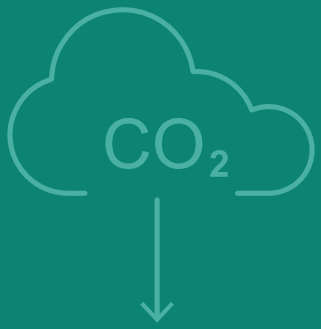
European Environment Agency

# 8th Environment Action Programme

## Total net greenhouse gas emission trends and projections in Europe




8TH EAP HEADLINE INDICATOR, 2023

European Environment Agency

# Total net greenhouse gas emission trends and projections in Europe

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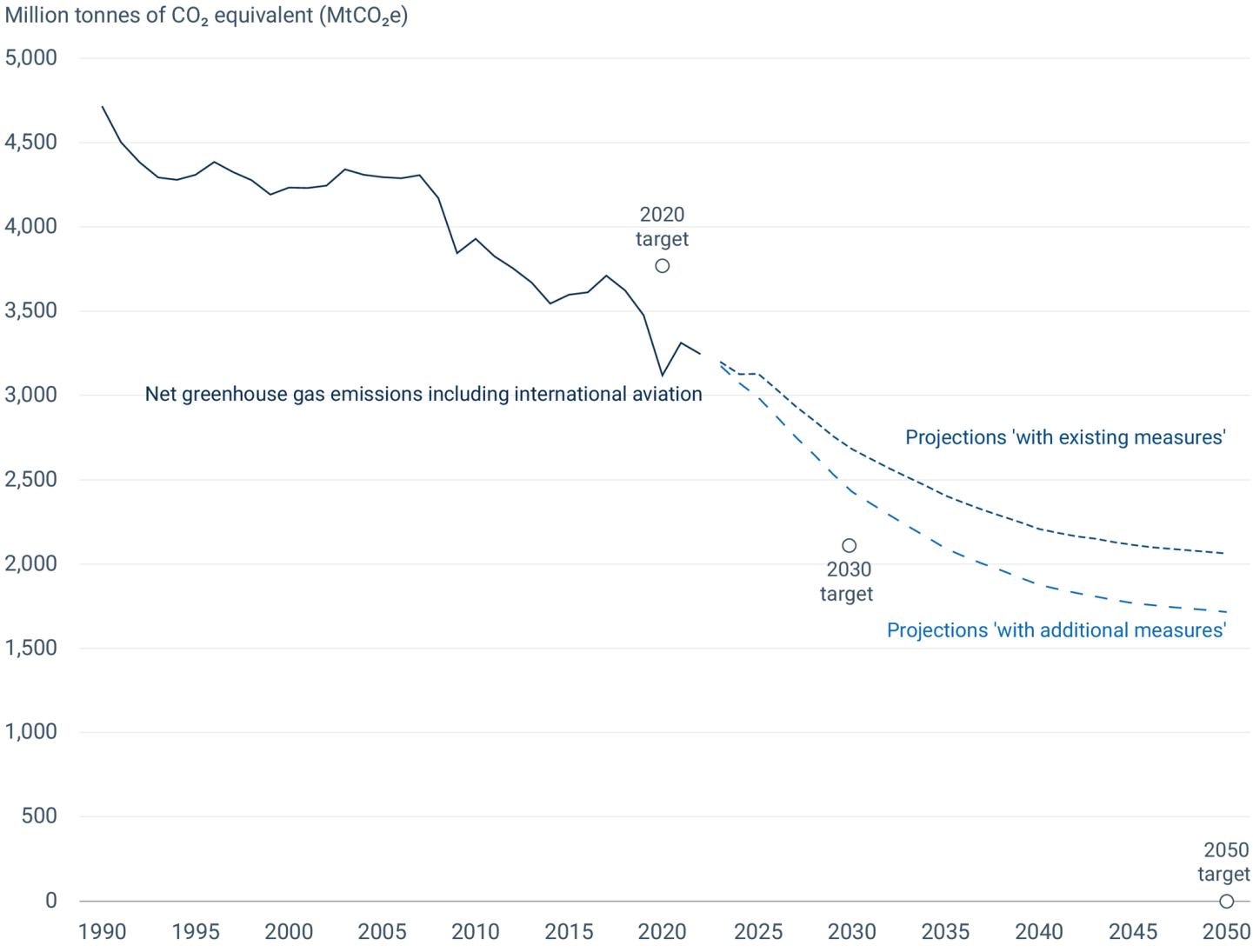
Net greenhouse gas (GHG) emissions including international aviation in the EU-27 decreased by 30% between 1990 and 2021. Despite the energy crisis causing higher emissions from energy production, preliminary estimates for 2022 indicate a further year-on-year reduction of 1.9%. The EU Member States' current projections suggest that a 48% reduction in net emissions will be reached by 2030 compared to 1990 levels. Although this indicates an increased ambition from the 41% projected last year, this will still leave a seven percentage point gap to the 2030 target. This will need to be addressed rapidly to achieve the required reductions.

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




**Source:** EEA.

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

Compared to 1990, net EU GHG emissions in 2021 had fallen by 30%, while prosperity significantly increased over the same period. This achievement includes emissions from international aviation and takes the carbon sink from the land use, land use change and forestry sector (LULUCF) into account.

The reduction in net GHG emissions has primarily taken place within the past two decades alongside a gradual strengthening of policies to reduce GHG emissions. 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. Additionally, there has been a modest reduction in total energy consumption, and substantial decreases in GHG emissions linked to specific industrial production processes, as documented earlier by the EEA.

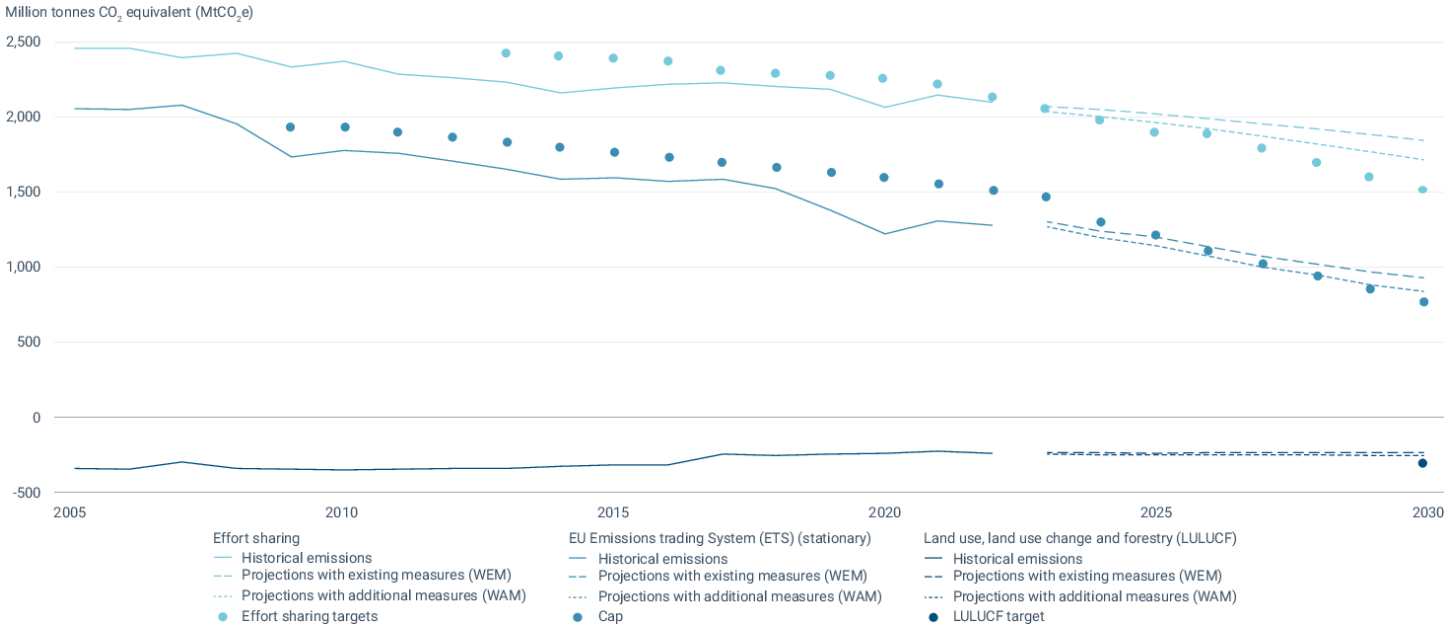
Preliminary estimates indicate that, in 2022, net GHG emissions fell by a further 1.9% below 2021 levels, which can be largely explained by the energy crisis. Spiking gas prices led to energy savings and reduced GHG emissions in the buildings sector, while output decreases in energy-intensive industries caused a significant emission reduction. At the same time, emissions rose in the power sector due to a partial switch to more $CO_2$ - intensive coal generation.

Compared with the pace of emission reductions observed during the past 10 years, the average annual rate of absolute GHG emission reductions must more than triple to reach the 2030 climate target. Current and planned policy measures across the EU are expected to help contribute to the required acceleration. According to Member States' projections as submitted in March 2023, the policies and measures they currently have in place combined would achieve a reduction of 43% in net emission levels by 2030 compared to 1990. If planned additional measures are taken into account, the projected reduction would reach 48%. Last year, Member States only projected this reduction to total 41%, indicating a shared increase in ambition across Europe in the past year. However, this will still leave a gap of seven percentage points to the 2030 target, which will need to be addressed rapidly to achieve the required reductions.

The update of National Energy and Climate Plans, for which final versions are due to be submitted in June 2024, may include pathways to focus on this shortfall. Generally, all sectors will need to be addressed by strengthened policies and measures. Specifically, in the buildings sector, there exists significant cost-effective potential to reduce GHG emissions by 2030. The transport and agricultural sectors also require substantial additional efforts, given their limited progress in recent years.

Looking beyond 2030, the gap between the targets and the projected impact of current and planned measures is even wider. Taking into account currently adopted and planned measures, net emissions are projected to reach a level of 60% below 1990 levels in 2040 and 64% in 2050. This indicates the need for transformative policies across all sectors to reach climate neutrality.

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




**Source:** EEA.

Three pivotal EU policies target GHG emissions and removals, and each is accompanied by clear binding targets for 2030.

The EU Emission Trading System (EU ETS) covers the GHG emissions from stationary installations in the power sector and large industrial plants; since 2012, it has also included $CO_2$ emissions from aviation. ETS emissions from stationary installations have decreased by 38% between 2005 and 2022, largely driven by the decarbonisation of the power sector. In 2022, stationary EU ETS emissions showed a further 2% decrease compared to 2021, with higher energy prices leading to reduced output in industry and a temporal increased use of coal in the power sector. At the same time, aviation ETS emissions increased by more than 80% as the sector rebounded from the effects of the COVID-19 pandemic. By 2030, projections taking into account current and planned measures indicate a 59% reduction compared to 2005 for stationary installations, falling slightly short of the 62% reduction target for the EU ETS.

National GHG reduction targets are governed by the Effort Sharing legislation, 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 a 14% decrease between 2005 and 2021, with estimates for 2022 indicating a further 3% decrease. Projections suggest a considerable gap towards 2030, with the emissions reaching a reduction of 32% compared with the target of 40%.

The land use, land use change and forestry (LULUCF) sector represented a net carbon sink of about 230Mt $CO_2e$ in 2021, corresponding to the absorption of 7% of total GHG emissions. Over the last decade, the carbon sink has been shrinking continuously, although the initial estimates for 2022 show a reversal of this trend. GHG projections as submitted by Member States in March 2023 foresee a further increase of the carbon sink, but not at a growth rate that would permit achievement of the target level of -310 Mt $CO_2eq$ 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. The EU's total GHG emissions include GHG emissions from land use, land use change and forestry (LULUCF) and international aviation to be consistent with the scope of the EU's 2030 Nationally Determined Contribution (NDC) and as included in the EU greenhouse gas inventory 1990-2021 [1].

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)[2]. 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 [2]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 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 [3], 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 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[4], in line with the Union's climate and environment objectives, whilst ensuring a just transition that leaves no one behind;'[5]. 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' [5]. 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 [6]. 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**

- 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 IPCC 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**

- National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism, October 2023, European Environment Agency (EEA)
- Greenhouse gas emissions under the Effort Sharing Legislation, 2005-2022, European Environment Agency (EEA)
- Member States' greenhouse gas (GHG) emission projections, 2023, European Environment Agency (EEA)
- European Union Emissions Trading System (EU ETS) data from EUTL, July 2023, European Environment Agency (EEA)
- Approximated estimates for greenhouse gas emissions, 2022, European Environment Agency (EEA)
- Member States' greenhouse gas (GHG) emission projections, 2023, European Environment Agency (EEA)
- National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism, October 2023, European Environment Agency (EEA)
- Approximated estimates for greenhouse gas emissions, 2022, 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
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden

**Typology**

Performance indicator (Type B - Does it matter?)

**UN SDGs**

Climate action

**Unit of measure**

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

**Frequency of dissemination**

Every 2 years

**Contact**

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## References and footnotes

1. The European Climate Law and greenhouse gas emission reduction objectives included therein apply to all anthropogenic greenhouse gas emissions that are regulated by EU law. Consequently, in the forthcoming years, this indicator's scope can be further improved, encompassing intra-EU and extra-EU maritime emissions as they will be included into the scope of the EU ETS from 2024 onwards. Additionally, the scope of aviation emissions can be fine-tuned to include those emission regulated by EU law.

2. EU, 2018, Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council, OJ L 328, 21.12.2018, p. 1-77.
a b
3. 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
↲
4. 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).
↲
5. 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
6. EEA, 2023, *Trends and Projections in Europe 2023*, Publication, 07/2023.
↲