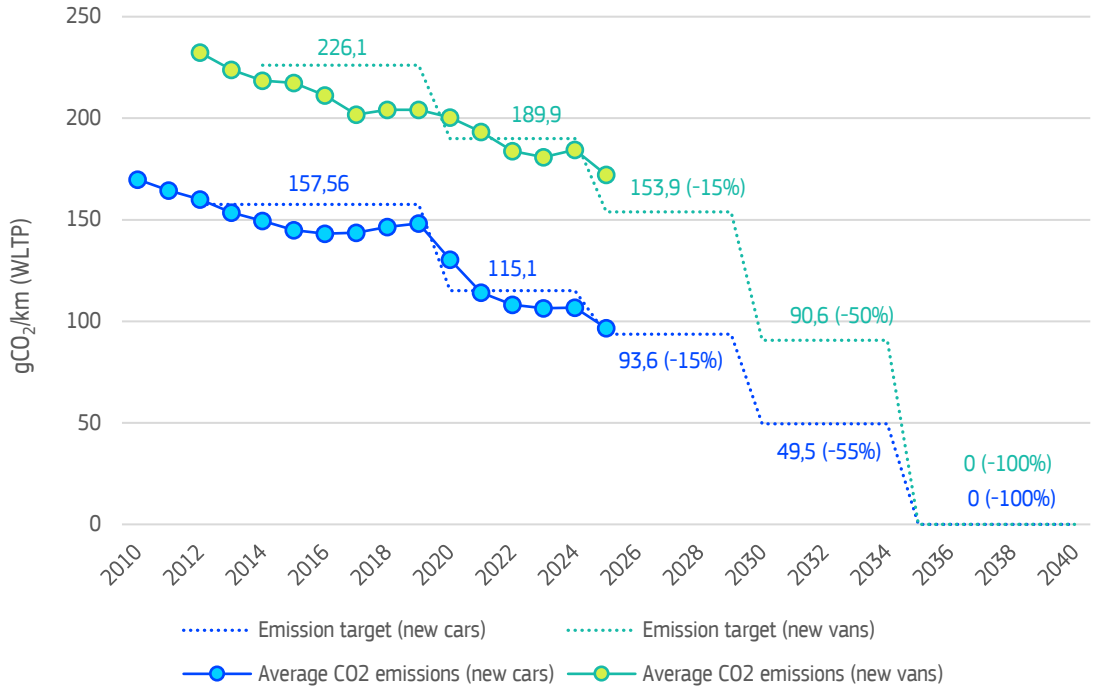
Light-duty vehicles

EU standards have cut average new vehicle emissions by 37% for cars and by 32% for vans by 2024, since emissions tracking began in 2010 and 2012 (see Figure 19).

In 2025, stricter targets began to apply. According to provisional data, the average CO_2 emissions of new vehicles remained above the EU targets, at 96.7 gCO_2/km for cars and 172.1 gCO_2/km for vans. However, this is still over 9% lower for cars and almost 7% lower for vans than 2024. This improvement was mainly driven by the growing share of zero-emission vehicles. In 2025, 18.9% of new cars and 10.2% of new vans had no tailpipe emissions, compared with only 2% and 1.4%, respectively, in 2019.

In December 2025, the Commission presented the Automotive Package to support the automotive sector's transition to clean mobility. The package sets out a framework of measures to achieve climate neutrality by 2050, strengthen the shift to zero-emission vehicles and provide flexibility in meeting CO_2 targets. It also includes, among others, a proposed revision of the light duty vehicle CO_2 standards, which is currently under discussion.

Figure 19: Average CO_2 emissions and emission targets for new cars and new vans



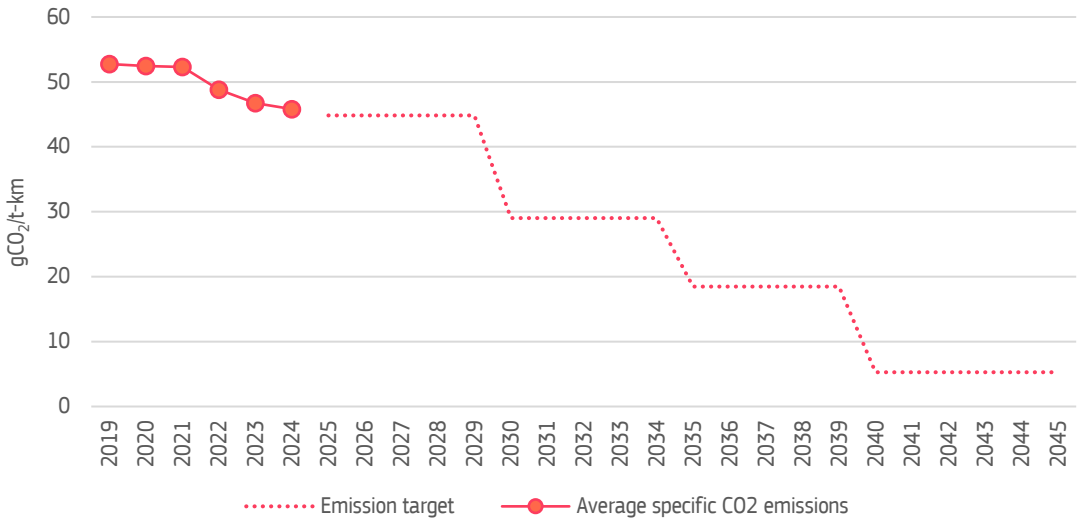
Note: The targets applicable until 2024 are the WLTP (Worldwide Harmonised Light Vehicles Test Procedure) equivalents of the NEDC (New European Driving Cycle) targets set out in the legislation (e.g., 95 gCO_2/km for cars and 147 gCO_2/km for vans for the period 2020-2024). The targets applicable from 2025 represent a % of reduction in CO_2 emissions compared to the 2021 baseline: -15% for 2025-2029, -55% for cars and -50% for vans for 2030-2034, and -100% from 2035 onward.
Source: EEA.

Heavy-duty vehicles

Since monitoring began in the 2019 reporting period, CO_2 emissions from new heavy lorries have fallen by 13.2% as of 2024 (see Figure 20). In the 2024 reporting period (June 2024 - July 2025), emissions fell by a further 2.0%, continuing the steeper downward trend observed since 2022, following only marginal reductions in earlier periods. However, the share of zero-emission heavy lorries remains low at 1.2%.

To sustain and deepen these reductions, in 2024 the CO_2 emission standards for new heavy-duty vehicles were extended to medium-sized lorries, city buses, coaches and trailers. The revised framework maintains the 15% reduction target by 2025 for certain heavy lorries. For vehicle groups covered by the extended scope, the target then increases to 45% by 2030, 65% by 2035, and 90% by 2040, relative to baseline years of 2019, 2021, or 2025, depending on the vehicle group. It also requires all new city buses to be 100% zero-emission by 2035.

Figure 20: Average specific CO_2 emissions by reporting period of new heavy lorries and CO_2 emissions targets for heavy lorries



Note: Targets indicate mandatory average CO_2 emission reductions for new heavy-duty vehicles relative to the 2019 baseline: -15% in 2025, -45% in 2030, -65% in 2035, and -90% from 2040 onward (city buses require 100% zero-emissions by 2035).
Source: EEA.

Fuel Quality Directive

The Fuel Quality Directive contributes to reducing transport emissions by setting quality requirements for road transport fuels. There is a high level of compliance with these requirements in the EU. Almost all key fuel parameters in the samples taken in 2024 were within the tolerance limits, including the maximum sulphur content and Member States reported follow-up action taken if any non-compliant samples were identified. This confirms that the current fuel quality monitoring system is effective in ensuring compliance with the Directive. For more information on fuel quality monitoring, see the latest report published by the EEA.

Project in focus

MOONSET – demand responsive transport



Austria (Vienna), Portugal (Lisbon) and Bulgaria (Ruse)

EUR 1.7 million

LIFE

The LIFE MOONSET project is testing demand-responsive night shuttle services for shift workers in Vienna, Lisbon and Ruse. The aim is to offer a practical alternative to commuting by private car, using electric shared transport to reduce greenhouse gas emissions while improving access to workplaces for people working outside normal public transport hours.

Pilot services are already operating in Vienna and Lisbon, with strong user uptake and high satisfaction ratings. The project aims to reduce CO_2-equivalent emissions per passenger-kilometre by at least 80% across the three pilot areas compared with users' previous modes of transport, saving around 89 tonnes of CO_2-equivalent by the end of

Chapter 4

Land use sector

Key highlights

- Despite a recent improvement in 2024 to remove 231 $MtCO_2$-eq, carbon removals from the land use sector have largely stalled in recent years and have failed to reverse a decade of worrying declines in the carbon sink.
- At EU level, the latest available projections for 2030 still show a gap of 40-55 $MtCO_2$-eq against the target.
- More investments are needed in the land use sector to make the agri-food and forest-based value chains resilient and to reach the climate target for the sector.
- Targeted improvements are needed in monitoring of carbon removals to fully reflect the efforts in climate action made by Member States, farmers, foresters, and companies in the bioeconomy value chains.

▲Forests cover 39% of the EU's land area and remove more carbon from the atmosphere than any other land-use category.

4. Land use sector

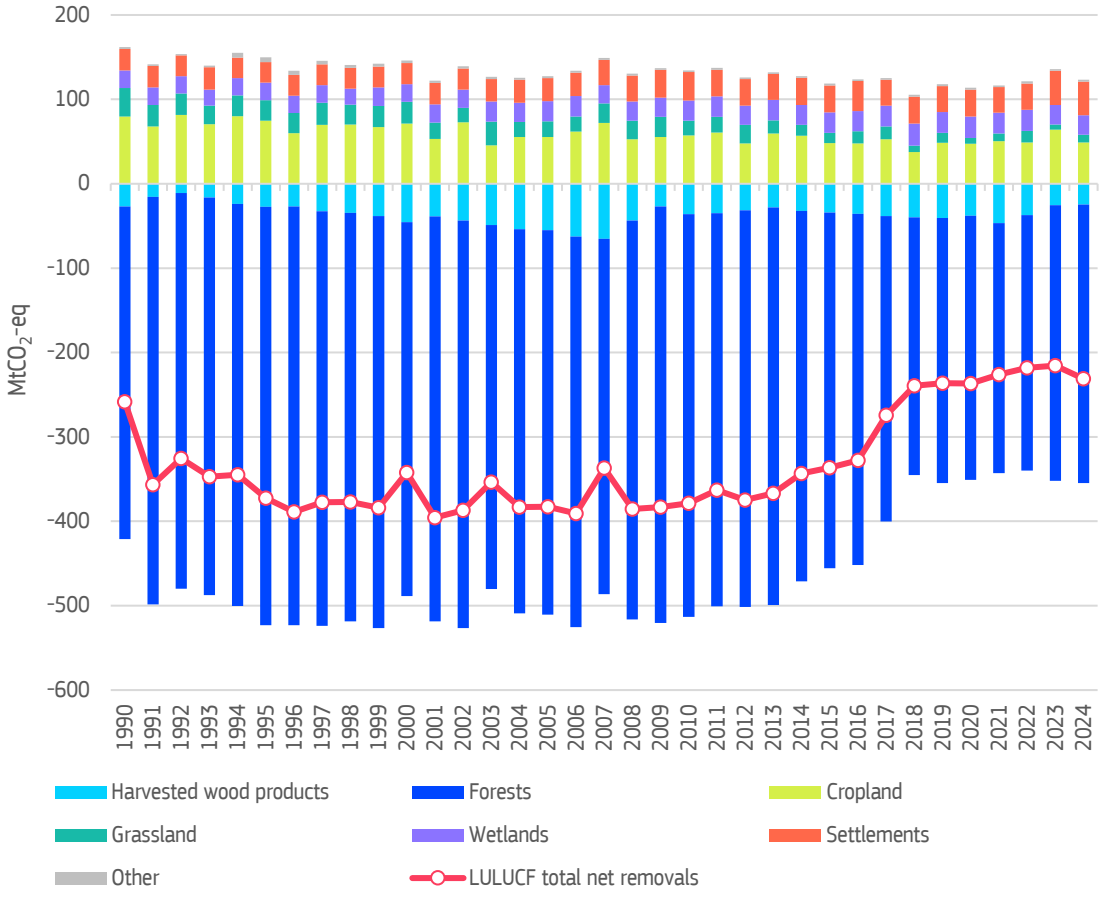
4.1 LULUCF target and assessment of the progress

The land use, land-use change, and forestry (LULUCF) sector includes emissions and removals from land, including soils and forests. In the EU, it absorbs more greenhouse gases than it emits, removing significant volumes of carbon from the atmosphere. It is key in the transition to a climate-neutral and resilient bioeconomy. It provides food and renewable materials such as wood for construction, which replace carbon-intensive materials. The sector therefore contributes to the EU's climate goals, competitiveness and strategic independence, while strengthening the resilience of agri-food and forest-based value chains.

Based on the latest Member States' greenhouse gas inventory submissions, net removals increased by 15 $MtCO_2$-eq in 2024 compared with 2023 levels, resulting in a total net removal of 231 $MtCO_2$-eq in 2024. Despite this improvement, carbon removals by the land use sector have declined at a worrying speed over the last decade. This is mainly due to increased harvesting and slower forest growth. Climate change is also weakening forest's ability to absorb carbon, as forest fires, storms, droughts and insect damage have become more frequent and severe, affecting the health and resilience of these ecosystems. New geopolitical circumstances leading to less biomass imports have also contributed to this trend by increasing demand for domestically sourced biomass.

Currently, forests are the largest source of carbon removals in the EU. By contrast, land used for crops and settlements are the net sources of LULUCF emissions (see Figure 21).

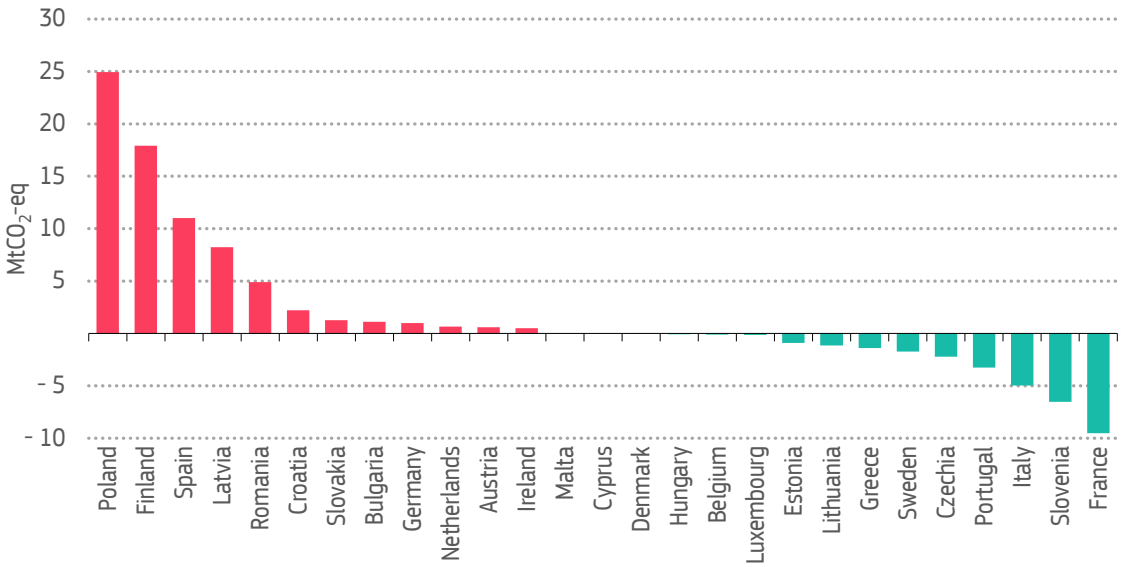
Figure 21: Land sector emissions (+) and removals (-) in 1990-2024 by main land use category (EU-27)



Source: 2026 GHG emissions inventory.

The LULUCF target is to increase land-based net removals in the EU by an additional 42 $MtCO_2$-eq by 2030. This additional net removal is distributed among Member States through individual targets, based on their share of total managed land area. The national 2030 targets require each Member State to increase its level of ambition on climate action and implement additional agriculture and forestry policies. For more details, see Chapter 11 of the accompanying staff working document. The latest Member State projections, including the impact of existing and planned measures, show that the EU as a whole is not on track to meet its 2030 target, as there is a gap of around 40-55 $MtCO_2$-eq.

Figure 22: Projected gap to the national 2030 targets with additional measures, based on Member States' projections for 2030



Note: The gaps to the 2030 LULUCF target include a re-adjustment to take into account possible discrepancies between the inventory data and projections. Consequently, some projections might be outdated. As Member States continuously improve their methodologies for GHG inventory data and projections in terms of accuracy, the gap calculations are susceptible to changes in the future.
Source: GHG projections reported by Member States in 2025 and updated in 2026 under Article 18 of the Governance Regulation (2026-2030). Own calculations.

4.2 EU action

Stepping up investments into the land sector

The EU must significantly increase carbon removals and business models that rewards land managers, such as farmers and foresters, for implementing improved land management practices (carbon farming) to reach climate neutrality by 2050. This requires **targeted private and public investment in the land sector**.

Investing in the land sector can deliver many benefits beyond reducing emissions. It can strengthen climate resilience, protect biodiversity, support innovation, and develop a circular bioeconomy. A growing range of private and public funding mechanisms and incentives are available to support these activities. The common agricultural policy is one of the main sources of public support for carbon removals in the land sector. A recent study estimates that supported interventions enhanced carbon sequestration by around 20 $MtCO_2$-eq compared with conventional farming practices.

The Carbon Removals and Carbon Farming Regulation (CRCF) created a voluntary EU-wide framework to certify high-quality and reliable carbon removals and emission reductions. It aims to direct public and private investment towards credible projects. It also aims to give farmers and foresters new business opportunities by rewarding climate action and strengthening the resilience of the agri-food and forest-based

supply chains. The business case for removals will be further strengthened in the future, with the proposal of integrating technologies that permanently store CO_2 removed from the atmosphere, either directly from the air or through biomass in the Emissions Trading System and creating demand for negative emissions. The contribution of nature-based removals and carbon farming will be assessed by the Commission by 2034.

The Commission has adopted certification methodologies for carbon farming, covering agricultural soils and agroforestry, peatland rewetting and afforestation. It has also adopted methodologies for permanent removals, including bioenergy with carbon capture, storage and biochar.

Work continues on developing a certification methodology for carbon storage in buildings, encouraging long-lasting carbon storage in harvested wood products. The process for recognising CRCF certification schemes has also started, with five schemes applying in the first two months.

To create stable demand and attract private investment, the Commission announced in the bioeconomy strategy that it will establish an EU Buyers' Club for carbon removals and carbon farming. The club will bring together buyers and suppliers of CRCF certified material and help pool demand.

It will support investment in permanent removals and carbon farming certified under the CRCF Regulation. By combining public funding with private investment, the club aims to help successful pilot projects expand and contribute to a reliable and high-integrity carbon market. The Commission presented the first details at the CRCF days in May 2026. The discussions showed growing interest from companies, financial investors, and public authorities.

Beyond this specific initiative, the strategy supports broader land-sector climate action by scaling up solutions for sustainable and climate-resilient agriculture and forestry and promoting the efficient and circular use of biomass, including long-lived bio-based products that store carbon and substitute carbon-intensive materials.

The **EU already supports carbon farming and sustainable land management** through the common agricultural policy, cohesion policy funds, and programmes such as LIFE or Horizon Europe, particularly the Soil Mission. In 2023, the Commission also published guidance on EU funding opportunities for healthy soils.

Member States can provide additional support under State aid rules. These rules allow funding for forest ecosystem services such as climate regulation and biodiversity restoration. Support can also cover training, advice or cooperation, which help maximise effects. Member States can also co-finance CRCF projects through a simple co-financing scheme, without creating a separate State aid scheme.

Stepping up monitoring of emissions and removals in land

High-quality monitoring is essential for effective climate action. Accurate and timely data on emissions and removals from the land sector can help direct public and private investments towards resilient agri-food and forest-based value chains. It can also identify where measures such as peatland rewetting, agroforestry and long-lasting wood products can deliver the greatest climate benefits at the lowest cost.

Monitoring systems have improved significantly in recent years:

- Member States are developing new methods, using more recent data and covering more carbon pools. This has made greenhouse gas inventories more complete and accurate.
- The CRCF certification methodologies now include rules for monitoring and calculating carbon removals.

However, further improvements are still needed. Some effective measures that are widely used across the EU are still not fully reflected in greenhouse gas inventories. These include agroforestry (trees in agricultural land), peatland rewetting and long-lasting wooden products, such as wood used in buildings.

Better monitoring will help Member States, land managers and companies to track emissions and removals more accurately. This would increase confidence in public and private investments in carbon farming. New technologies, including soil carbon models, forest growth models and satellite monitoring can make this monitoring more accurate and cost-effective. The Fire Emissions Watch is a new online application from the Copernicus Atmosphere Monitoring Service (CAMS) that provides near-real-time estimate of emissions from wildfires.

In the bioeconomy strategy, the Commission announced that an EU carbon farming database would be created with tools and datasets to help Member States and CRCF operators improve their monitoring systems. The database could later become a CRCF and LULUCF Knowledge Hub. It would be a free EU platform that brings together knowledge and monitoring tools, including tools developed through EU-funded projects. It would support climate action and help ensure that climate policies and measures are properly recognised.

Project in focus

Innovative agroforestry



Italy

EUR 3 million

LIFE

The LIFE VAIA project is testing new ways to restore forests damaged by extreme weather while making them more resilient to future climate impacts. Instead of simply replanting the same tree species, the project combines forest regeneration with temporary agroforestry, including berries, aromatic plants and beekeeping, to support biodiversity and create additional income for local communities.

The project is testing this approach in different areas to develop restoration models that can be replicated elsewhere. It is expected to improve the sustainable management of more than 600 hectares of forest, enhance habitats and biodiversity, and reduce CO_2 emissions from cultivation practices by more than 10 tonnes per year.

Chapter 5

Climate resilience and adaptation

Key highlights

- With growing frequency and intensity, climate hazards significantly impact Europe. Heatwaves, drought and wildfires continue to have major impacts. Preliminary figures for 2026 indicate that heatwaves and drought are likely to be even more severe than in 2025, a year in which 70% of European rivers fell below average volumes and over 1 million hectares burned.
- To help manage these impacts, the EU needs to invest around EUR 69 billion a year in adaptation by 2050. Adaptation measures could reduce projected climate-related GDP losses in 2050 by about 40%.
- In October 2026, the European Commission presented the EU Framework for Climate Resilience, which proposes a common approach to managing climate risks across the EU. It will support systematic and forward-looking climate risk management across the EU by setting a reference global warming trajectory, clarifying responsibilities, integrating climate resilience into planning and decision-making, improving risk assessments and strategic planning, supporting innovation and competitiveness, and providing practical tools.
- All Member States have adopted national climate adaptation policies, but their ambition and progress is uneven. 21 Member States have completed comprehensive climate risk assessments and 14 have included adaptation in national climate laws. Further work is nevertheless required to better prepare for the changing climate reality.

▲ Europe's four major rivers – the Loire, Po, Rhine and Danube – fell to record-low levels in August 2026.

5. Climate resilience and adaptation

5.1 Climate hazards and economic losses

Mitigation and adaptation must go hand in hand. Cutting emissions remains the most effective way to limit climate risks, as every fraction of a degree of warming increases the impacts on people, economy and nature. At the same time, Europe must prepare for a changing climate, including more severe scenarios. Recent climate hazards, their increasing economic costs and their impact on vulnerable groups show why stronger and faster action to build resilience is urgently needed. Well-designed adaptation measures can also support climate mitigation, for example by protecting carbon sinks, improving energy efficiency and promoting nature-based solutions, thereby strengthening overall climate resilience.

As global warming continues, climatic trends across Europe are worsening, with impacts of a changing climate and related damage becoming increasingly severe and accelerating in recent years. The extreme events experienced in 2026, together with the impacts recorded in 2025, illustrate the growing risks to human health, ecosystems, infrastructure and economic activity.

In summer 2026, a series of **heatwaves** broke temperature records across several countries as early as May. They caused serious and far-reaching consequences, including power outages, school closures, workplace closures, overwhelmed hospitals, damaged roads, buckled rail tracks, ravaged crops and livestock, and at least 35 000 excess deaths, according to preliminary data. Exposure to heat is also uneven: a recent report found that 26% of households were unable to keep their homes comfortably cool during the summer of 2022, rising to nearly 35% among the lowest-income group in Europe. Heat also increasingly affects people at work. According to the 2025 Occupational Safety and Health Pulse survey, about 20% of European workers were exposed to extreme heat at work, while 12% faced intense sun exposure and 9% extreme weather-related events. These impacts are expected to reduce labour productivity. A Commission's study estimates that heat stress alone could reduce productivity by around 1% by 2050, with substantially higher losses in some EU regions.

The extreme heat was accompanied by severe **drought**. Summer crop yields in some eastern European countries fell sharply. Losses were especially severe for maize crops, for which yields were about 20% below average in Hungary and Romania, and hit their lowest levels since 2007 in Bulgaria. Major yield losses were also recorded for sunflower crops, which were 20% below average in Romania and comparable with that previous catastrophic harvest year in Bulgaria. **Record-low water levels** in the Elbe, Rhine and Danube rivers compromised freight transport, energy infrastructure and industrial production. In early August 2026, barges on the Rhine were carrying only around 20% of their usual load. The water level of the Rhine at Kaub fell to just

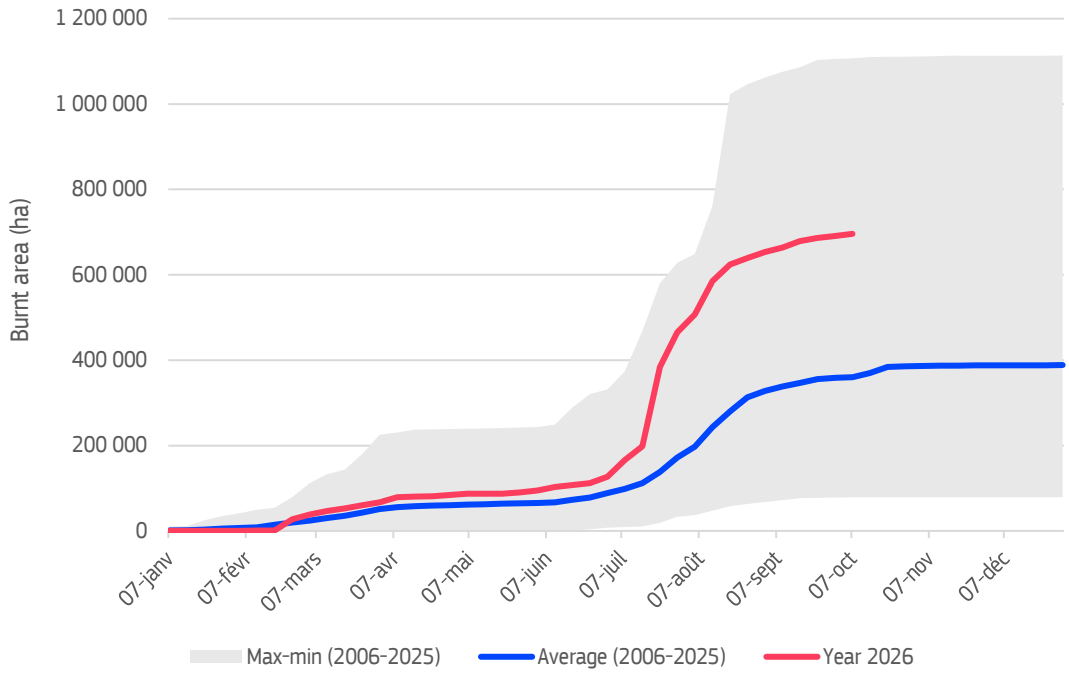
8 cm on 18 August, well below the 78 cm threshold at which navigation becomes restricted and the previous all-time low of 25 cm recorded in 2018.

Low river levels and **high water temperatures** also created cooling problems for power generation, forcing complete or partial shutdowns of nuclear plants in France, Romania, Hungary and Slovenia. Output from Hungary's Paks station, which supplies 50% of the country's power, dropped to just over 12%. Romania's Cernavodă plant, which delivers 20% of national production, had to be fully shut down.

Exceptional temperatures were also recorded at sea in the summer of 2026. Waters in the western Mediterranean Sea were up to six degrees warmer than average, while parts of the north-eastern Atlantic were five degrees above average. This was the longest and most intense **marine heatwave** ever recorded in these parts of Europe. High sea-surface temperatures damage fish stocks, aquaculture and marine ecosystems, and can also contribute to devastating downpours and storms, similar to the 2024 Valencia floods.

The hot and dry conditions also fuelled extensive **wildfires**. By mid-October 2026, almost 700 000 hectares of land had burnt across the EU, more than double the 20-year average for this time of year. 2026 already ranks as the EU's third-worst wildfire year, after 2022 and 2025. The wildfires of July 2026 across southwestern Europe provided a stark illustration of the growing risks. Consecutive extreme heatwaves aggravated massive blazes that forced the evacuation of [over 300 000 residents in France and Spain,](#) highlighting severe vulnerabilities in regional infrastructure.

Figure 23: Weekly cumulative burnt areas



Source: EFFIS Statistics Portal.

In contrast to many recent years, the area of the European territory affected by **extreme precipitation** was relatively low in 2025. Nevertheless, several major **flood** events still took place, notably in Ireland, Spain, Portugal, and Italy. Overall, at least 21 lives were lost and at least 14 500 people were affected across Europe by storms and flooding. **Winter storms, floods and severe thunderstorms** caused the vast majority of Europe's economic losses linked to natural disasters. While winter storms caused the largest losses individually, rapidly increasing damage from severe thunderstorms is driving up the overall rise in annual costs. The European transport network is also strongly affected by climate change impacts, in particular extreme weather events. As an example, a recent study highlights the risks posed by coastal flooding primarily to roads but also railways. Expected annual damage is projected to climb from EUR 0.7 billion over the 1980-2020 period to EUR 1.1 billion under 1.5°C of global warming, and as high as EUR 1.5 billion at 4°C of global warming.

As the climate warms, worsening extreme weather and damages make widespread adaptation measures essential across sectors. A Commission study reveals that the EU, its Member States and the private sector must invest EUR 69 billion each year until 2050 in climate adaptation measures to reduce risks and boost resilience (see Chapter 7). Another Commission study estimated that, by 2050, the EU would reduce the GDP losses caused by climate impacts by about 40% thanks to the implementation of adaptation measures.

5.2 EU Framework for Climate Resilience

To strengthen long-term climate resilience, the Commission recently presented the EU Framework for Climate Resilience. The package includes a proposal for a regulation, a communication and digital tools. It calls for a systemic change to strengthen Europe's ability to anticipate, prepare for, and manage climate risks and to embed climate resilience across all major policy areas.

The proposed **European Climate Resilience Law** is designed to ensure that the EU and Member States act together and manage their climate risks in concert. It aims at making policies and action significantly more impactful, through the following elements:

- **Application of a reference global warming trajectory.** Current evidence shows that the world is on a path to warm above pre-industrial levels by 1.5 °C by 2030, 2 °C by 2050, and 3 °C by 2100. When making decisions about policies, assets and investments, the reference global warming trajectory will need to become the baseline assumption for the Union and national action, feeding into more robust risk assessments and tolerance determining choices to be made.

- **Identification of policy risk owners.** Governments need to be clear and transparent about which actor is responsible for management of climate risks in all policy areas and across all levels of governance.

- **Improved and more regular climate risk assessments** to promote that Member States' assessments and the European Climate Risk Assessment become comparable and more synchronised in timing and content.

- **Encouragement to take into account** the reference global warming trajectory, national climate risk assessments, and other relevant risk assessments when public authorities carry out their functions, in particular budgeting, spatial planning and impact assessments**.**

- **A single strategic plan for climate resilience by Member States.** Member States will prepare one national strategic plan for climate resilience, bringing together the key elements of climate resilience planning. At EU level, a strategic plan for climate resilience will provide an action-oriented successor to the current EU Adaptation Strategy.

- **Simpler and more effective monitoring and progress tracking** to assess the outcome of climate resilience actions and help improving them.

The framework also provides public authorities, businesses and communities with **practical tools** to better understand and manage climate risks. The European Climate Viewer shows current and possible future climate conditions using Copernicus climate data and projections. The Navigator of Climate Resilience Tools helps users find relevant tools based on their location, sector and climate risks. The Solutions Explorer presents practical adaptation solutions developed and tested through the EU Mission on Adaptation to Climate Change.

5.3 Progress in Member States

According to the report Climate resilience in Europe, 2025 - progress and challenges', progress on adaptation to climate change has been uneven across EU Member States.

National climate risk assessments are becoming more common, but they still differ widely in scope, methodology and timeliness. This makes it difficult to develop a consistent understanding of climate risks across Europe. 21 Member States have published at least one comprehensive national climate risk assessment. However, they use different warming pathways, climate scenarios and sectoral coverage.

Gaps in data, institutional capacity and funding limit the quality and comparability of assessments. Compound and cascading risks, where impacts spread across sectors and systems, are still not assessed consistently. This affects how climate risks are identified and reflected in policy, leading to uneven levels of awareness, preparedness and action.

Transboundary risks are also not sufficiently addressed. Close cooperation across borders is not a rule. Data sharing and exchanges of good practices remain limited. The EU and Member States do therefore not have a comprehensive picture of shared climate risks and how to best manage them.

Available reporting provides only a partial view of the EU's preparedness. It focuses mainly on planning and governance aspects, with less attention to concrete actions and results. All EU Member States have adopted national climate adaptation policies, most have completed at least one full policy cycle and 14 have addressed climate adaptation in national climate laws. Nevertheless, countries still face difficulties in turning climate risk assessments into targeted action. The reasons for these difficulties include unclear division of responsibilities, limited institutional capacity, uncertain financing and complex coordination across sectors and levels of government.

Regional and local authorities often lack the staff, skills and resources needed to translate national priorities into action. This contributes to differences in preparedness between regions. EU initiatives such as the Covenant of Mayors and the EU Mission on Adaptation to Climate Change, together with national programmes, are frontrunner initiatives that help strengthening regional and local actions.

Funding is a major constraint. Adaptation measures often depend on short-term or uneven national funding, with only limited examples of dedicated budgets, cost-benefit evidence and private investment.

Monitoring, evaluation and learning systems require improvements. This makes it difficult to assess whether measures are effective and whether the EU is becoming more resilient. Objectives and indicators also vary widely, and links between them are often weak**.** Stronger, outcome-based indicators are therefore needed to track and assess climate resilience progress across the EU.

5.4 Regional and local adaptation

Across the EU, regions and cities are stepping up action to improve climate resilience and adaptation.

They are making progress on two tracks:

- **Legal requirements.** An increasing number of Member States now oblige regional and local authorities to prepare and implement climate adaptation plans, often integrating resilience and adaptation into sector programmes, policies and regulations.
- **Voluntary action.** In countries without legal requirements, regions and cities are increasingly taking voluntary action, often under national adaptation plans or EU cross-border programmes. A growing number of regions are also establishing legal framework to adopt regional adaptation plans and obligations for their review over time. Governments often support this with incentives, guidance and joint initiatives.

Extreme heat (91%), heavy precipitation (87%) and droughts and water scarcity (86%) are the climate hazards most often reported by municipalities in 2025. Local action therefore focuses mainly on water and sanitation, the environment, biodiversity, forestry and buildings. More attention is also being given to vulnerable

groups, especially children, young people and the elderly. However, stronger institutions and more financing are still needed to manage climate risks effectively at regional and local level.

Several EU initiatives and funding programmes help regions, local authorities and communities strengthen climate resilience through technical support, knowledge sharing, capacity building and financing (For more information, see Section 7.7).

Launched in 2021, the **EU Mission on Adaptation to Climate Change** supports European regions, local authorities and communities in becoming climate resilient by 2030. This ambition is already translating into action, with 292 regional and local authorities having implemented climate adaptation measures. The Mission has built a growing European climate resilience coalition, engaging more than 600 regions and local authorities. Through Mission demonstrators, 185 regions and local authorities are testing and implementing nearly 1 000 real-life adaptation solutions, while more than 110 additional territories are preparing to replicate and scale successful approaches across Europe. Thanks to this initiative, participating regions and local authorities are strengthening adaptation governance, improving climate-risk planning and developing locally tailored resilience pathways. The launch of 27 National Adaptation Hubs is further strengthening multilevel cooperation by connecting EU, national and regional actors and supporting the uptake and scaling of adaptation solutions across Europe.

The Covenant of Mayors initiative, created in 2008 and supported by the European Commission, brings together thousands of local governments seeking to provide a better future for their citizens. By joining the initiative, the local governments voluntarily commit to implementing EU climate neutrality and objectives on resilience and energy by the target date of 2050. Over 10 000 local governments have committed to action, including strengthening resilience and alleviating energy poverty. The initiative is a key enabler of local adaptation planning across Europe. It provides tools, networks and peer-to-peer support, also disseminating much broadly the lessons learnt by pioneers through the EU Mission on Adaptation to Climate Change.

Project in focus

SpongeWorks



Lèze (France), Pinios (Greece) and Vecht/Vechte (Netherlands/Germany)

EUR 15.3 million

Horizon Europe

Funded under the EU Mission on Adaptation to Climate Change, SpongeWorks is developing and testing nature-based "sponge" measures that help landscapes retain, store and slowly release water, reducing risks from both floods and droughts while delivering benefits for soils, biodiversity and communities.

Across three demonstration areas, the project is implementing measures across 4 000 hectares of land and 47 km of rivers, working with farmers, water managers, local authorities and other stakeholders. It is also supporting eight regions across Europe to develop and scale up sponge strategies.

The project illustrates the approach of the forthcoming EU Framework for Climate Resilience by combining climate-risk knowledge, nature-based solutions, local action and cooperation across governance levels. By assessing what works and developing pathways for replication and upscaling, SpongeWorks is helping turn research and innovation into practical measures for climate resilience.

Chapter 6

Industrial carbon management

Key highlights

- The EU needs to capture up to 300 million tonnes of CO_2 a year by 2040. Of this, around 200 million tonnes need to be stored permanently.
- The industrial carbon management strategy aims to create a single EU market for CO_2 transport and storage services by 2030.
- The Net-Zero Industry Act sets a target to build injection capacity of at least 50 million tonnes of annual CO_2 by 2030 and requires 44 oil and gas producers to contribute.
- Innovation Fund projects are expected to capture more than 25 million tonnes of CO_2 a year for permanent storage. More than 100 projects applied for support between 2020 and 2026.
- In early 2026, the Commission adopted the first EU certification methodologies for permanent carbon removals.

▲ Three CO_2 storage sites are already permitted in the EU, with seven more in the permitting process and dozens under development.

6. Industrial carbon management

Carbon dioxide (CO_2) can be **captured** from industrial processes – such as waste incineration or clinker plants – to prevent it from entering the atmosphere, and then either **stored** (e.g. permanently trapped deep underground in empty gas reservoirs) or **used** (e.g. converted into building materials or synthetic e-fuels). These practices are known as **carbon capture and storage** (CCS) and **carbon capture and utilisation** (CCU). Alternatively, when CO_2 of biogenic origin (from biomass power plants) or atmospheric origin (captured directly from ambient air) is permanently stored, the process results in **permanent carbon removals**. This distinction is critical because while CCS and CCU prevent *new* emissions, carbon removals actively *extract* existing carbon from the global climate cycle.

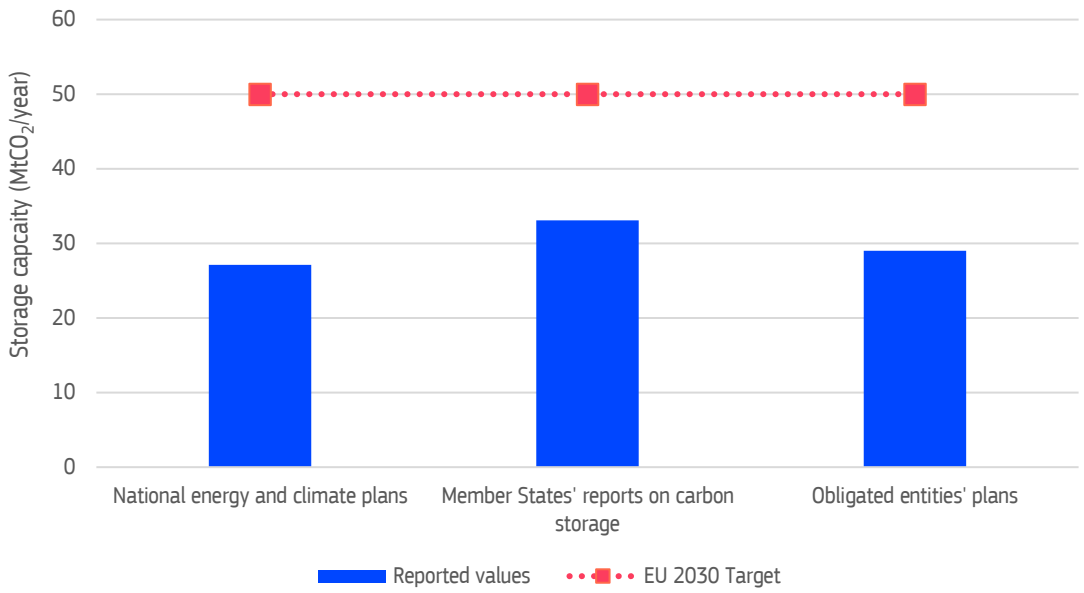
The EU needs up to 300 million tonnes of CO_2 to be captured and approximately 200 $MtCO_2$ stored by 2040 to meet its' 2040 target to reduce greenhouse gas emissions by 90%, according to the 2040 climate target impact assessment. By mid-century, this should rise to approximately 450 million tonnes of CO_2 captured and roughly 250 million tonnes of CO_2 stored. The **industrial carbon management strategy** sets out a vision and proposes a list of actions to reach these targets.

The industrial carbon management strategy is an important step towards a more consistent deployment of carbon capture and storage, carbon capture and utilisation and permanent carbon removals across Europe. The strategy supports the creation of a single market for CO_2 transport and storage services throughout Europe by 2030.

The **Clean Industrial Deal** emphasises the ties between climate action and industrial competitiveness, prioritising technologies that could achieve competitive carbon capture, utilisation and storage for hard-to-abate sectors.

The EU aims to create a market for CO_2 storage services. To achieve that, the **Net-Zero Industry Act** (NZIA) sets an EU CO_2 injection capacity target of 50 million tonnes per year by 2030 and obligates 44 EU oil and gas producers to achieve this target. The Commission's first NZIA annual report, published in 2026, found that CO_2 storage projects are progressing well. The EU can still meet its 2030 target if the projects are deployed quickly enough (see Figure 24).

Figure 24: Storage capacity target and reported values



Projects funded by the Innovation Fund alone are expected to capture over 25 million tonnes of CO_2 per year for permanent storage. Between 2020 and 2026, over 100 CCUS projects applied for support under the Innovation Fund, requiring more than 80 million tonnes of annual CO_2 injection capacity. By comparison, storage sites with over 19 million tonnes of annual injection capacity are expected to be permitted in the coming years. In addition, Horizon Europe funding supported the development of an EU-wide investment atlas of potential CO_2 storage sites. The atlas will help identify and develop the storage capacity needed to meet the CO_2 injection capacity targets under the NZIA. A dedicated budget of EUR 540 million is also available to support first-of-a-kind deployment projects (see Section 7.5).

In 2025, the 44 oil and gas producers identified by the Commission under the Net-Zero Industry Act (NZIA) were required to submit to the Commission plans setting out how they intend to contribute to the EU's objective of achieving at least 50 million tonnes of annual of CO_2 injection capacity by 2030. **On the basis of the plans submitted in 2025, the projected contributions do not yet demonstrate sufficient progress towards the required level of CO_2 injection capacity**. From 30 June 2026, and annually thereafter, those oil and gas producers must also report to the Commission on the implementation of their obligations and on progress made towards the target. The Commission will make these reports publicly available.

In parallel, Member States were required, by December 2025, to submit to the Commission reports on the development of carbon capture, transport and storage needs. These reports contain:

- ongoing CO_2 capture, storage and transport projects,
- corresponding needs for injection and storage capacities,
- national support measures, strategies, and targets for the CO_2 capture.

In early 2026, the Commission adopted the first set of methodologies under the **Carbon Removals and Carbon Farming Regulation** to certify activities that permanently remove CO_2 from the atmosphere. These methodologies will ensure that certified activities are safe for the environment and benefit society.

Finally, the ETS proposal adopted in July integrates permanent removals into the system for the first time from 2031, creating demand for negative emissions and helping to kick-start a new industry that will become increasingly important as the EU moves towards climate neutrality.

Project in focus

CO2SITE



EU-wide

EUR 5 million

Horizon Europe

The CO2SITE project is developing an open-access European atlas of potential sites for underground CO_2 storage. The aim is to make it easier to identify where captured CO_2 could be stored safely and economically, helping to develop the infrastructure needed for industrial carbon management in Europe.

The atlas will bring together information on the geology, expected storage capacity, infrastructure, costs and risks of potential sites across the EU. Users will be able to compare and rank locations, while regional studies will help identify opportunities for developing CO_2 storage clusters. The information is intended to support project developers, investors and public authorities in planning new storage capacity and future licensing.

Chapter 7

Investments in climate action

Key highlights

- Climate-related extreme events have caused EUR 822 billion in losses in the EU since 1980.
- The EU needs to significantly raise levels of investment in climate action: to around EUR 69 billion per year for adaptation up to 2050, and an estimated EUR 565 billion per year in the energy system in 2021-2030 to meet climate and energy targets.
- The roll-out of clean technology is accelerating. Wind and solar capacity reached 611 GW in 2025, around 49% of the EU's total electricity generation capacity. Roughly one in six new cars registered in the EU in 2025 was battery-electric, with new registrations reaching 1.9 million. Clean-tech manufacturing has also expanded significantly in the EU, although progress varies across technologies. However, EU industry has not yet fully benefited from the growth opportunities created by this roll-out.
- Private green investment is growing. Companies invested EUR 273 billion in EU environmentally sustainable activities in 2024, while green bond issuance reached EUR 287 billion in 2025.
- EU funds are helping bring clean technologies to market and support a fair transition. The Innovation Fund backs around 240 projects, the Modernisation Fund disbursed EUR 20.7 billion across beneficiary Member States by end of 2025, and the Social Climate Fund will mobilise at least EUR 86.7 billion by 2032 to support the most vulnerable people and micro-enterprises.

▲ Climate action could cut the EU's fossil fuel import bill by EUR 2.8 trillion between 2031 and 2050

7. Investments in climate action

7.1 Investment needs

Investing to accelerate climate action is critical to protect public budgets, people and assets and to secure the EU's economic resilience and energy independence. Between 1980 and 2024, climate-related extreme events caused an estimated EUR 822 billion in economic losses across the EU. A quarter of these losses have occurred since 2021, highlighting the growing pressure these disasters put on public finances and debt sustainability. These losses affect households, firms and public authorities, through damage to assets and infrastructure, business disruption and production losses, and higher public spending on emergency support and reconstruction.

Prioritising investment in the green transition can significantly reduce the cost of these damages. For instance, the EU could reduce the cost of importing fossil fuels by EUR 2.8 trillion between 2031 and 2050, compared with the 2011-2020 average. This is equivalent to around 0.7% of the EU's current annual GDP. Beyond reducing fossil fuel imports, proactive climate action enhances greater energy security and strategic autonomy, reduces vulnerability to economic shocks and delivers vital societal benefits like cleaner air, better public health, and lower healthcare costs.

Future needs

Adaptation

A recent study estimates that around EUR 69 billion needs to be invested in climate adaptation across the EU every year up to 2050. Over the period 2026-2050, this would amount to more than EUR 1 trillion in net present value cumulatively.

The greatest investment needs are in infrastructure, at around EUR 29 billion a year. This includes measures to protect buildings, transport networks, energy systems and water infrastructure from the impacts of climate change. Around EUR 21 billion a year is needed to strengthen ecosystems, while EUR 11.5 billion is needed to adapt our food systems and EUR 7 billion investment is needed in health.

Around EUR 25 billion a year, over a third of the total, is linked to the most urgent climate risks identified at EU level. These include flooding and risks to crop production.

The study concludes that the current level of investment in adaptation is not sufficient. Climate risks need to be better reflected in public budgets, investment planning and private-sector decisions. Better data are also needed to assess the costs and benefits of adaptation measures and to identify the climate risks that will remain even after action is taken.

Mitigation

As highlighted in the 2025 Climate Action Progress Report, investment must increase substantially to meet the EU's climate and energy targets and strengthen resilience to climate impacts. Annual investment in the energy system needs to reach around EUR 565 billion in 2021-2030, more than double the level of the previous decade. This includes new renewable, nuclear and other energy sources, power grids and energy efficiency measures in industry, buildings and agriculture, but it does not include investment in transport sector.

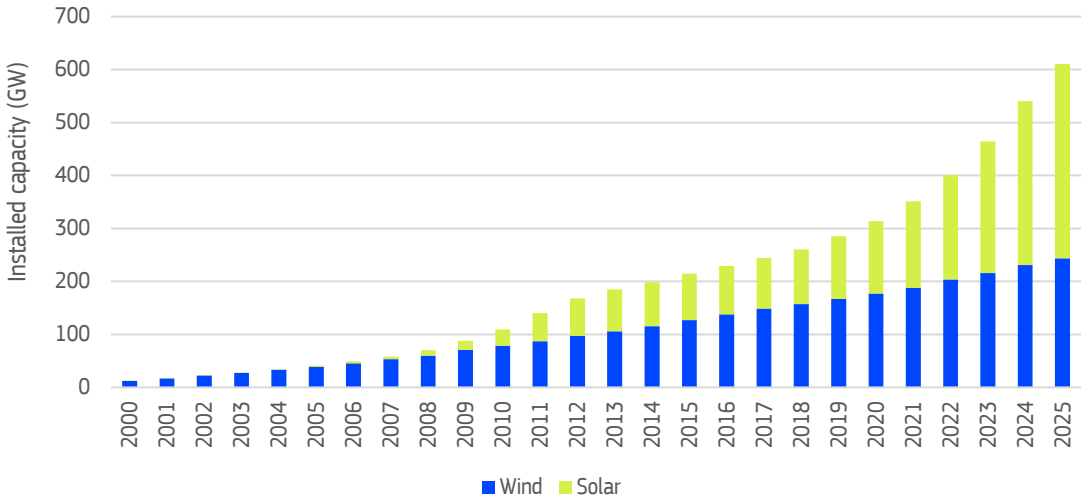
The greatest increases are needed in electricity grids, building renovations and in decarbonising industry. The investment needs to reach the 2040 target and climate neutrality in 2050 were estimated in the impact assessment for the 2040 climate target at close to EUR 660 billion a year over the period 2031-2050. This is not an additional level of investment required for the achievement of the EU's climate and energy targets, as a significant investment will be needed in any case to meet Europe's energy needs but it will need to be redirected towards low-carbon solutions.

The structural changes linked to the climate transition tend to shift expenditure from operating costs, in particular fossil fuel purchases, towards upfront investment in clean energy technologies and infrastructure. An updated assessment of the investment needs in line with the Commission proposals for the post-2030 climate and energy package will be published by the end of 2026.

Progress made

Recent trends suggest that investment in the climate and energy transition is increasing. The EU's installed capacity to generate wind and solar power grew by more than five-fold between 2010 and 2025 and by more than 90% between 2020 and 2025. In 2025, it reached 611 GW, around 49% of the EU's total electricity generation capacity. And there is still great potential to increase capacity further. For example, a recent JRC study estimates that solar panels on EU rooftops could provide enough electricity to meet around 40% of projected EU electricity demand in 2050. Currently, only around 10% of EU building rooftops have solar panels.

Figure 25: Wind and solar electricity generation capacity

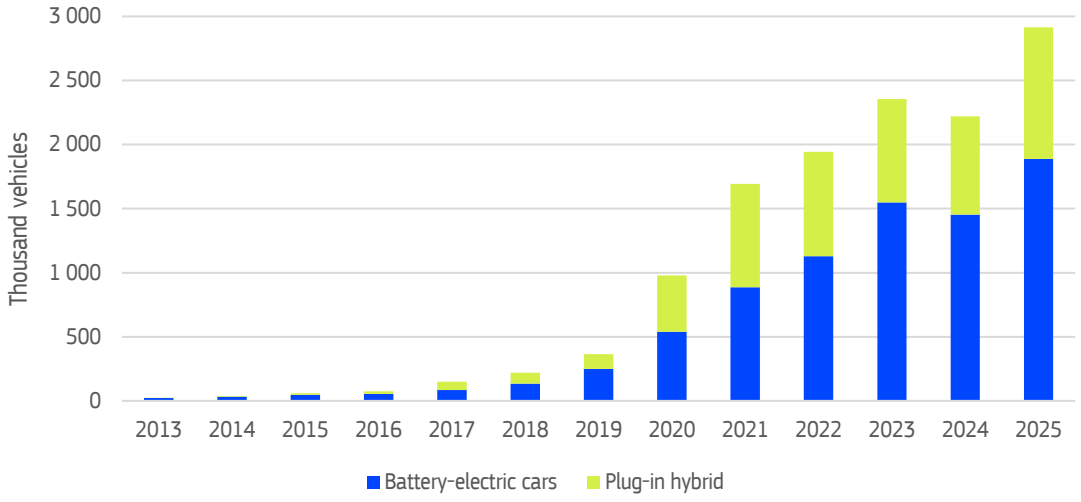


Source: Eurostat, IRENA for 2025.

New registrations of **battery-electric passenger cars and plug-in hybrids have also picked up significantly in recent years**, to reach 1.9 million and 1.0 million, respectively, in 2025 (see Figure 26). This means that roughly one in six new cars registered in the EU was battery-electric.

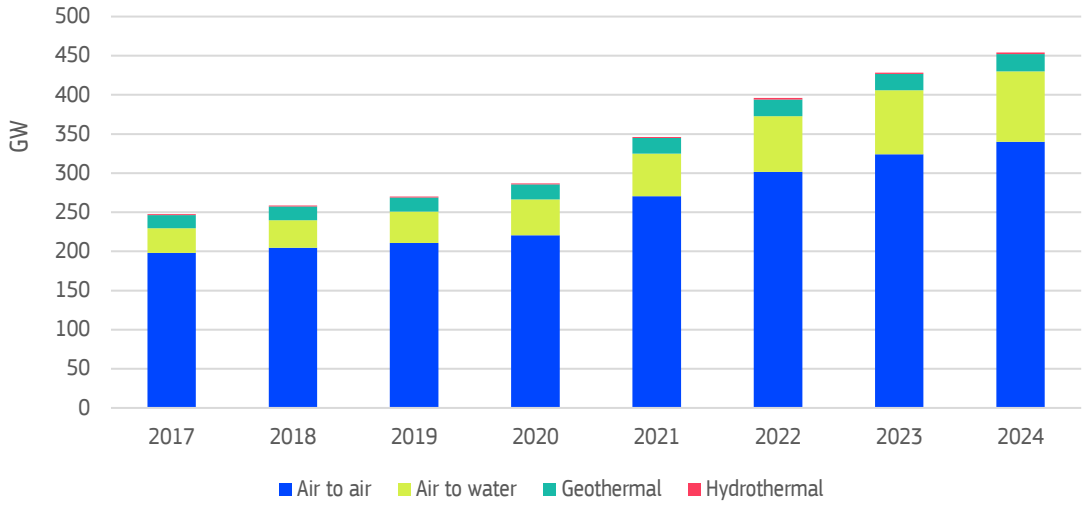
Investment in heat pumps also gained momentum over the past few years (see Figure 27), although not as rapid an increase as for solar and wind power generation as hurdles remains, for example in terms of consumer acceptance and the availability of qualified installers.

Figure 26: New car registrations (battery-electric cars and plug-in hybrids)



Source: Eurostat.

Figure 27: Heat pump installed capacity

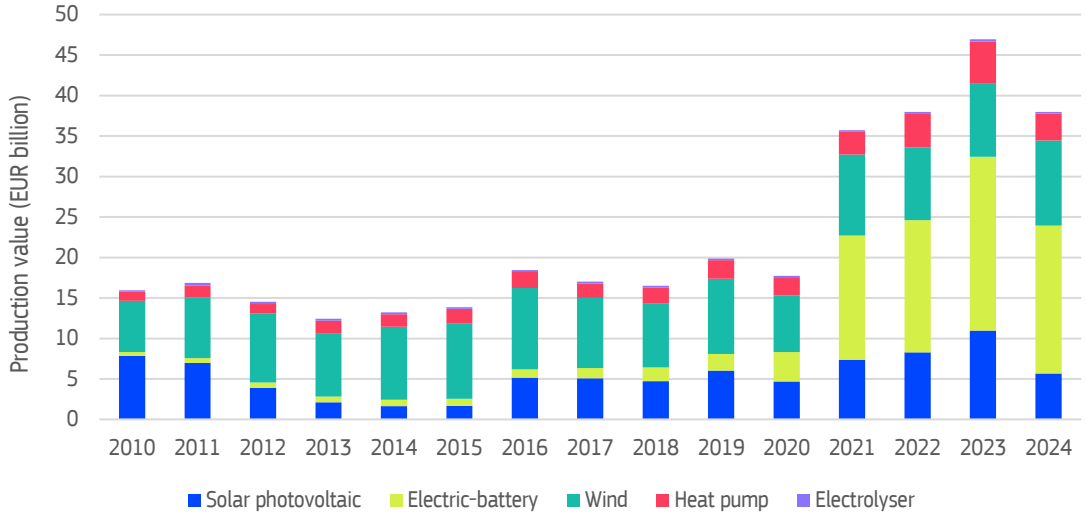


Note: 2025 data were not yet available at the time the report was published.

Source: *Eurostat*.

Manufacturing of clean technologies has also expanded significantly in the EU, although progress varies across technologies. The production value of five selected technologies, solar photovoltaics, wind, batteries, heat pumps and electrolysers, more than doubled from around EUR 16 billion in 2010 to EUR 38 billion in 2024, with particularly strong growth since 2020 (see Figure 28). Battery-cell manufacturing capacity increased from just 1 GWh/year in 2017 to around 173 GWh/year in 2024. The EU also maintains a strong manufacturing base in wind energy. There is annual capacity to produce 36 GW of nacelles, 28 GW of blades and 42 GW of towers. However, significant manufacturing challenges remain. EU producers face strong global competition, particularly from China, which dominates several clean-tech supply chains including solar photovoltaics and can often supply technologies at lower prices. In 2023, China supplied 94% of the photovoltaic modules and cells available on the EU market. Dependence on highly concentrated supplies of critical minerals is another risk. Disruptions to these supply chains, including through export restrictions, could affect technologies such as electricity grids, batteries and electric vehicles and therefore slow the clean energy transition. At the same time, manufacturing capacity in some EU sectors, including heat pumps and electrolysers, remains underused because demand has not grown as quickly as expected. As a result, the expansion of clean technologies has so far only partly translated into growth opportunities for EU industry.

Figure 28: Production of selected clean technologies in the EU



Note: The following categories are used. Solar photovoltaic: photosensitive semiconductor devices, solar cells, photodiodes, phototransistors for solar photovoltaic (PRODCOM code 26.11.22.40), inverters (PRODCOM codes 27.90.41.53 and 27.90.41.55) and silicon (PRODCOM code 20.13.21.60). Electric-battery: lithium-ion accumulators for electric batteries (PRODCOM codes 27.20.23.50 and 27.20.23.00) and parts of electric accumulators and separators (PRODCOM code 27.20.24.10). Wind: wind turbines - generating sets, wind-powered (PRODCOM code 28.11.24.00). Heat pump: heat pumps other than air conditioning machines for heat pumps (PRODCOM code 28.25.13.80). Electrolyser: machines and apparatus for electroplating, electrolysis or electrophoresis for electrolysers (PRODCOM code 28.49.12.83).

Source: Eurostat.

7.2 Mobilising private-sector investment

Encouraging private-sector investment in climate resilience and mitigation is essential to meet the EU's investment needs.

To help meet these investment needs, **the EU's sustainable finance framework helps channel private capital to sustainable economic activities**. The framework helps investors identify environmentally sustainable investments using the EU Taxonomy. It improves transparency by requiring companies and financial institutions to report on their environmental and climate-related impacts and risks under the Corporate Sustainability Reporting Directive and the Sustainable Finance Disclosure Regulation.

Over the past year, the EU has made its rules on sustainable finance simpler, more effective and easier to use. To reduce red tape for business, the EU adopted new legislation in February 2026. This law cut down paperwork and reduces the number of companies required to submit sustainability reports. The Commission is also applying further measures to simplify all other rules on sustainable finance.

In recent years, companies and financial institutions have invested significant amounts in environmentally sustainable activities. In 2024 alone, capital investments in Taxonomy-aligned activities reached EUR 273 billion, bringing the total for 2022-2024 to EUR 742 billion. Evidence from companies subject to Taxonomy-related

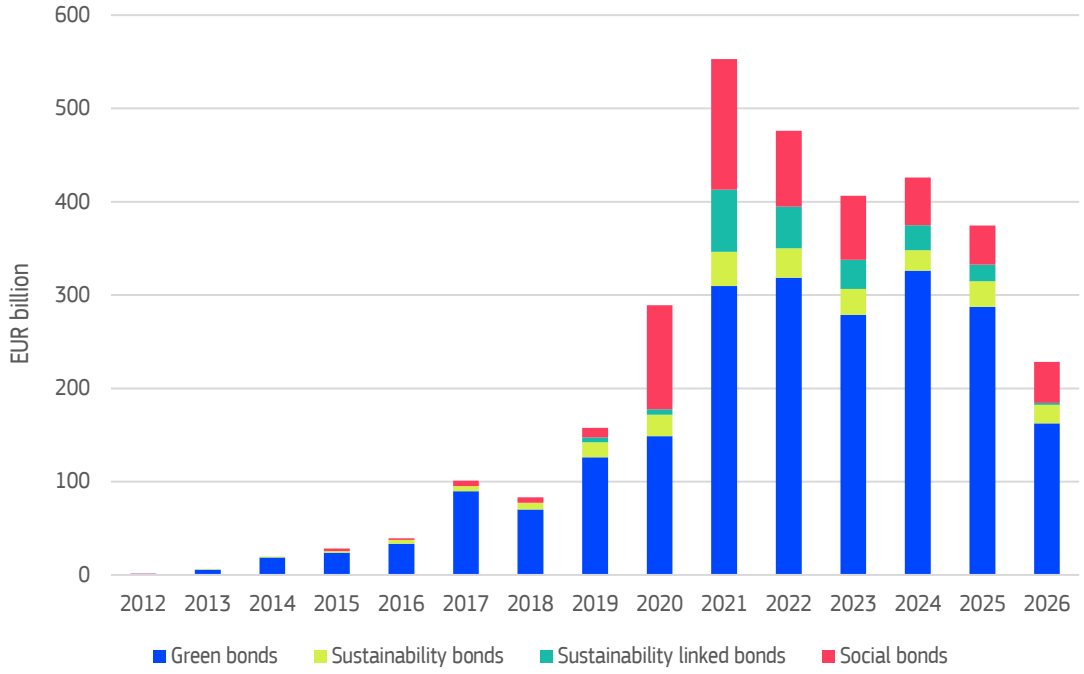
reporting requirements shows that capital investment in Taxonomy-aligned activities exceeded EUR 1 trillion in 2025. This figure is expected to increase as more data for the 2025 financial year become available.

The EU remains a leader in green finance

Environmental, social and governance (ESG) bonds have become an important tool to mobilise private capital. Figure 29 shows annual ESG bond issuance in the EU up to mid-June 2026.

Green bonds, which finance environmentally sustainable projects, continue to dominate the ESG bond market. New green bond issuance reached EUR 287 billion in 2025. This was slightly below the record level in 2024 but broadly in line with issuance over the previous four years. Germany and France remained major sovereign green bond issuers, while Denmark became the first country to issue a sovereign bond under the new European Green Bond Standard.

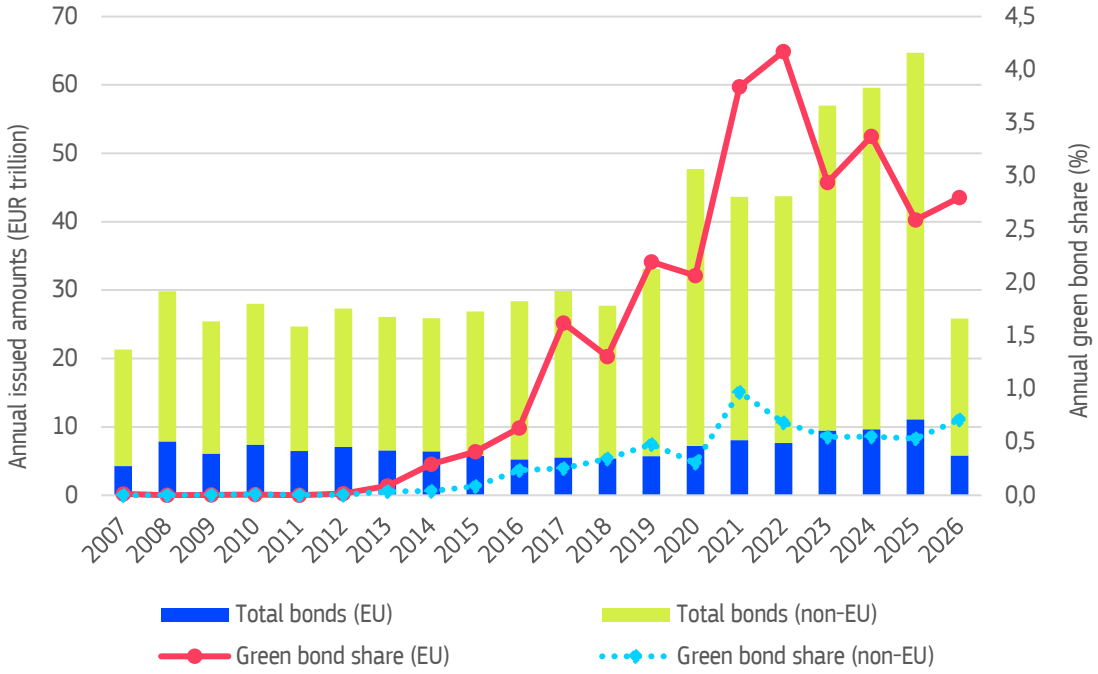
Figure 29: Annual issued volumes in the EU – ESG bonds



Source: LSEG, JRC calculations. Data as of 15 June 2026.

The EU remains a global leader in the green bond market (see Figure 30). Between 2021 and 2025, green bonds accounted for an average of 3.4% of all bonds issued in the EU. By mid-2026, the share was 2.8%. This was substantially higher than in the rest of the world, where green bonds represented around 0.7% of total bond issuance.

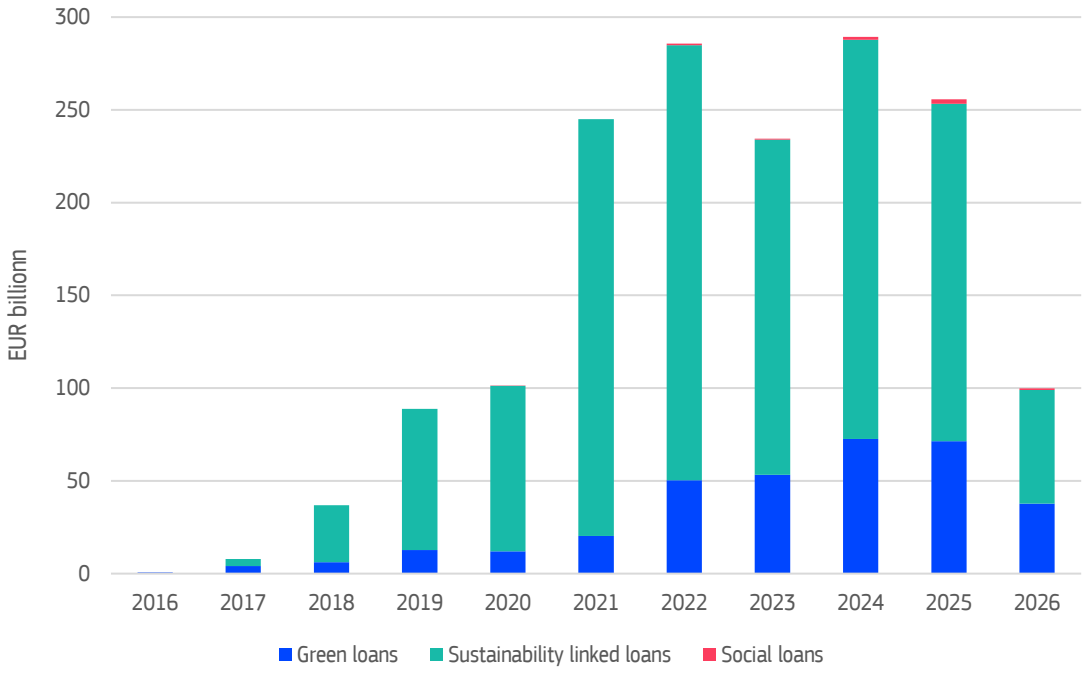
Figure 30: Annual issued volumes and green bond share – all bond types



Source: LSEG, JRC calculations. Data as of 15 June 2026.

The ESG loan market is traditionally less clearly defined than the ESG bond market, as it lacks a dedicated EU regulatory framework. However, green loan issuance has increased steadily since 2016. It reached EUR 71 billion in 2025, broadly unchanged from 2024 (see Figure 31).

Figure 31: Annual issuance of ESG loans in the EU



Source: LSEG, JRC calculations. Data as of 15 June 2026.

Increased financing for the green transition

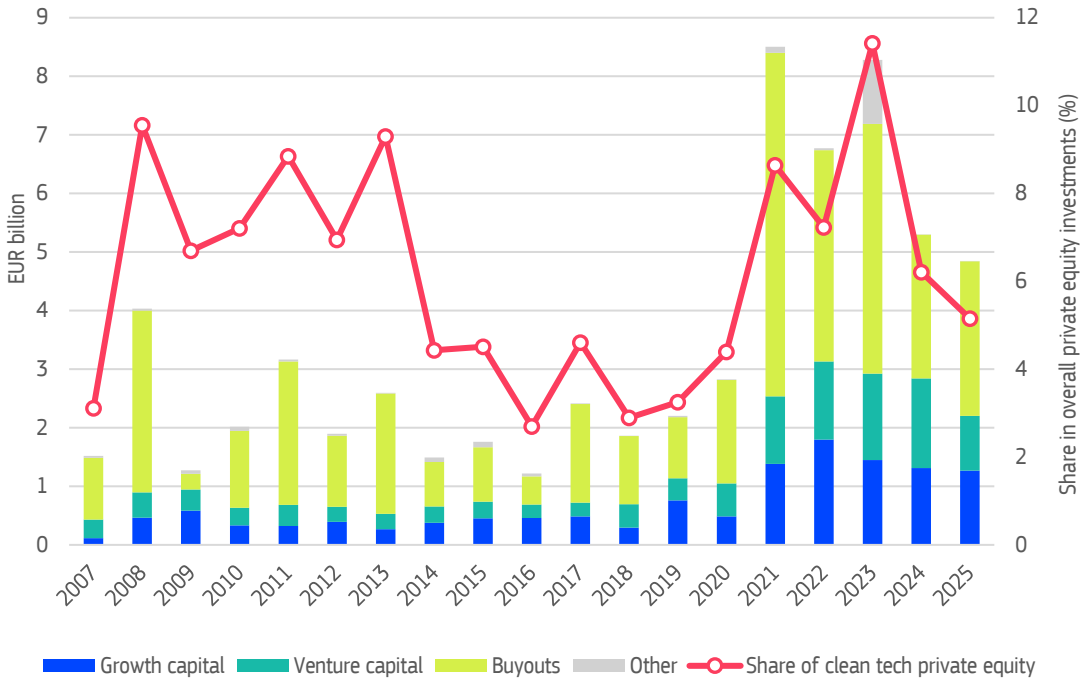
Private equity and venture capital can provide major sources of funding for innovative companies and help develop and roll out low-carbon technologies. In 2025, investment in clean technology industries reached around EUR 5 billion, about 5.2% of the EU private equity market.

The higher investment recorded in 2021 and 2023 was mainly driven by buyouts, meaning investments in established companies. Buyouts represented the largest share of private equity investment in clean technologies, accounting for an average of around 55% of total investment over the past five years.

However, equity investment in clean technologies remains limited. This indicates that venture capital still has significant potential to provide more funding for green innovation. Better-integrated markets and fewer barriers to cross-border investment could help direct more private-sector savings to innovative companies.

Deep and liquid capital markets are also important in helping start-ups grow, as they provide access to a wider pool of investors. The EU's startup and scaleup strategy aims to improve the conditions in the ecosystem of start-ups and improve access to finance for companies seeking to expand across the EU.

Figure 32: Annual private equity investment in clean technology industries in the EU



Source: Invest Europe (preliminary data for 2025), JRC calculations. Data as of 23 June 2026.

7.3 EU funding for climate action

The EU supports climate action through three main sources of funding:

- the regular EU budget;
- the temporary Recovery and Resilience Facility; and
- revenues generated from the EU Emissions Trading System.

These sources help public authorities, businesses, households and researchers invest in the transition to a climate-neutral and climate-resilient economy. They fund renewable energy, electricity grids, energy efficiency, clean transport, industrial decarbonisation, research and innovation, climate adaptation and measures to develop the skills of labour force. They also help the regions, households and businesses that face greater costs during the transition. The EU provides this support through grants, loans, guarantees and other financial instruments.

The EU's regular budget for 2021-2027 provides the largest and most diverse source of EU funding. The EU integrates climate objectives across many spending programmes rather than financing them through a single climate fund.

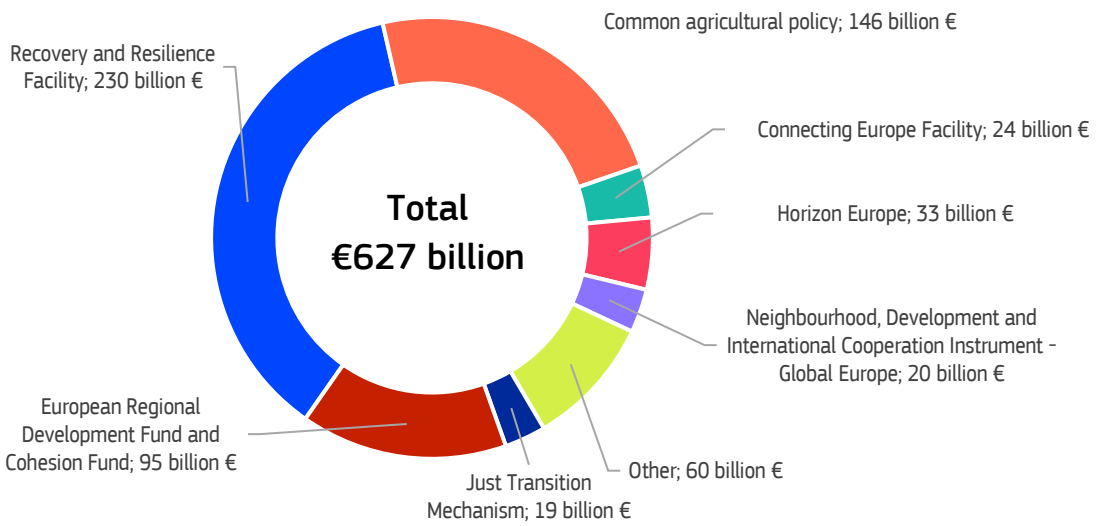
Alongside the regular EU budget, the EU created the temporary **NextGenerationEU Instrument** in response to the COVID-19 pandemic. The **Recovery and Resilience Facility** is its core component that provides grants and loans for reforms and investments in Member States. Each national recovery and resilience plan must allocate at least 37% of its budget to projects that pursue climate objectives. Member States exceeded that share, allocating around 40% of the Facility's budget to climate measures. National plans support clean energy, building renovation, sustainable transport, industrial transformation and other measures that contribute to the green transition.

The Facility also supports measures under the **REPowerEU** plan, designed to reduce the EU's dependence on fossil fuels, diversify energy supplies and accelerate the deployment of clean energy. It was introduced following Russia's invasion of Ukraine to strengthen energy security.

Commission estimates indicate that investments and reforms supported by the Recovery and Resilience Facility should help reduce emissions by over 100 $MtCO_2$-eq (around 2.3% of 1990 net emissions). Unlike the regular EU budget, the facility is temporary and implementation ends in 2026.

Together, EU funding under the regular EU budget and NextGenerationEU are projected to contribute around EUR 627 billion to climate objectives during the 2021-2027 period. This represents around 34% of the total budget, well above the overall climate spending target of 30%.

Figure 33: Climate contribution of the EU multiannual budget (2021-2027)



Source: EU budget contribution to climate action.

The **EU Emissions Trading System** provides another major source of funding. Revenues from auctioning emission allowances finance climate action and the energy transition in Member States. At EU level, they support the Innovation Fund for clean technologies and the Modernisation Fund for energy-system modernisation in 13 lower-income Member States. The Social Climate Fund will support vulnerable households, transport users and micro-enterprises to benefit from the transition to clean heating and transport.

Together, these funding sources cover different needs and stages of the transition. Some programmes finance research and first-of-a-kind technologies. Others support the large-scale deployment of proven solutions, public infrastructure or measures for households and regions. EU funding cannot cover all investment needs, but it can help launch projects, reduce risks and attract additional national and private investment.

7.4 A just transition for people and regions

The **Social Climate Fund** supports vulnerable households, transport users and micro-enterprises in the context of the new emissions trading system that will cover buildings, road transport and small industry (ETS2, see Chapter 2). It will mobilise at least EUR 86.7 billion in public support from 2026 to 2032, with the goal of ensuring that the transition to a decarbonised economy is fair and inclusive.

The Commission is working with all Member States to help them submit their social climate plans. These plans must identify vulnerable groups affected by ETS2 such as households and micro-enterprises with low incomes, energy-inefficient homes, or people with limited transport options. The plans should present measures and investments to support these groups, for example through measures to support thermal renovation of buildings, clean heating and cooling, and zero- and low-

emission mobility solutions. Additionally, Member States can spend a limited part of the resources on temporary direct income support. Until August 2025, the Commission's Technical Support Instrument also supported this work. It helped ten Member States strengthen their analysis and carry out stakeholder consultations.

In December 2025, the European Commission approved the first social climate plan submitted by Sweden. Since then, five additional plans have been approved and have started being implemented. Table 3 provides an overview of approved plans and their main focus. Another six have been officially submitted and are undergoing formal assessment. At the same time, the Commission continues to work with all remaining Member States to finalise their plans tailored to their national circumstances.

Table 3: Overview of approved social climate plans

Member State	Total support (EUR million)	EU support (EUR million)	Main focus
Greece	4 800	3 587	Home renovations and clean heating system New social housing Private and commercial electric vehicles Low emission buses Rail and metro infrastructure
Latvia	617	463	Home renovations Social housing Electric vehicles Public transport Bikes and bike lanes
Lithuania	884	663	Home renovations New social housing Private and commercial electric vehicles On-demand and public transport Bikes and bike lanes
Malta	60	45	Renovation of social housing On-demand public transport Commercial electric vehicles
Sweden	532	400	Electric vehicles

Source: Social Climate Fund – national plans.

The approved and currently submitted plans will benefit an estimated 1 million households facing energy poverty, close to 2.4 million households facing transport poverty and 300 thousand vulnerable micro-enterprises.

Based on the latest analysis, most EU Member States distribute their budgets evenly across sectors, with a slightly larger share allocated to building renovations. Some of these renovations go beyond basic insulation to include climate-friendly heating and renewable energy installations.

In the transport sector, public transport is the clear priority. Over two thirds of the planned investments in transport will fund public transport and infrastructure, while the remaining funds help vulnerable groups access zero-emission vehicles.

The **Just Transition Fund** provides EUR 19.6 billion to help the people and regions that are the most affected by the transition to climate neutrality, such as areas where coal mines are closing or heavy industry is transforming. Currently, it provides funding to 96 coal and carbon-intensive regions with tailored just transition plans, for example by supporting diversification of the local economy, and helping people acquire new skills. Over 69 000 people are receiving direct support building new skills or receiving ither forms of help. Almost 2 400 businesses have received support to become more competitive and create jobs.

For the period 2021-2027, Member States plan to spend almost EUR 5.4 billion or about 6% of **European Social Fund+** to support green skills and green jobs, considerably more than in the previous programming period. Denmark, Italy, Luxembourg, Belgium and Finland have allocated the highest shares to green jobs and skills (between 10% and 31%). Overall, over half of the climate expenditure has been allocated to access to employment and activation measures (32%) and to quality and inclusive education and training systems (22%).

7.5 Bringing clean and resilient technologies to market

The **Horizon Europe** framework programme is the EU's key funding programme for research and innovation. It tackles climate change and boosts the EU's competitiveness and growth. It supports climate research and innovation in areas such as climate science and climate adaptation, renewable energy and fuels, energy storage, industry decarbonisation, circularity, sustainable transport, building upgrades and nature- and bio-based solutions.

The programme has a budget of EUR 93.6 billion for 2021-2027, with at least EUR 32.7 billion supporting climate objectives. By the end of 2025, almost EUR 24 billion had already been earmarked for climate-related research and innovation.

A new cross-cutting EUR 540 million call for proposals under the Clean Industrial Deal was added to the Horizon Europe work programme for 2026-2027. The aim is to support fit-for-deployment projects with a focus on industrial competitiveness in two key areas: clean technologies for climate action and projects that help to decarbonise energy-intensive industries. It also promotes circularity as an important enabler of industrial sustainability and emissions reductions.

This builds on substantial Horizon support for industrial decarbonisation. More than 200 projects targeting energy-intensive industries have received EUR 1.7 billion in funding. In recent years, Horizon Europe has also provided EUR 107 million to 11 projects on carbon capture, utilisation and storage.

Horizon Europe includes several timebound 'missions' that target major challenges such as adapting to climate change, improving soil health and creating climate-

neutral cities. One such mission, adaptation to climate change, aims to make at least 150 European regions and communities climate resilient by 2030. As of September 2026, it has awarded EUR 650 million to 76 projects. By handing resources and decisions to local and regional bodies, the mission speeds up action and stimulates innovation and nature-based, digital and other systemic solutions. The mission on climate-neutral cities supports 112 cities through contracts that include a commitment and an action and investment plan. These initiatives are expected to result in a reduction of CO_2 emissions equal to over 6% of the EU's total emissions in 2023.

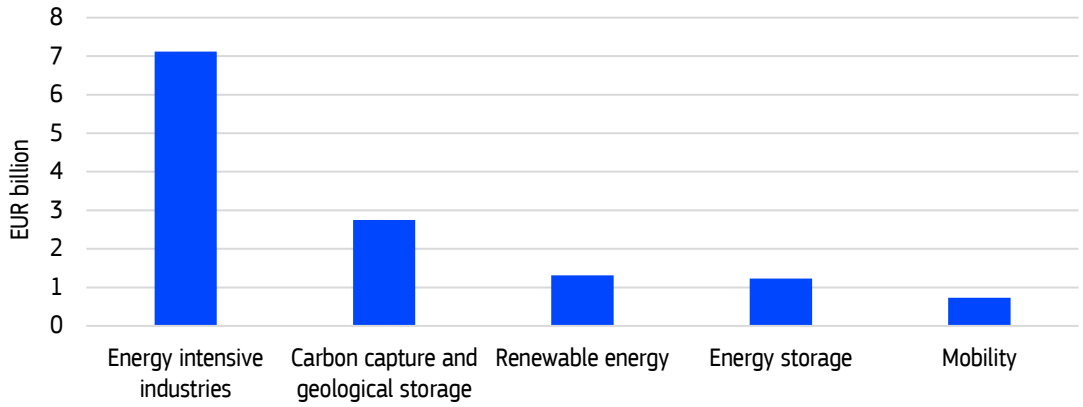
The **Innovation Fund** is one of the world's largest funding programmes for the deployment of net zero and low-carbon technologies. The goal is to bring to market new, clean energy and industrial technologies so the EU can reduce emissions, reach climate neutrality and stay competitive. The fund has an estimated budget of EUR 40 billion between 2020 and 2030 (based on a carbon price of EUR 75 per tonne CO_2). Countries in the European Economic Area, meaning the EU plus Iceland, Liechtenstein and Norway, can apply for support from the fund.

Since 2020, the Commission has launched 14 calls for proposals, including three auctions under the European Hydrogen Bank and one auction on decarbonised industrial heat, a pilot auction under the Industrial Decarbonisation Bank. The Innovation Fund now backs around 240 large-, medium- and small-scale ongoing projects with funding totalling around EUR 13 billion. Together, these projects are expected to result in around 1 billion tonnes of total absolute GHG avoidance.

The sectoral breakdown shows how support is allocated (see Figure 34). Energy intensive industries, including hydrogen, chemicals, cement and lime production and refineries, represent the largest part of the portfolio, followed by carbon capture and storage projects and renewable energy and energy storage projects.

The newest addition to the portfolio was in March 2026, when 54 net-zero technologies projects signed their grant agreements.

Figure 34: Innovation Fund support by category (2020-2026)



Note: Projects select the sector and category following the GHG emission avoidance methodology they use when submitting their proposal. In practice, many projects contribute to several different sectors.
Source: Innovation Fund Dashboard.

Payments from the Innovation Fund are disbursed when projects reach milestones and achieve deliverables. By the end of June 2026, 55 ongoing projects had reached financial close, of which 24 had begun operating. This shows that innovative projects supported by the fund are moving forward and reaching the market.

An evaluation of the Innovation Fund's operation from 2020 to Q1 2025 was published together with the impact assessment and legislative proposal for the EU Emissions Trading System in July 2026.

Call for proposals in 2025

The Commission opened three calls for proposals in December 2025 with a total budget of **EUR 5.2 billion:**

- **Net-zero technologies**. This call for proposals had a budget of EUR 2.9 billion and received 358 proposals from 27 countries. The Commission will announce the result of the evaluation and the list of projects selected for grant agreement preparation at the end of the year.
- **Hydrogen auction.** The third auction of the European Hydrogen Bank supported renewable hydrogen and electrolytic low-carbon hydrogen, with a budget of EUR 1.3 billion across three topics. The auction closed in February 2026 with 57 bids, and 13 projects were selected for funding. These projects are expected to receive EUR 1.24 billion in EU funding, representing 95% of the budget. They are expected to add around 1.16 GW of electrolyser capacity and produce more than 1.4 million tonnes of hydrogen over 10 years. Grant agreements are expected to be signed by the end of 2026.
- **Decarbonising industrial process heat auction.** The auction covered electrified and direct-renewable heat production for the first time, with a budget of EUR 1 billion. It is an important step towards the future Industrial Decarbonisation Bank, as industrial process heat accounts for around 75% of the EU's industrial emissions. The auction supports projects that can cut CO_2 emissions at the lowest cost. It helps close the cost gap between clean heat solutions and fossil fuel-based alternatives. In May 2026, 65 projects from 10 countries were selected to prepare grant agreements. Together, they are expected to produce around 16.3 TWh of decarbonised heat over their first five years of operation.

New calls for interest are planned for the end of 2026 to support innovative net-zero and low-carbon technologies. Two new auctions are also planned, focusing on renewable and low-carbon hydrogen and decarbonised industrial process heat. Specific calls for maritime and small-and-medium sized enterprises are also planned for 2026.

All projects, country-specific information and an interactive dashboard are available here in the Innovation Fund Project Portfolio.

Innovation Fund beyond grants

The Innovation Fund provides several services that let additional projects receive financing even after the initial budget for a call for proposals has been allocated. This helps maximise available funding by allowing Innovation Fund support to be combined with national funding and other EU funding programmes.

In this year's hydrogen auction, Germany and Spain contributed around EUR 1.7 billion under the 'Auction-as-a-service' feature. This allowed them to support projects that did not receive Innovation Fund funding but were on the reserve list.

The Commission has set up a similar feature for the regular grant calls for proposals, 'Grants-as-a-service'. Both features enable Member States to use the Innovation Fund evaluation procedure and avoid unnecessary administrative and financial burden to develop and run new support schemes for the same technologies.

The Innovation Fund also continued to develop complementary support tools, including Project Development Assistance, offering tailored technical and financial advisory to improve project maturity, and blending operations, which combine Innovation Fund resources with other EU financial tools such as InvestEU.

Two top-ups are planned for 2026: EUR 200 million for commercialising innovative small modular reactors, and EUR 300 million to support critical raw materials in the battery value chain.

In June 2026, the Commission also adopted a decision establishing the Battery Booster Facility to further support European battery manufacturing by mobilising up to EUR 1.5 billion from the Innovation Fund.

Further information on the Fund's design, sectoral allocation, auctions and complementary instruments is provided in the **Carbon Market Report** and on the Innovation Fund's webpage.

7.6 Modernising EU's energy and transport systems

The **Modernisation Fund** finances renewable energy sources, modernisation of energy networks including district heating and grids, energy storage and energy efficiency in buildings, industry or transport in 13 lower-income Member States: Bulgaria, Croatia, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia and Slovenia.

The Modernisation Fund has an estimated budget of approximately EUR 57 billion from 2021 to 2030, based on a carbon price of EUR 75 per tonne CO_2. Of this, EUR 23 billion has already been paid to Member States.

Over the fund's 10-year lifetime, investments are expected to save 1.15 billion MWh of energy and add 25 GW of renewable energy capacity in the Member States receiving funding. They could also reduce greenhouse gas emissions by 83.7 $MtCO_2$-

eq per year, equivalent to 32% of 2020 emissions from the electricity, gas, steam and air-conditioning sectors.

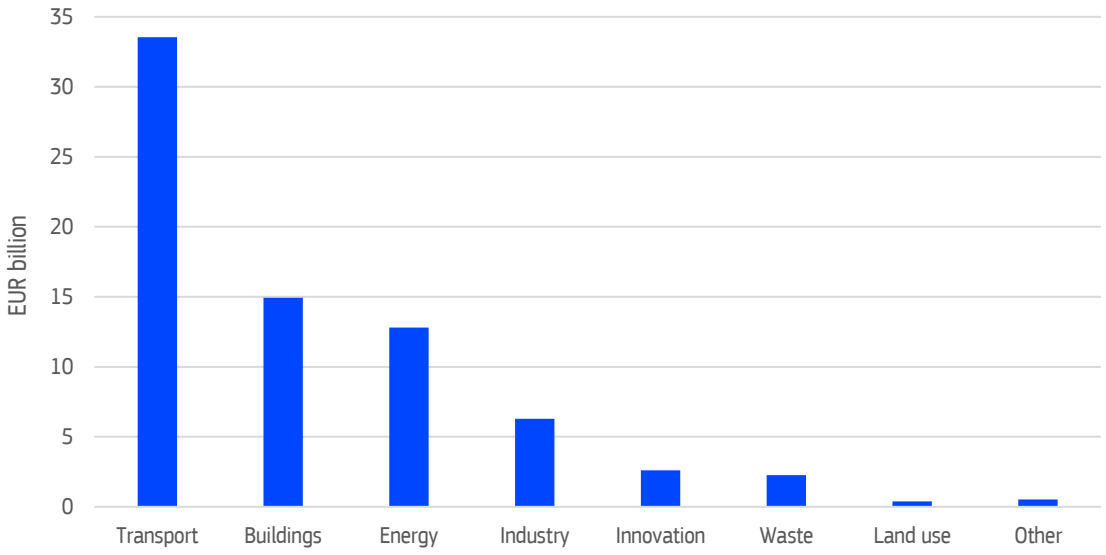
The recent evaluation finds that the Modernisation Fund is an important source of support for the clean energy transition in lower-income Member States. Its governance and approval process generally work well, but implementation differs across countries and is still at an early stage. The evaluation recommends better and more consistent methods for measuring climate impacts, stronger monitoring data and clearer reporting on private investment.

Information about investments, countries and the fund can be found at the Modernisation Fund's website.

Member States also use **cohesion policy funding** to modernise their energy and transport systems. During the 2021-2027 programming period, they plan to invest almost EUR 74 billion from the European Regional Development Fund and the Cohesion Fund in climate mitigation.

As shown in Figure 35, the largest share, EUR 34 billion, will go to transport. Most of this funding will support clean urban transport and railway modernisation, including EUR 3 billion for cycling infrastructure. Around EUR 15 billion will support energy efficiency in buildings, while EUR 13 billion will go to renewable energy and energy systems and storage.

Figure 35: EU cohesion policy funding for climate mitigation by sector (European Regional Development Fund and Cohesion Fund)



Source: Cohesion data.

The **LIFE programme** is the European Union's financial instrument dedicated to environmental protection and climate action. Since it was set up over 30 years ago, the LIFE programme has co-financed more than 6 700 projects across the EU.

With an overall budget of EUR 5.4 billion for the 2021-2027 period, the LIFE programme has a specific subprogramme on climate change mitigation and adaptation, directly funding projects to reduce greenhouse gas emissions and strengthen climate resilience. These projects are set to receive more than EUR 1 billion by 2027. Projects awarded this year from 2025 calls for proposals include EUR 61.5 million for 24 standard action projects and 30 million for three strategic projects due to be signed by the end of the year. Calls for proposals for standard action projects and strategic projects launched in 2026 are set to award EUR 60 million and EUR 30 million respectively to successful proposals.

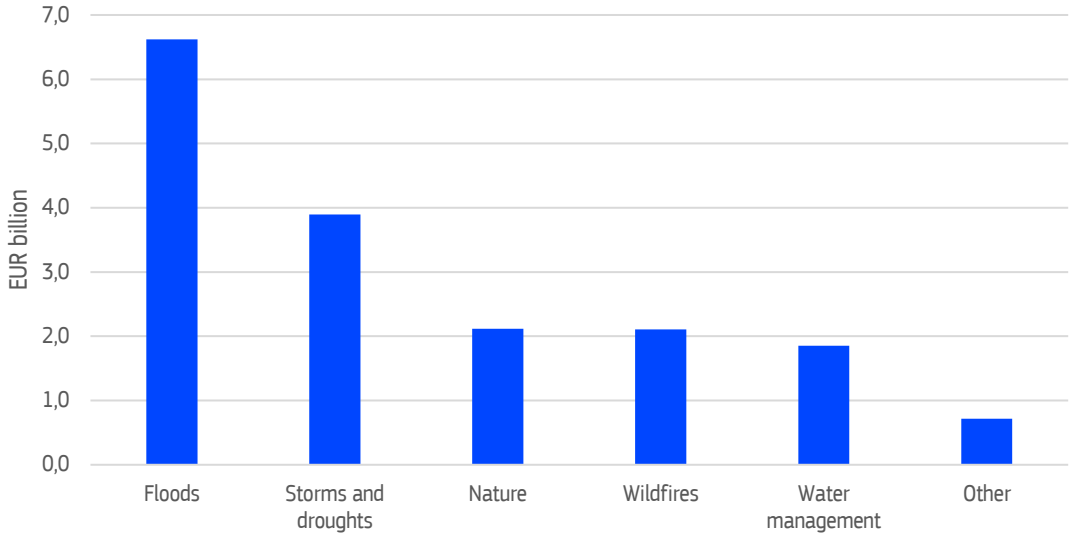
7.7 Protecting people, nature and strengthening climate resilience

The **common agricultural policy** helps farmers adapt to climate change by by supporting investments in soil health, water management, biodiversity and the resilience of crops and livestock. It also supports advisory services, knowledge transfer and training, and practices such as crop rotation, soil cover, grassland management, hedgerows and agroforestry. Some practices also help reduce emissions or remove carbon from the atmosphere. For example, cover crops and reduced tillage can make soils more resilient while increasing the amount of carbon stored in soils and vegetation. Around EUR 79 billion of planned EU spending under the common agricultural policy is expected to contribute to climate adaptation.

Cohesion policy supports not only climate mitigation, but also adaptation, resilience and nature protection. During the 2021-2027 programming period, Member States plan to invest almost EUR 17 billion from the European Regional Development Fund and the Cohesion Fund in these areas.

Almost three quarters of this funding will strengthen resilience to floods, landslides, storms, droughts and wildfires. A further EUR 2.2 billion will support ecosystems and nature protection, while EUR 1.8 billion will improve water management and access to drinking water.

Figure 36: EU cohesion policy funding for climate adaptation by sector (European Regional Development Fund and Cohesion Fund)



Source: Cohesion data.

7.8 The next EU multiannual budget

For the next multiannual budget covering 2028-2034 the European Commission has proposed a 35% spending target for climate and environmental objectives, which would mobilise over EUR 700 billion to support clean investments.

The proposed budget supports climate mitigation, adaptation and resilience, clean technologies, sustainable growth and greater strategic independence. National and regional partnership plans link reforms with clean investments and tailor support to local needs. The European Competitiveness Fund finances industrial decarbonisation, clean technologies, the circular economy, sustainable transport and the energy transition. The Innovation Fund and the planned Industrial Decarbonisation Bank strengthen this support, while the Horizon programme helps move new solutions from research to deployment. The Connecting Europe Facility continues to finance key cross-border energy and transport infrastructure.

The proposal also applies a simplified '**do no significant harm**' principle and takes a 'climate resilience by design' approach to protect people and investments from climate risks. This will ensure that no investment undermines climate or environmental objectives and that all investments are prepared for future climate and weather conditions.

The proposal includes an improved monitoring system to track both spending contributing to the green transition (climate mitigation and adaptation and environment) and the outputs and results of that spending. Proposed programme-specific climate and environmental spending targets range from 30% under the Global Europe Fund to 70% under the Connecting Europe Facility. The European Parliament and Member States are now discussing the Commission's proposal.

Project in focus

HELEXIO Line



Contrisson, France

EUR 3.7 million

Innovation Fund

The HELEXIO Line project has developed a lightweight roof panel that combines insulation, weather protection and solar power generation in one product. A new automated production line in Contrisson, France, can produce 200 000 m^2 of solar roofing each year. The panels are around 50% lighter than conventional rooftop solar systems and can reduce installation time by around 40%, making solar power easier to use on existing buildings.

Commercial deployment has already started, with installations including an urban brewery in Liège, industrial buildings in the Haut-Rhin and Meuse regions in France, and a low-energy family home in the Marne region.

The panels use recycled and renewably produced steel and have around a 25% lower carbon footprint than conventional insulated steel roofs. They are also designed to be 95% recoverable or recyclable at the end of their life. Over its first ten years, the technology is expected to avoid at least 170 000 CO_2-eq emissions across Europe.

Chapter 8

International climate action

Key highlights

- The EU launched its global climate and energy strategy in October 2025, reaffirming support for the Paris Agreement and the clean transition.
- The EU played an active role at COP30, calling on all Parties and non-Party stakeholders to accelerate ambition and implementation.
- The EU continued to promote carbon pricing and high-integrity carbon markets worldwide. It expanded climate partnerships with key countries and regions including India, South Africa, Vietnam and Nigeria.
- Candidate countries continued to align their climate legislation with EU rules, including on carbon pricing and the EU Emissions Trading System, though progress is uneven and several countries need to accelerate reforms.
- In 2025, the EU and its Member States contributed EUR 32.3 billion in climate finance from public sources and mobilised an additional EUR 9.3 billion in private finance to support developing countries.

▲ The EU worked with more than 40 countries around the world to expand carbon pricing and carbon markets.

8. International climate action

In October 2025 the Commission and the High Representative presented the EU's global vision for climate and energy. The strategy builds on the Clean Industrial Deal and sets out how the EU will support the global clean transition while strengthening the competitiveness of European industry.

The EU remains committed to the Paris Agreement and to working through bilateral partnerships and international alliances. It will support global efforts to triple renewable energy capacity, double the rate of energy efficiency improvements by 2030 and transitioning away from fossil fuels in energy systems, in a just, orderly and equitable manner. Recognising that climate change, biodiversity loss, land degradation and pollution are closely interconnected, the EU also promotes stronger synergies between international climate and environmental action.

The EU will also continue to promote carbon pricing and carbon markets as tools to cut emissions and support innovation.

8.1 Promoting carbon pricing and carbon markets

Carbon pricing is a cornerstone of EU climate policy and lies at the heart of the EU's climate diplomacy. Building on its experience, the EU works with partners to enhance carbon pricing policies such as emissions trading systems or carbon taxes. Together with Brazil, China and other countries, the EU launched the **Open Coalition on Compliance Markets** to promote carbon pricing. The EU supports the development and implementation of carbon pricing policies in countries across Latin America and Asia.

The EU cooperates with countries that already have, or are developing, carbon markets. This includes a long-standing policy dialogue and technical cooperation with China on the development of its national ETS, and exchanges with Japan and South Korea on carbon pricing and carbon markets.

The EU also promotes closer cooperation between compatible carbon markets, for example by **linking emissions trading systems**. The EU ETS has been linked with the Swiss ETS since 2020, and talks are ongoing to link it with the ETS in the United Kingdom.

At multilateral level, the EU is a founding member of the **International Carbon Action Partnership**, which brings together governments operating or developing emissions trading systems to exchange experience and good practices.

The revised European Climate Law allows countries to use **high-quality international credits** to contribute by up to 5% of 1990 EU net emissions towards the 2040 target from 2036, with a possible pilot phase in 2031-2035. The Commission will adopt a proposal for the post-2030 climate framework to set detailed rules for their use, including safeguards on additionality, permanence, double counting, monitoring and

human rights. These credits must support credible climate mitigation projects and Paris-aligned climate pathways in partner countries. The EU is working with partner countries to strengthen carbon pricing and their capacity to participate in carbon markets, including through robust accounting, monitoring and governance.

8.2 Multilateral engagement

Implementing the Paris Agreement

Once again, the EU engaged constructively at **COP30 in Belém** in November 2025**.** The Conference called on the Parties and non-Party stakeholders to accelerate the level of ambition and implementation, strengthen international cooperation and scale up climate action across mitigation, adaptation and means of implementation.

COP30 launched the **Global Implementation Accelerator** and the **Belém Mission to 1.5 °C.** The aim of these initiatives is to speed up implementation of the national climate and adaptation plans, to mobilise more investment and to help keep the 1.5 °C temperature goal within reach.

In parallel to the formal negotiations, the work under the **Global Climate Action Agenda** to mobilise non-Party stakeholders was reorganised into six thematic axes (Energy, Industry, and Transport; Forests, Oceans, and Biodiversity; Agriculture and Food Systems; Resilient Cities, Infrastructure and Water; Human and Social Development; Financing, Technology and Capacity Building) to accelerate implementation.

More than 80 countries called for progress on moving away from fossil fuels and halting deforestation. In response, the Brazilian Presidency announced that they would take the lead on drawing up two roadmaps: **one to halt and reverse deforestation and forest degradation by 2030**, and **another to support a just and equitable transition away from fossil fuels**.

Countries agreed to develop a **Just Transition Mechanism** to address the social and economic dimensions of the transition and to ensure it is socially just and inclusive, leaving no one behind. It aims to enhance international cooperation, technical assistance, capacity building, and knowledge sharing, thereby enabling equitable, inclusive, and just transitions. In particular, it focuses on workers, people and the communities most affected by the transition to net zero and climate-resilient societies. The decision from COP30 also sets the basis for a common understanding of a right-based approach to just transition. Countries also adopted a nine-year **Belem Gender Action Plan,** including new references to women environmental defenders, health, violence against women and girls, education and care work.

On **climate adaptation**, COP30 adopted 59 adaptation indicators to track progress. These indicators will feed into the second Global Stocktake. The EU supported this work through expert input and continued engagement with other countries.

The EU also contributed to the first steps in implementing the Article 6 carbon market rules agreed at COP29. This included discussion on how countries can trade carbon credits while increasing climate ambition. The EU supported the adoption of strong standards making the Paris Agreement Crediting Mechanism fully operational.

On **climate finance,** countries agreed to at least triple adaptation finance by 2035. They also launched a two-year work programme on climate finance.

In addition, the Veredas Dialogue was launched to support discussions on aligning financial flows with climate goals and to continue international cooperation on climate finance.

In April 2026, the EU participated in the First Transitioning Away from Fossil Fuels (TAFF) conference, held in in Santa Marta, Colombia, hosted by Governments of Colombia and the Netherlands. The conference established an important new space for international cooperation on delivering a just, orderly and equitable transition away from fossil fuels. Three EU member states – France, the Netherlands, and Germany – have in the meantime published domestic TAFF roadmaps.

The Environment Council adopted conclusions on the preparations for COP31 on 12 October, while earlier, on 9 October, the ECOFIN Council adopted conclusions on climate finance, setting out the EU's vision for the upcoming negotiations. In it, the EU stressed that COP31 must deliver tangible progress on the implementation of the Paris Agreement and contribute meaningfully to closing the global ambition and implementation gaps, and set the direction for the second Global Stocktake. The EU urged all Parties, particularly major emitters, to act with the highest possible ambition, calling for the effective implementation of NDCs and urging those Parties who have not yet done so, to submit their NDCs ahead of COP31. The EU further called for accelerating the clean energy transition through increased clean electrification and delivering on the transition away from fossil fuels in a just, orderly and equitable manner; the tripling of renewable energy, the doubling of energy efficiency improvements. It reaffirmed its commitment to a just transition globally, underpinning public acceptance of climate policies and enabling climate ambition and to the implementation of the UAE Framework for Global Climate Resilience. It also stressed the importance of scaling up the mobilisation of climate finance for developing countries through the transparent implementation of the New Collective Quantified Goal, and called on all actors to work together to improve access to finance by developing countries, particularly for Least Developed Countries and SIDS, including under the leadership of the COP31 Presidencies.

Engaging with the United Nations and in other multilateral and plurilateral fora

The EU continued to work with the United Nations and its agencies to promote a clean transition and a high level of ambition on climate action. The EU continued to work on industrial decarbonisation, competitiveness and clean growth with UN agencies.

The EU worked with **OECD** partner countries to maintain OECD work on climate policy despite the difficult geopolitical context. It contributed to OECD work on climate policy, finance and investment, carbon pricing and carbon markets. This included participation in the Environment Policy Committee and OECD expert groups.

The EU took part in **G7 and G20 discussions.** Under the French G7 Presidency, talks focused on the impact of extreme weather events and the need to strengthen resilience. The United States did not include climate change as a separate priority in its 2026 G20 presidency. However, related issues were discussed in the context of work on energy investment and sustainable finance.

The EU remains active in the **Climate Club**, high-level forum for cooperation on accelerating climate action and increasing ambition, particularly in the field of industry decarbonisation. In 2025, the Club advanced work in the steel and cement industry, notably through the launch of the Global Pledge to expand lead markets in these sectors, as well as promoting voluntary principles on carbon leakage.

The EU participated in the **First Transitioning Away from Fossil Fuels** conference, held in in Santa Marta, Columbia, hosted by Governments of Colombia and the Netherlands. The conference established an important new space for international cooperation on delivering a just, orderly and equitable transition away from fossil fuels. Three EU Member States (France, Germany and the Netherlands) have in the meantime published their roadmaps for transition away from fossil fuels.

The EU continued to address the impact of environmental degradation and climate change on **peace, security and defence** by implementing actions featuring in the Joint Commission/HR Communication on the climate, security and defence nexus of 2023.

Biennial transparency report

In line with the Paris Agreement, the EU is submitting its second biennial transparency report to the UNFCCC in November 2026. The report details the progress made to reach the 2030 target and progress in assessing the effects of EU climate policies and measures in reducing greenhouse gas emissions and building resilience to climate change. It also details the contributions made to international capacity building and climate finance.

8.3 Bilateral engagement

The EU engages bilaterally through contacts with countries outside the EU on how to collectively meet the Paris Agreement goals. This enables the EU to share knowledge and experience on mitigation and adaptation policies and provide technical insight from the EU's extensive experience with climate policy, including carbon pricing.

New frameworks of bilateral engagement were drawn up over the past year. The EU signed a memorandum of understanding with South Africa on a clean trade and investment partnership (CTIP). This partnership which will create new trade and investment opportunities, while supporting decarbonisation objectives and developing clean technology value chains through a tailored, flexible, and targeted approach taking into account the priorities of South Africa and the EU.

In January 2026, the EU and Vietnam upgraded their relationship to a Strategic and Comprehensive Partnership. Under this Partnership, they set up a working group on environment and climate, focusing on carbon pricing and climate resilience.

In March 2026, the EU and Nigeria agreed to launch a policy dialogue on climate and energy. The dialogue will support closer cooperation on decarbonisation and the net-zero goal, helping both sides benefit from the global energy transition and manage its risks.

The Trans-Mediterranean Renewable Energy and Clean Tech Cooperation (T-MED) was launched in June 2026 under the Pact for the Mediterranean. It aims to accelerate renewable energy, hydrogen, clean technology manufacturing and modern electricity networks across the region. It will feature also the Green Partnership with Morocco, where renewable energy deployment is an important element of the engagement.

The EU and India launched the EU-India Partnership Platform for Climate Support to be signed by the end of 2026. The platform is one of the key results of the EU-India summit in January. With EUR 500 million in funding, it will help India cut emissions and make its industry cleaner, in line with India's commitments under the Paris Agreement.

The EU also made progress in implementing existing Green Alliances (with Japan, Norway and Canada) and Green Partnerships (with Morocco and Republic of Korea) by stepping up dialogue and cooperation in areas of relevance to the green transition. In Japan and Republic of Korea intergovernmental and business discussion on F-gases improved understanding of the state of policies in both EU and partner countries and initiated a dialogue with businesses on ways to eliminate F- gases in various sectors. Several steps were taken with Morocco, including various exchanges between EU and Moroccan stakeholders on the Carbon Border Adjustment Mechanism and the concrete steps required to harness opportunities under the CBAM to be a new lever for competitiveness for Morocco.

In the context of the 2026 EU-China High Environment and Climate Dialogue, the EU and China have discussed a number of policies to accelerate the green transition. As part of its work on climate diplomacy, from top political levels to technical levels, the

EU has encouraged China to contribute its share to supporting global climate action. It also engaged with China on topics such as finance for resilience, adaptation and methane to improve understanding of the state of policies on both sides.

The outcomes of EU bilateral summits with Egypt, South Africa, India, African Union, Morocco and Nigeria also featured calls to step up cooperation on climate action.

The Commission also maintains a close dialogue on Carbon Border Adjustment Mechanism with countries outside the EU through high-level and technical exchanges. In 2026, discussions took place with several key partners, including Canada, Chile, China, Egypt, India, Japan, Korea, Türkiye and Ukraine.

8.4 Candidate countries and potential candidates

Countries that want to join the EU must align with EU legislation, including environmental and climate laws, which are encapsulated in one of the 35 negotiation chapters. This is a broad and complex area, covering more than 200 major legal acts on cross-sectoral legislation, climate change and all environmental issues.

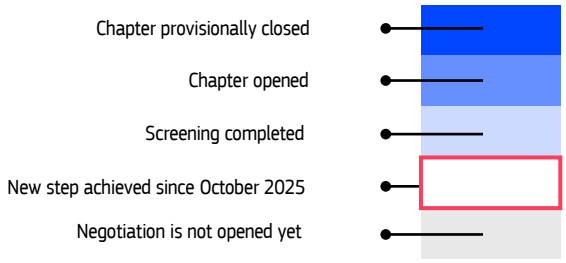
In this process, emphasis is placed on candidate countries' preparedness to bring in carbon pricing and to align with the rules of the EU Emissions Trading System. Countries are expected to carry out reforms to align their laws with EU rules, and the Commission regularly monitors this progress.

The environment and climate negotiation chapter is open with Albania, Montenegro and Serbia. The chapter is also open with Türkiye but accession negotiations have been frozen since 2018. Moldova, North Macedonia and Ukraine have completed the initial screening of their legislation, but the chapter is not yet formally open. Accession negotiations have not opened with Bosnia and Herzegovina, Georgia and Kosovo yet.

Table 4: Assessment of progress of candidate countries

Country	Assessment of progress in the reporting period	Status
Albania	No progress on environment but good progress on climate	
Bosnia and Herzegovina	No progress, Bosnia and Herzegovina should urgently step up its efforts to align with the EU climate law	
Georgia	Limited progress	
Kosovo	No progress, Kosovo should urgently step up its efforts to align with the EU climate law	
Moldova	Some progress on environment, good progress on climate	
Montenegro	Good progress, environment and climate chapter might be provisionally closed still in 2026	
Serbia	Some progress	

North Macedonia	Limited progress, North Macedonia should urgently step up its efforts to align with the EU climate law	
Türkiye	Limited progress	
Ukraine	Limited progress on environment, some progress on climate	



Source: 2026 enlargement package.

8.5 Climate finance and international cooperation

International public climate finance, together with climate finance from private sources, plays a crucial role in supporting developing countries on climate adaptation and mitigation to implement the Paris Agreement. At COP29, countries agreed a new climate finance goal to increase support for developing countries to at least USD 300 billion per year by 2035. 2025 marked the final year of the previous international commitment to mobilise USD 100 billion in international climate finance annually, to which the EU remained committed.

In 2025, the **EU and its Member States contributed EUR 32.3 billion** in climate finance from public sources and mobilised an additional EUR 9.3 billion in private finance to support developing countries to reduce their greenhouse gas emissions and adapt to the impacts of climate change. 48% of the public climate funding for developing countries has been directed to climate adaptation or to cross-cutting action (involving both climate change mitigation and adaptation initiatives). Grant based finance represents a significant share (41%) in the EU and Member States public contribution.

In 2025, the Commission committed to providing EUR 4.3 billion in climate finance. Of this amount, 20.5% were committed to adaptation, 46.2% to mitigation, and 33.3% to cross-cutting actions addressing both mitigation and adaptation priorities.

The Commission continues to support partner countries through its financing instruments. The **Global Gateway** strategy mobilised over EUR 300 billion from the EU, EU's financial institutions and Member States to boost smart, clean and secure infrastructure, focusing on digital, climate, energy and transport infrastructure. It also invests in people, education, research and health. The objective is to mobilise EUR 400 billion by 2027. Global Gateway is implemented through flagship projects that

translate the strategy into concrete action. The updated list, from December 2025, includes 256 projects, of which 129 focus on climate and energy.

One example is EUROCLIMA, part of the Global Gateway, which builds partnerships between the EU and Latin America and the Caribbean to drive a green and just transition.

The Global Gateway is underpinned by several financial instruments including Neighbourhood, Development and International Cooperation Instrument and Instrument for Pre-Accession Assistance.

The **Neighbourhood, Development and International Cooperation Instrument** has a budget of EUR 79 billion and at least 30% of the budget is dedicated to climate action. This includes support for projects in fragile and conflict-affected settings, recognising the complex interdependencies between climate change, environmental degradation, fragility and conflict.

The **Instrument for Pre-Accession Assistance** also sets a climate change spending target of 18%, rising to 20% by 2027. This is an unprecedented investment of EUR 4 billion in reducing emissions and in helping EU candidate countries build resilience to the effects of climate change.

To address the climate finance concerns of Small Island Developing States and Least Developed Countries, the European Commission organised two workshops in June 2026. The workshops explored barriers to financing adaptation measures in the water and agriculture sectors and possible ways to overcome them. Around 100 participants attended, including representatives of governments, regional organisations and financial institutions.

The EU and its Member States also remain active on loss and damage response, having pledged over USD 450 million to the **Fund for responding to Loss and Damage**, with over USD 25 million from the European Commission. The EU, as member of the board, remains actively engaged alongside other EU Members States in the work to make the Fund operational.

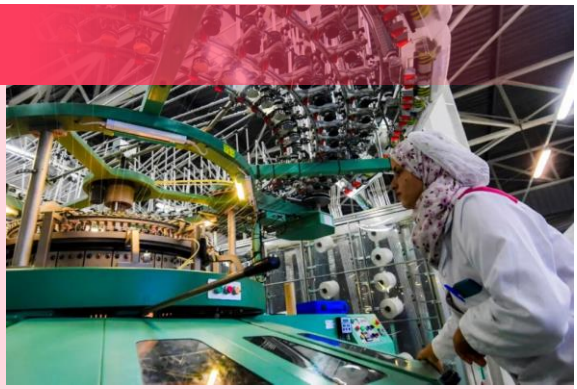
Efforts are also ongoing to promote the involvement of the private sector in climate action through the European Fund for Sustainable Development Plus (EFSD+). The EFSD+ provides a comprehensive set of tools including guarantees, grants and technical assistance, to mobilise private-sector investment in sustainable development in partner countries. It contributes, among others, to climate change mitigation, adaptation, environmental protection and management. Offering a variety of risk-sharing instruments of up to EUR 40 billion, the EFSD+ aims to mobilise up to EUR 135 billion of public and private financing to help partner countries achieve the UN Sustainable Development Goals.

Another aspect of the European Commission's international engagement is in promoting the decarbonisation of international transport under its external cooperation and Global Gateway partnerships. In aviation, the Commission supports partner countries, including in Africa and India, by providing technical assistance and

enabling actions linked to the development of sustainable aviation fuels and cleaner aviation value chains. In urban transport, the Commission continues to support partner countries in Africa and Latin America to shift to clean urban transport, for example by providing investment and policy support for more sustainable public transport systems such as rail, metro and cleaner bus fleets. In maritime transport, the EU supports capacity building for shipping decarbonisation, contributes to international action in the framework of the International Maritime Organization, and promotes green shipping corridors and the production and uptake of renewable and low-carbon fuels.

Project in focus

GEFF Tunisia – green finance for Tunisian businesses



Tunisia

EUR 9.4 million

The programme is funded by the European Union and implemented by the European Bank for Reconstruction and Development (EBDR). The EU guarantee supports foreign-exchange hedging provided through the Currency Exchange Fund (TCX), helping enable medium- and long-term local-currency financing for Tunisian banks and businesses, including SMEs.

The programme helps businesses in Tunisia invest in greener, more resource-efficient and climate-resilient businesses by improving access to green finance. The EUR 58.5 million EBRD framework also addresses a major barrier for local businesses: access to affordable loans in Tunisian dinars. EU support plays a key role. Of the EUR 9.41 million EU contribution in funding provided by the EU, EUR 9 million provides a guarantee that helps cover foreign-exchange risks. This allows EBRD to provide financing in Tunisian dinars to local partner banks, which can then lend to businesses, including SMEs. The facility supports investments in areas such as energy efficiency, renewable energy, climate adaptation and circular economy solutions. It also aims to improve access to climate finance for women-led SMEs. Investments supported by the programme are expected to reduce CO_2 emissions by more than 26 000 tonnes per year. The programme also provides technical assistance, capacity building and investment incentives.

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