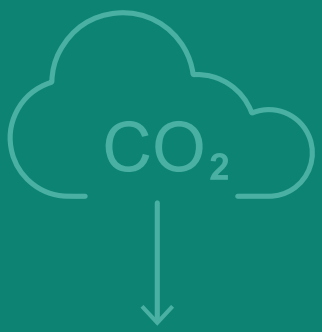
European Environment Agency

8th Environment Action Programme

Total net greenhouse gas emission trends and projections in Europe



8TH EAP HEADLINE INDICATOR, 2024

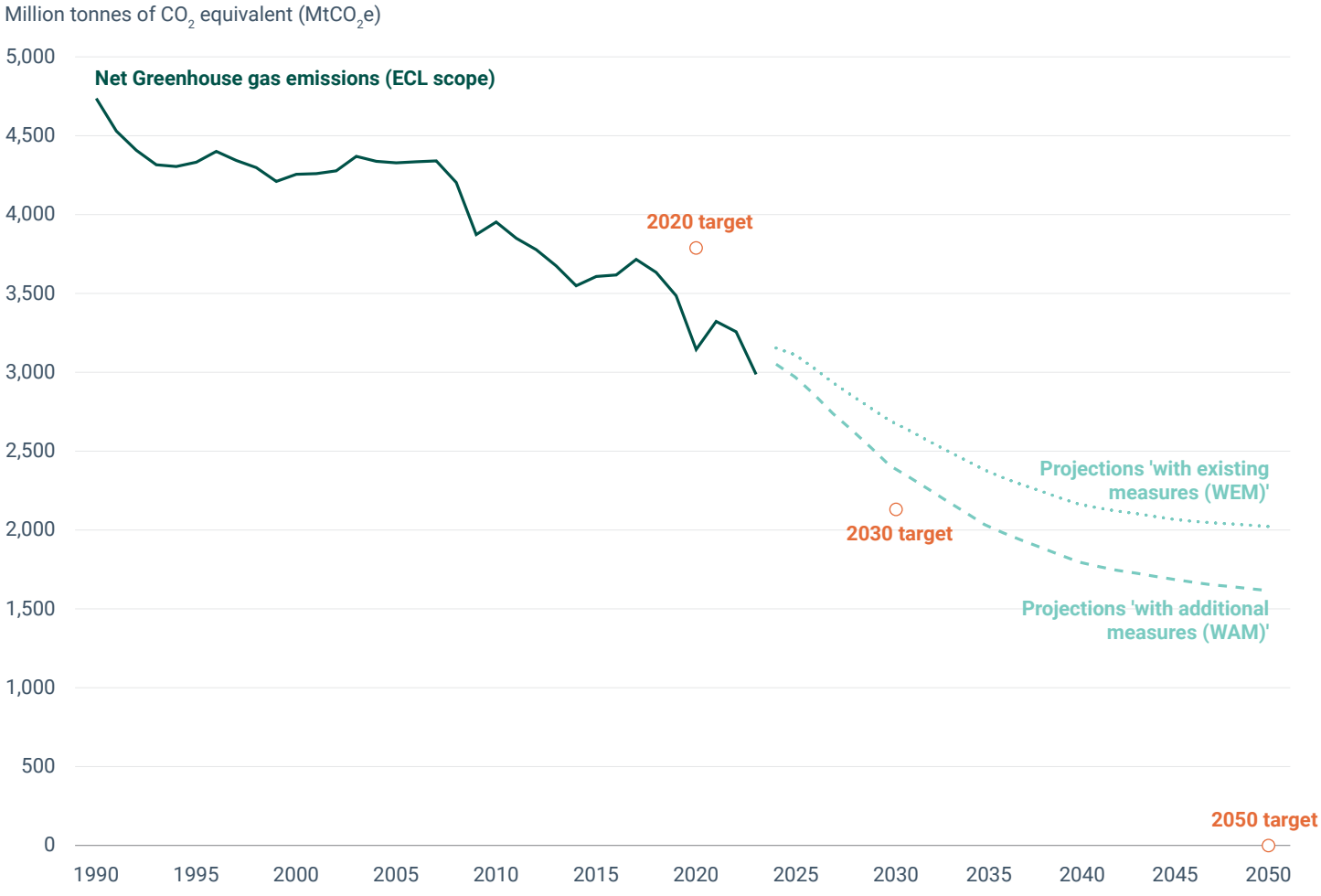
European Environment Agency

Total net greenhouse gas emission trends and projections in Europe

Published 31 Oct 2024

Net greenhouse gas (GHG) emissions fell by 31% in the EU-27 between 1990 and 2022, including international transport as regulated by European Union law. Preliminary estimates indicate an additional record year-on-year reduction of 8% in 2023, marking significant progress towards climate neutrality for the EU. Current GHG projections, as reported by Member States, suggest that a 49% reduction in net emissions will be reached by 2030 compared to 1990 levels, missing the 55% reduction target for 2030. More ambitious policies and measures are being developed in ongoing updates of the National energy and climate plans to put the EU on track to reach the 2030 climate target, and on the trajectory towards climate neutrality.

Figure 1. Progress towards achieving climate targets in the EU-27



The reduction of GHG emissions is vital to slow the rate of global warming and mitigate its impact on environment and human health. The EU is a front runner in climate action. The European Climate Law sets a binding **target** to achieve climate neutrality by 2050 and reduce net GHG emissions by at least 55% in 2030, compared to 1990. The EU has already taken significant steps to fulfill these ambitions.

EU net GHG emissions **reduced** in 2022 by 31%, since 1990, while GDP significantly increased over the same period. This achievement takes the carbon sink from the land use, land use change and forestry sector (LULUCF) into account and includes the emissions of international aviation and maritime, as regulated by EU law (EU target scope)[1].

The observed reduction in net GHG emissions has followed a gradual strengthening of policies to reduce GHG emissions over the past two decades. The overall decrease can be largely attributed to **shifts in energy production** methods, notably a significant decline in coal usage and growth in the adoption of renewable energy sources. There has also been a modest reduction in total energy consumption, and substantial decreases in GHG emissions linked to specific industrial production processes[2].

Preliminary estimates indicate that in 2023, net GHG emissions in the EU **fell by a further 8%** below 2022 levels. This marks the largest year-on-year emission reduction in several decades, except for the COVID-impacted year of 2020. It brings the estimated 2023 emissions to a level of 37% below 1990 levels.

Focusing on sectoral developments in 2023, estimates indicate a recent **continuation** of the past trends. The energy supply sector recorded an estimated 19% reduction in GHG emissions between 2022 and 2023, driven by the roll-out of renewable energy production and limited decrease in electricity production. GHG emissions are estimated to have decreased by 6% in the industrial sector, due to a combination of reduced output and efficiency gains in specific sectors in Europe.

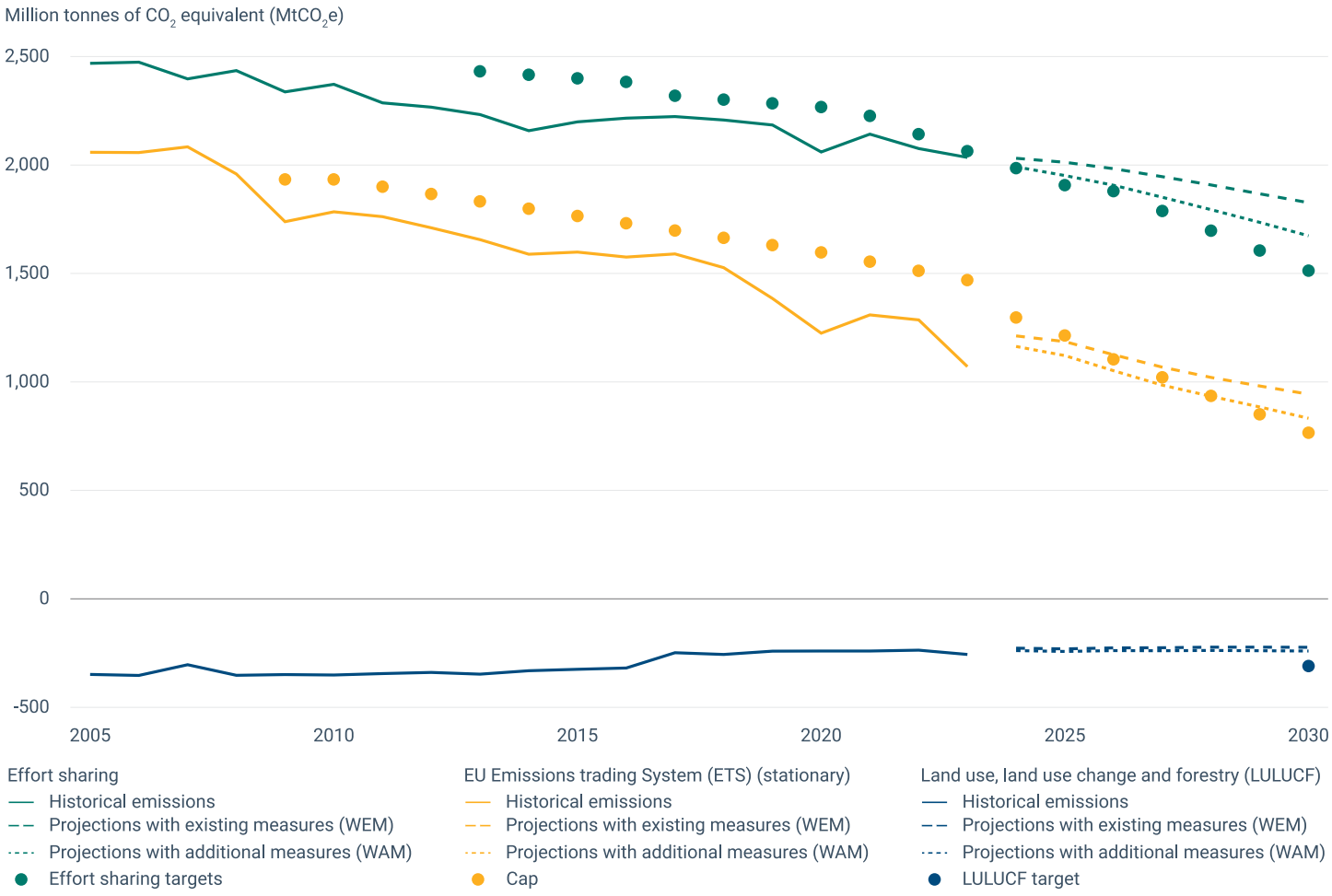
A similar reduction was observed in GHG emissions from the buildings sector. The transport sector and the agricultural sectors experienced more **limited emission reductions** of 1% and 2% respectively. Estimates indicate a modest increase in the GHG removal capacity from LULUCF.

Current and planned policy measures across the EU are expected to contribute to **sustaining** emission reductions, towards 2030. Member States' projections submitted in March 2023 and updated by some Member States in 2024 show the policies and measures currently in place combined would achieve a reduction of 43% in net emission levels by 2030 compared to 1990.

The projected reduction would reach 49% when planned **additional measures** are taken into account, still leaving a six-percentage point gap towards the minus 55% target. More ambitious policies and measures are being developed in the ongoing updates of the National energy and climate plans. New EU-wide policy tools such as the emission trading system for buildings, road transport and additional sectors provide additional incentives to reduce emissions.

The gap between the targets and projected impact of current and planned measures is wider beyond 2030. Taking into account currently adopted and planned measures, net emissions are **projected** to reach a level of 62% below 1990 levels in 2040 and 66% in 2050. These projections largely exceed the recommended 90% reduction target for 2040 and the legally binding climate neutrality target for 2050. This indicates a need to continue developing ambitious policies to reduce emissions in all sectors in the coming years and decades.

Figure 2. Effort Sharing, ETS, LULUCF trends and projections in the EU-27



Three **pivotal EU policies** target GHG emissions and removals. Each is accompanied by clear binding targets for 2030:

- The EU Emission Trading System (**EU ETS**) covers GHG emissions from stationary installations in the power sector and large industrial plants. It also includes CO_2 emissions from aviation since 2012. Emissions from stationary installations have decreased by 48% between 2005 and 2023, largely driven by the decarbonisation of the power sector. Stationary emissions showed a substantial 17% decrease in 2023 compared to 2022, linked to the significant emission reduction in the energy supply sector. At the same time, aviation ETS emissions increased by more than 10%. Projections taking into account current and planned measures indicate an expected 60% reduction by 2030, compared to 2005 levels for stationary installations. This fails to meet the 62% reduction target for the EU ETS by 2030.

- The Effort Sharing legislation governs **national GHG reduction targets**, covering sectors such as transport, buildings and agriculture. The reduction in these emissions has been less pronounced compared to those governed by the EU ETS, showing an 18% decrease between 2005 and 2022, with estimates indicating a further 2% decrease between 2022 and 2023. Projections suggest a considerable gap towards the target for 2030, with Effort Sharing emissions expected to reach a reduction of 34% compared with the target of 40%.

- The land use, land use change and forestry (**LULUCF**) sector represented a net carbon sink of about 236$MtCO_2e$ in 2022, corresponding to the absorption of 7% of the EU's total GHG emissions. Although the initial estimates for 2023 show a one-year reversal of this trend, the carbon sink has been shrinking continuously over the last decade. GHG projections as submitted by Member States foresee an increase of carbon sink, but not at a rate that would permit achievement of the target level of minus 310$MtCO_2e$ by 2030.

Supporting information

Definition

This indicator presents past and projected GHG emission trends in Europe and assesses the progress of the EU towards its GHG targets, with the scope of the total greenhouse gas emissions (EU target scope) aligning with that of the European Climate Law. The EU's total GHG emissions include GHG emissions from land use, land use change and forestry (LULUCF) and portions of emissions from international aviation and maritime transport, as regulated by EU law.

In addition to the overall GHG emissions, this indicator presents disaggregated trends to illustrate the development of emissions covered by the EU Emission Trading Scheme (ETS) and the Effort Sharing Legislation as well as from land use, land use change and forestry (LULUCF).

This indicator aims to present an assessment of the EU's progress towards its 2030 and 2050 ambitions under consideration of the trends of emissions covered under EU Emission Trading Scheme (ETS), the Effort Sharing Legislation as well as from land use, land use change and forestry (LULUCF).

The indicator is based on the official GHG inventories submitted by the EEA countries and the EU to the UNFCCC, as well as on the projected GHG emissions submitted by the Member States under the Regulation on the Governance of the Energy Union and Climate Action (Regulation (EU) 2018/1999). Finally, this indicator uses data and estimates from the 'Approximated GHG inventory' for the year (X-1).

The indicator covers all 27 Member States of the European Union.

Methodology

Methodology for indicator calculation

This indicator is based on the official GHG inventories submitted by the EEA countries to the EEA, as well as on the projected GHG emissions submitted by the Member States under the Regulation (EU) 2018/1999 on the governance of the energy union and climate action. The EU GHG inventory submitted by the EU to the UNFCCC is based on the same data and is also used. The estimation of historical emissions from international aviation and maritime sectors for the total greenhouse gas emissions (target scope) relies on data derived from the JRC Idees methodology [3]as documented in the JRC methodological paper [4].

The EU ETS emissions, as reported to the European Commission by operators of industrial installations and aircrafts, are also used. When available, approximate estimates of the GHG emissions for the year (X-1) are also presented.

Greenhouse gases

In line with the UNFCCC reporting guidelines on annual inventories, the national inventories cover emissions and removals of the following GHGs:

- carbon dioxide (CO_2), including indirect CO_2;

- methane (CH_4);

- nitrous oxide (N_2O);

- hydrofluorocarbons (HFCs);

- perfluorocarbons (PFCs);

- suphur hexafluoride (SF_6); and

- nitrogen trifluoride (NF_3)

from six sectors (Energy, Industrial processes and product use, Agriculture, LULUCF, Waste and Other).

The gases do not include the GHG emissions that are also ozone-depleting substances, which are controlled by the Montreal Protocol.

In order to be aggregated, non-CO_2 gases are weighted by their respective global warming potential (GWP) and presented in CO_2-equivalent units. Global warming potential (GWP) is a measure of how much a given mass of a GHG is estimated to contribute to global warming on a 100-year horizon.

Consistent with the latest Decision on the UNFCCC Reporting Guidelines adopted at COP27 in Sharm-El-Sheik, the GWP values used in this indicator are the ones from IPCC AR5:

Gas	**Global warming potential values from IPCC AR5**
Carbon dioxide (CO_2)	1
Methane (CH_4)	28
Nitrous oxide (N_2O)	265
Sulphur hexafluoride (SF_6)	23,500
Nitrogen trifluoride (NF_3)	16,100

HFCs and PFCs comprise a large number of different gases that have different GWPs. The full list of GWPs can be found in Chapter 8 of the 5th Assessment Report.

Greenhouse gas inventories

For the preparation of their national inventories, countries use the methodologies of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Projected greenhouse gas emissions

For projected GHG emissions, information submitted by the EEA countries under the Governance Regulation is used, with the latest submission in March 2023. The projected GHG emissions referred to in the indicator are those reported under the 'with existing measures' scenario (WEM) and the 'with additional measures' scenario (WAM).

Emission trading system emissions

Emissions from the EU ETS are also presented in the indicator. The EU ETS runs over three trading periods: Phase I (2005-2007), Phase II (2008-2012) and Phase III (2013-2020).

In 2013, the scope of the EU ETS was expanded to include additional references to (a) the capture, transport and geological storage of GHG emissions; (b) CO_2 emissions from petrochemical, ammonia and aluminium production; (c) N_2O emissions from the production of nitric, adipidic and glyoxylic acids; and (d) PFC emissions from aluminium production. Since 1 January 2012, aviation has also been part of the EU ETS.

Since 2013, these emissions have been calculated by the plant operators that fall under the ETS obligations in line with Regulation No 601/2012 [5], whereas in Phase II of the EU ETS (2008-2012), the monitoring and reporting of the operators was based on Commission Decision 2004/156/EU. Croatia entered the EU ETS on 1 January 2013.

Approximated greenhouse gas inventory

Finally, this indicator uses data and estimates from the 'Approximated GHG inventory' for the year (X-1). These 'proxy' inventories are reported by Member States to the EEA and to the Commission under the Governance Regulation by 31 July of each year, X, and are calculated at an aggregated level on the basis of the national and international information available for the year (X-1).

Methodology for gap filling

Greenhouse gas inventories (years 1990-(X-2)):

The historic emission data presented in the indicator are based on the information reported by Member States under the Governance Regulation. However, should a Member State not submit the inventory data required to compile the EU inventory, the Commission shall prepare estimates to complete the GHG inventories submitted by Member States in consultation and close cooperation with the Member States concerned. In this case, the Member State shall use the gap-filled inventory in its official submission to the UNFCCC. The basis for these gap-filling processes is described in the Commission Delegated Regulation of 12.03.2014 (http://ec.europa.eu/clima/policies/g-gas/monitoring/docs/c_2014_1539_en.pdf)

Projected greenhouse gas emissions (year X–2050):

In order to ensure the timeliness, completeness, consistency, comparability, accuracy and transparency of the reporting of projections by the EU and its Member States, the quality of the reported projections is assessed by the ETC CM on behalf of the EEA. As the Member States' reporting of projections is carried out every two years by countries, in certain cases, projections are adjusted to ensure full consistency with historic GHG emission data from the latest GHG inventories. Where a country has not made a submission, data are gap-filled by the ETC CM.

Approximated greenhouse gas inventory (year X-1):

Under the Governance Regulation, the Commission shall also estimate a Member State's approximated GHG inventory if the Member State does not provide it. These estimates are provided by the EEA and are country-specific. More information on the methodology used for gap-filling is provided in the 'Approximated GHG inventory report' of each year.

Methodology references

- Annual European Union greenhouse gas inventory and inventory report. All the data used to prepare the indicator are consistent with the latest EU GHG national inventory report (NIR). The main institutions involved in the compilation of the EU GHG inventory are the Member States, the European Commission's Directorates-General Climate Action (DG CLIMA), Eurostat, the Joint Research Centre and the European Environment Agency (EEA) and its European Topic Centre on Air Pollution and Climate Change Mitigation

(ETC CM). This report is compiled on the basis of the inventories of the EU Member States for the EU-27. The EU GHG inventory is the direct sum of the national inventories.

- 2006 IPCC Guidelines for National Greenhouse Gas Inventories The 2006 IPCC Guidelines for National Greenhouse Gas Inventories are the latest step in the IPCC development of inventory guidelines for national estimates of GHGs. These 2006 Guidelines build on the previous Revised 1996 IPCC Guidelines and the subsequent Good Practice reports. They include new sources and gases as well as updates to the previously published methods whenever scientific and technical knowledge have improved since the previous guidelines were issued. Since 2015, UNFCCC Parties are using the 2006 IPCC Guidelines' methodologies and reporting formats when preparing their inventories, in line with the UNFCCC reporting guidelines (Decision 24/CP.19).
- UNFCCC reporting guidelines on annual inventories This document contains the complete updated UNFCCC reporting guidelines on annual inventories for all inventory sectors.
- Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council. The regulation sets out the rules for the monitoring and reporting of ETS emissions by plant operators, covering the scope of Phase III of the ETS.
- IPCC Fifth Assessment Report (AR5) At regular intervals, the (IPCC) prepares comprehensive Assessment Reports of scientific, technical and socio-economic information relevant for the understanding of human induced climate change, the potential impacts of climate change and options for mitigation and adaptation. Currently used GWP are based on the AR5.

Policy/environmental relevance

This indicator is a headline indicator for monitoring progress towards the 8th Environment Action Programme (8th EAP). It contributes mainly to monitoring aspects of the 8th EAP priority objective Article 2a. that shall be met by 2030: 'swift and predictable reduction of greenhouse gas emissions and, at the same time, enhancement of removals by natural sinks in the Union to attain the 2030 greenhouse gas emission reduction target as laid down in Regulation (EU) 2021/1119[6], in line with the Union's climate and environment objectives, whilst ensuring a just transition that leaves no one behind;'[7]. For the purposes of the 8th EAP monitoring framework, this indicator assesses specifically whether the EU will 'reduce net GHG emissions by at least 55% by 2030 from 1990 levels' [7]. This year's projections may not fully reflect the current efforts by Member States to meet some of the measures under the Fit for 55 package that were adopted in the course of 2023 [8]. The modelling results presented by the European Commission in its impact assessments for the Fit for 55 package of legislative proposals indicate an expected full achievement of the 2030 target if strengthened policies are implemented across the sectors.

The UNFCCC sets an ultimate objective of stabilising GHG concentrations 'at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.' The 2015 Paris agreement clarifies that the overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." The European Union, as a party to the UNFCCC and the Paris Agreement, reports annually on the GHG emissions within the area covered by its Member States. The Annual European Union greenhouse gas inventory and inventory report, officially submitted to the UNFCCC Secretariat, is prepared on behalf of the European Commission (DG CLIMA) by the EEA and its European Topic Centre for Climate Change Mitigation (ETC CM), supported by the Joint Research Centre and Eurostat.

The EU is committed to reduce its GHG emissions and has taken several steps over the past decades:

In 2007, EU leaders set the target of a 20% reduction of EU GHG emissions by 2020 compared with the emissions in 1990. To attain this goal, a comprehensive legislative package known as the **EU 2020 Climate and Energy Package** was introduced. This package encompassed not only climate objectives but also a commitment to substantially expand renewable energy sources and enhance energy efficiency. To fulfill the climate objectives, a twofold legal framework was put in place:

- The implementation of a cap-and-trade system with the EU Emissions Trading Scheme (EU ETS) for regulating emissions from energy-intensive industries and the power sector. In this framework, the emission cap for 2020 was set at a 21% reduction compared to 2005 levels.
- An effort to reduce emissions not covered by the EU ETS by about 10% compared with 2005 levels, shared between the EU Member States through differentiated annual national GHG targets under the ESD.

The **European Climate Law**, published in 2021, sets the trajectory towards 2050 and beyond, with the target to reduce GHG emissions in the EU by at least 55% by 2030, and to achieve climate neutrality at the latest by 2050, with the aim of to achieve negative emissions thereafter. Contrary to the 2020 target, both targets also account for emissions and removals of the land use, land use change and forestry sector and are therefore net targets. In line with the European Climate Law, the European Commission will make a legislative proposal, as appropriate, for a Union-wide 2040 climate target within 6 months of the global stocktake under the Paris Agreement in November 2023.

Towards **2030, the 'Fit for 55' legislative" package**, a key element of the European Green Deal, sets the EU on a path to reach its climate targets in a fair, cost-effective, and competitive way. It builds on the previous 2020 energy and climate framework, but also includes many new policy instruments and targets that incentivize climate action across all sectors of society. In the area of climate mitigation, the key targets of the package are:

- The revised EU ETS Directive increases the ambition of the existing ETS to 62% emissions reductions by 2030, compared to 2005 levels, and will also apply to international maritime transport.
- For the sectors not covered by this ETS system, namely road and domestic maritime transport, buildings, agriculture, waste and small industries, a global reduction target of 40% compared with 2005 levels is set through the amended Effort Sharing Regulation (ESR). This target is shared between the EU Member States through differentiated annual national GHG targets, ranging from -10% to – 50%.
- The LULUCF regulation sets an overall EU-level objective of 310 Mt CO_2 equivalent of net removals, with national targets for each Member State

In addition to these key policies, a new emissions trading system (ETS2) will be introduced from 2027 onwards. ETS2 will cover emissions from fuel combustion in road transport, buildings, and other sectors, contributing to a 42% reduction in emissions compared to 2005 levels within these sectors. These emissions will also be subject to the Effort Sharing Regulation.

Related policy documents

State of the Energy union Report 2024

Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee and the Committee of the Regions. State of the Energy Union Report 2024 (pursuant to Regulation (EU)2018/1999 on the Governance of the Energy Union and Climate Action)

EU Climate Action Progress Report 2024

Report from the Commission to the European Parliament and the Council

- Regulation (EU) 2021/1119('European Climate Law')

Regulation of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality

- Consolidated text of the Regulation (EU) 2018/1999 (Governance Regulation)

Regulation of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action

- Consolidated text of Regulation 2018/842, as amended by Regulation (EU) 2023/857 (Effort Sharing Regulation)

Regulation on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement

- Consolidated text of Directive 2003/87/EC as last amended by Directive 2023/959 (ETS Directive)

Directive of the European Parliament and of the Council establishing a system for greenhouse gas emission allowance trading within the Union,

- Consolidated text of Regulation (EU) 2018/841, as last amended by Regulation 2023/839 (LULUCF Regulation)

Regulation of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework

- Consolidated text of Commission Implementing Decision (EU) 2020/2126, as last amended by Commission Implementing Decision (EU) 2023/1319

Decision on setting out the annual emission allocations of the Member States for the period from 2021 to 2030 pursuant to Regulation (EU) 2018/842 of the European Parliament and of the Council

- Kyoto Protocol to the UN Framework Convention on Climate Change

Kyoto Protocol to the United Nations Framework Convention on Climate Change; adopted at COP3 in Kyoto, Japan, on 11 December 1997

- Paris Agreement

The Paris Agreement. Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 11 December 2015.

- European Green Deal

- UNFCCC

UNFCCC reporting guidelines on annual inventories

Accuracy and uncertainties

Methodology uncertainty

Greenhouse gas inventories

(a) Difference in methodologies between countries

Since Member States use different national methodologies, national activity data or country-specific emission factors in accordance with IPCC and UNFCCC guidelines, these different methodologies are reflected in the EU GHG inventory data. The EU believes that it is consistent with the UNFCCC reporting guidelines and the 2006 IPCCC guidelines to use different methodologies for one source category across the EU territory, especially if this helps to reduce the uncertainty and improve the consistency of the emission data, provided that each methodology is consistent with the 2006 IPCC guidelines. At the same time, the EU is making an effort to promote and support the use of higher tier methodologies across Member States. At the EU level, and for most of the key categories of the EU inventory, more than 75% of the EU emissions are calculated using higher tier methodologies, resulting in lower uncertainty rates.

(b) Global warming potential

According to the IPCC, the GWP values used in the IPCC AR4 have an uncertainty of ±35% for the 5-95% (90%) confidence range.

Projected greenhouse gas emissions

The methodology proposed consists of simple additions of data reported by Member States. However, uncertainty arises from the following:

- projections can be subject to updates that might not be reflected in the assessment if these updates were recently developed;
- the projections taken into account are fully consistent with Member State submissions under the Governance Regulation. However, other sets of projections with different data might have been published by countries (e.g. national allocation plans, national communications to the UNFCCC).

Several countries carry out sensitivity analyses on their projections.

Approximated greenhouse gas inventory

The uncertainty ranges estimated in the approximated GHG inventories are derived by comparing the official national data submitted to the UNFCCC in year X with the proxy estimates of the same year. The uncertainty for the approximated emissions at the EU level is estimated as the weighted mean of the differences described: weighted again by the relative contribution that each Member State makes to total EU-27 emissions. More details about these methodologies are provided each year in the 'Approximated GHG inventory report'.

Data sets uncertainty

The 2006 IPCC Guidelines provide approaches on how Parties should estimate uncertainties, suggesting different values for the uncertainty of activity data and emission factors for most of the emission source categories. On the basis of this guidance, EU Member States and other EEA countries perform their own assessment of the uncertainty of reported data and provide an uncertainty analysis in the National Inventory Report to account for uncertainty per source category, as well as the total uncertainty of their national inventory.

Section (1.6) of the annual EU GHG inventory report considers the uncertainty evaluation, describing the methodology used to estimate it. The results suggest that the uncertainty level in the EU is about 5% for

total GHG emissions (including LULUCF).

Total EU-27 GHG emission trends are likely to be more accurate than individual absolute annual emission estimates, because the annual values are not independent of each other. The IPCC suggests that the uncertainty in total GHG emission trends is approximately 4-5%. For the EU, the trend uncertainty is estimated to be close to 1%. Total GHG emission estimates are quite reliable and the limited number of interpolations used to build the indicator do not introduce much uncertainty at the EU level.

Uncertainties in the projections of GHG emissions can be significant but have not been assessed.

Data sources and providers

- Approximated estimates for greenhouse gas emissions, 2023, European Environment Agency (EEA)
- National emissions reported to the UNFCCC and to the EU under the Governance Regulation, April 2024, European Environment Agency (EEA)
- Member States' greenhouse gas (GHG) emission projections 2024, European Environment Agency (EEA)
- Greenhouse gas emissions under the Effort Sharing Legislation, 2005-2023, European Environment Agency (EEA)
- European Union Emissions Trading System (EU ETS) data from EUTL, v1.1 Jul. 2024, European Environment Agency (EEA)

Metadata

DPSIR

Pressure

Topics

 # Climate change mitigation

Tags

 # CLIM050 **# Climate** **# Progress to target** **# Energy** **# Greenhouse gases**
 # climate change mitigation **# Trends** **# Projections** **# Energy efficiency** **# Renewable energy**
 # 8th EAP

Temporal coverage

1990-2050

Geographic coverage

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France

Germany
Hungary
Italy
Lithuania
Malta
Poland
Romania
Slovenia
Sweden
Greece
Ireland
Latvia
Luxembourg
Netherlands
Portugal
Slovakia
Spain

Typology

Performance indicator (Type B - Does it matter?)

UN SDGs

SDG13: Climate action

Unit of measure

This indicator expresses GHG emissions in 'million tonnes of CO_2 equivalent' ($MtCO_2e$).

Frequency of dissemination

Every 2 years

References and footnotes

1. In the previously published indicator, all net GHG emissions (including Land Use, Land Use Change, and Forestry) and emissions from international aviation based on bunker fuels were accounted for. This year, the scope (EU target scope) more closely aligns with that of the European Climate Law. In addition to net GHG emissions from within the EU, it now includes portions of emissions from international aviation and maritime transport, as regulated by EU law.
↲
2. EEA, 2020, *Trends and drivers of EU greenhouse gas emissions*, EEA Report, 3/2020, European Environment Agency.
↲
3. JRC: Rózsai, M., Jaxa-Rozen, M., Salvucci, R., Sikora, P., Tattini, J. and Neuwahl, F., 2024, *JRC-IDEES-2021: the Integrated Database of the European Energy System – Data update and technical documentation*, Joint Research Centre, Luxembourg.
↲
4. JRC, 2024, *Aligning historical international aviation and maritime transport data to the scope of EU climate policies*, Joint Research Centre, Luxembourg.
↲

5. EU, 2018, Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012 ↲
6. EU, 2021, Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality (OJ L 243, 9.7.2021, p. 1–17). ↲
7. EC, 2022, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on the monitoring framework for the 8th Environment Action Programme: Measuring progress towards the attainment of the Programme's 2030 and 2050 priority objectives a b
8. EEA, 2023, *Trends and Projections in Europe 2023*, Publication, 07/2023, ↲