ETC CM Report 2025/03

Approximated EU greenhouse gas inventory

Proxy GHG emission estimates for 2024

Authors:
Risto Saarikivi (Czech Hydrometeorological Institute), Markéta Klusáčková (Czech Hydrometeorological Institute)

EEA project managers:
Gorka Mendiguren

European Environment Agency
European Topic Centre
Climate change mitigation

Cover design: EEA
Cover image ©Shutterstock

Publication Date: October 2025

EEA activity: climate change mitigation and adaptation

ETC CM coordinator: Vlaamse Instelling voor Technologisch Onderzoek (VITO)

ETC CM partners: AETHER Limited, Citepa, Czech Hydrometeorological Institute (CHMI), EMISIA, Stiftelsen NILU (NILU), Öko-Institut e.V. Institut für Angewandte Ökologie, Öko-Recherche GmbH - Büro für Umweltforschung und -beratung, Rijks Instituut voor Volksgezondheid en Milieu (RIVM), Gauss International Consulting S.L., Transparency for life (T4L), Klarfakt e.U., Exergia S.A., Transport & Mobility Leuven (TML), Umweltbundesamt GmbH (UBA).

DOI: 10.5281/zenodo.17397071 (from Zenodo)

More information on the European Union is available on the Internet (http://europa.eu).

European Topic Centre on
Climate change mitigation
https://www.eionet.europa.eu/etcs/etc-cm
etccm@vito.be

Contents

Acknowledgements

The report was prepared by the European Environment Agency's (EEA) Topic Centre for Climate Change Mitigation (ETC CM).

The authors at the Czech Hydrometeorological Institute were Risto Saarikivi and Markéta Klusáčková.

The EEA project manager was Gorka Mendiguren. The EEA acknowledges and appreciates the input and comments received from other EEA colleagues, the European Commission, EU Member States and other EEA member countries during the consultation period within the EIONET and the Working Group 1 on Annual greenhouse gas inventories of the Climate Change Committee of the European Commission.

1 Background and objective

This approximated GHG inventory is an early estimate of the GHG emissions for the preceding year. The legal basis for the approximated GHG emission estimates is Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action. Article 26(2) requires Member States to submit to the Commission approximated greenhouse gas inventories for the year *t*-1 by 31 July every year. The European Environment Agency (EEA) assists the Commission in the compilation of the Union approximated greenhouse gas inventory. These estimates are referred to as approximated ('proxy') estimates or inventories as they cover the year for which no official GHG inventories have been prepared. Should a Member State not provide their own proxy emission estimate, the EEA produces and uses gap-filled estimates in order to have a complete approximated GHG inventory for the European Union. Non-EU member countries of the EEA are invited to submit their proxy estimates on a voluntary basis.

The scope of the proxy estimates covers total GHG emissions, for all gases, sectors, and Member States, as reported under the UNFCCC including the land use, land-use change and forestry (LULUCF) sector, indirect CO_2 and international aviation.

Member States are responsible for the methodological choice regarding their own estimates. For gap-filling where a Member State has not provided their own estimate the EEA has used the latest Eurostat and EU ETS data to carry forward reported emissions from the energy and industrial processes sectors. These two source categories typically account for the bulk of emissions and have the largest annual change. International aviation was gap-filled, in case reporting countries have not reported the data. The gap-filling procedure used flight and emission data provided by Eurocontrol.

The EU aims to have a leading role in the emission reduction and for this purpose a number of measures have been adopted. One of the most important measures is the Effort Sharing Regulation, which covers sectors of the economy which fall outside the scope of the EU Emission Trading Scheme. These sectors, which include transport, buildings, agriculture, non-ETS industry and waste, account up to 62 % of the total EU emissions (EEA 2023).

The official submission of 2023 inventories to the United Nations Framework Convention on Climate Change (UNFCCC) will take place in 2025.

Table 1-1 provides an overview of different emission estimates by EU bodies. More information can be found on the EEA website 'Note on different emission estimates by EU institutions': www.eea.europa.eu/publications/different-emission-estimates-by-eu-bodies-2.

Table 1-1 Overview of EU data sources for GHG estimates

What	Who	When	Time	Geographical scope	Sectoral Scope	Obligation
GHG inventory to UNFCCC	EEA and DG CLIMA	15 April	*t*-2	EU and its 27 Member States	All gases and sectors (100% of emissions)	EU Regulation (2018/1999)
Approximated / Proxy GHG inventory	EEA, DG Climate Action	31 October	*t*-1	EU and its 27 Member States and other EEA member countries when available	All gases and sectors (100% of emissions)	EU Regulation (2018/1999)
EU ETS	DG Climate Action, EEA	Early April, May and summer (between July and September)	*t*-1	EU27 and other EEA member countries	About 9,500 installations (~39% of total emissions)	EU ETS Directive (2003/87/EC)
CO_2 early estimates from fossil fuel combustion	Eurostat	April / May	*t*-1	EU and its 27 Member States	CO_2 from fossil fuel combustion (~80% of total emissions)	Eurostat's work programme
Air emissions accounts, air emission intensities and air emission footprints	Eurostat	annual	t-2	EU27	Six greenhouse gases including CO_2 and seven air pollutants	Regulation (EU) 691/2011 (Annex I)

2 European GHG emissions in 2024

A total of twenty-six Member States submitted preliminary 2024 GHG data to the European Commission and the EEA by 31 July 2023. Austria, Belgium, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden all submitted emissions data in the form of largely[1] complete CRT Summary2 tables. The methodologies used for any gap-filling are described in chapter 4.4.1.

These 26 countries that submitted 2024 proxy estimates represent more than 98% of EU27 total emissions.

The EEA used gap-filled estimates for Bulgaria in order to have a complete approximated GHG inventory for the European Union (section 4.3).

Additionally, three EEA member countries submitted preliminary 2024 GHG data by 31 July 2024: Iceland, Switzerland and Norway.[2]

Approximated GHG inventories in CRF Summary2 table format are presented for the EU27 in chapter 2.1.3. *Annex 1: Detailed results for each Member State* provides a link to the Reportnet3 where the CRT Summary2 table information is available for each of the 27 EU Member States and also for Iceland, Switzerland and Norway in PDF and in excel.

[1] Where sub-sector emissions detail was not available it was gap-filled using simple allocation based on the previous year's splits. In some instances sub-sectors emissions needed to be summed for sectors. These minor modifications were performed for Denmark, Germany, Greece, Ireland, Luxembourg and Sweden.

[2] Other non-EU Member States of the EEA are Liechtenstein and Turkey. As these countries did not submit any GHG data for2024, they are not considered in this report.

2.1 Trend and overall results

The trend shows -2.8 % decrease in emissions for the EU27 since 2023, although the real GDP growth rate is showing a positive trend of 1.0 % in the same year (Eurostat 2025 b). Nineteen Member States achieved decreases in emissions while five Member States had negative GDP growth.

For EU27 the 2024 GHG emissions including LULUCF and indirect CO_2 emissions are estimated to be 2827 million tonnes of CO_2 equivalents (Mt CO_2 eq.), which indicates a decrease from 2023 of 80 million tonnes of CO_2 equivalents (Mt CO_2 eq.).

The estimates for 2024 indicate the continuity in trend which was observed between 2017 and 2019. Emissions levelled off between 2014 and 2017 (Figure 2-1), then decreased between 2017 and 2020. The exceptionally strong decrease in 2020 was caused by the COVID-19 pandemic situation. The estimate for 2024 shows 2.8 % decrease compared to 2023 emissions level. The decrease is mostly driven by the energy crisis triggered by Russia's invasion of Ukraine.

International aviation equalled to EU27 to 130 million tonnes of CO2 equivalents in 2024, which shows a decrease of -5.1 % in comparison to the 2023 levels (Eurocontrol, 2025).

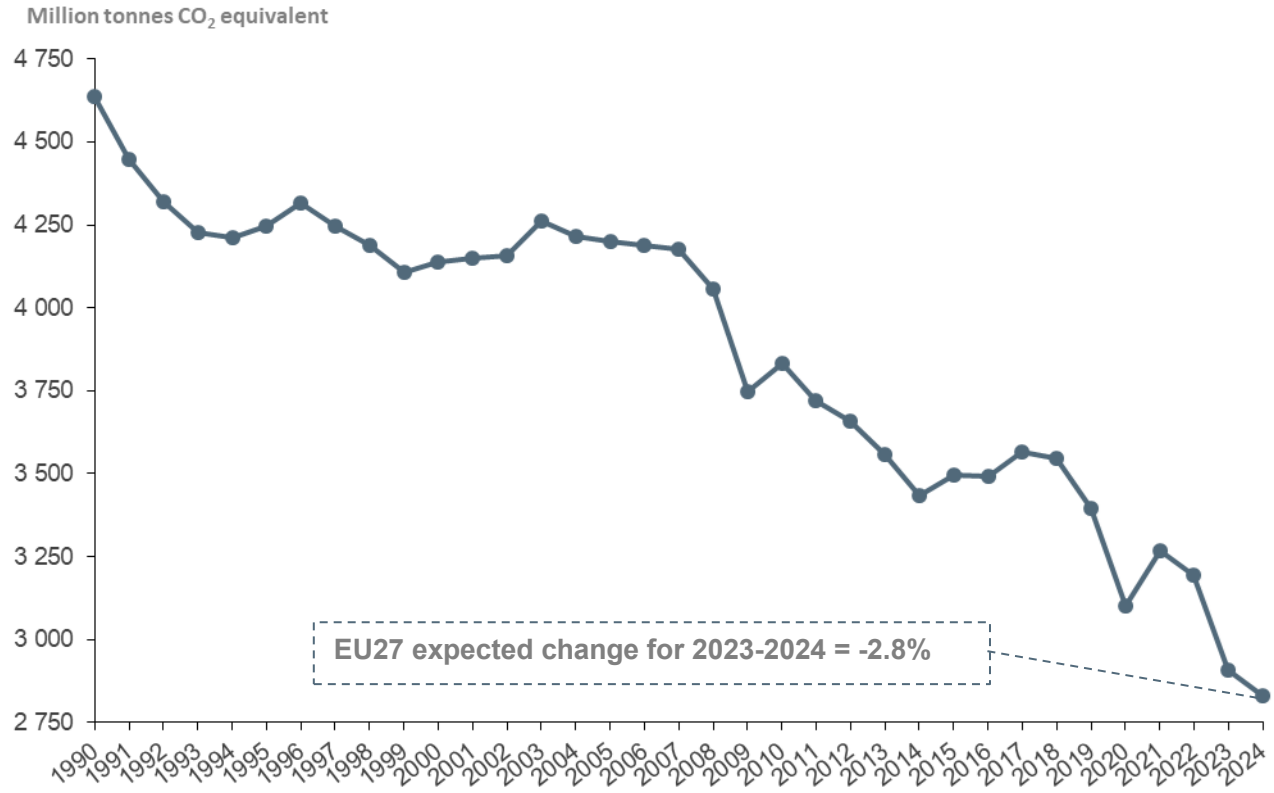
The changes in 2024 are caused by several reasons, whereby is important to mention decrease in total final energy consumption. Changes in the fuels consumed in 2024 are mostly driven by the energy crisis triggered by Russia's invasion of Ukraine and therefore don't follow the weather conditions as much as in previous years.

The Copernicus Climate Change Service (C3S) has confirmed that the year 2024 was the warmest year on record globally, and the first time the average global temperature exceeded 1.5°C above its pre-industrial level (Copernicus 2025). In the EU27, heating degree days were -4 % less and cooling days +17 % more than in 2023. Moreover, 23 Member States saw fewer heating degree days in 2024 and 16 Member States more cooling degree days than in 2023 (Eurostat 2025 a).

Changes in the consumption of energy confirm the changes in the evolution of GHG emissions. Overall, primary energy consumption (PEC) increased by around 1% (+1.3 %) at the EU level, mainly thanks to an increase of low-carbon energy sources, with the primary consumption of energy from renewable sources increasing by 6 % (+6.1 %) compared with 2023 (EEA 2025 a). At the same time, the contribution of fossil fuels to PEC decreased in 2024 (-0.8 % compared with 2023), with the consumption of solid fuels falling most in 2024 (-10.9 %). By contrast, final energy consumption (FEC) decreased slightly in 2024 (by almost 1 % compared with 2023), as the growth of renewable energy sources, especially solar and wind, increased the efficiency of energy transformation into more suitable vectors for final consumption, such as electricity. In the Transport sector, final energy consumption of fossil fuels decreased less than 1 % (-0.8 %) while renewable fuels consumption increased almost 3 % (+2.8 %).

Increased consumption of renewables and decreasing use of fossil energy is seen also in the EU27 RES shares 2024 (EEA 2025 b). Total RES shares increased by almost one percentage point, to 25.4 % in 2024. The RES transport share increased 0.4 percentage points to 11.3 % in 2024 (vs. 10.8 % in 2023), the share of RES in electricity use increased almost 2 percentage points (+1.8 %) to 47.1 % and RES heating and cooling share increased almost 1 percentage points (+0.9 %) to 27.2 % in 2024. Gross final consumption of energy from renewable sources continued its increase by 3.7 % in 2024.

Figure 2-1 Trends in total GHG emissions, 1990-2024



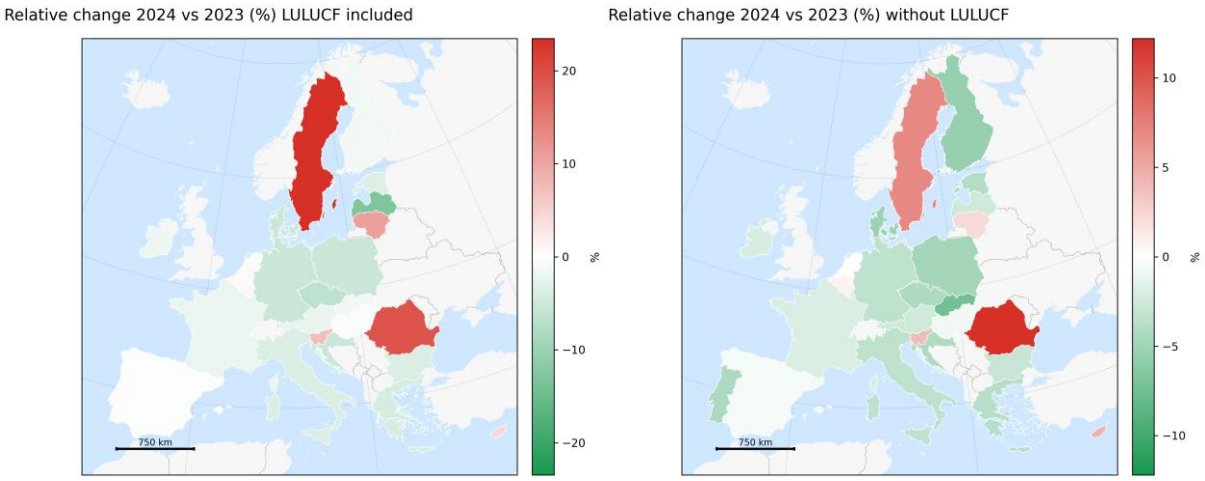
Note: Total GHG emissions with LULUCF including indirect CO_2

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

2.1.1 Changes in member states GHG emissions 2023 to 2024

Total greenhouse gas emissions including LULUCF and indirect CO_2 emissions decreased in nineteen EU Member States in 2024. Figure 2-2 depicts the regional distribution of these changes which differ significantly between different regions.

Figure 2-2 Regional trends in total GHG emissions change 2023-2024



Note: Total GHG emissions with LULUCF including indirect CO_2.(**left**).

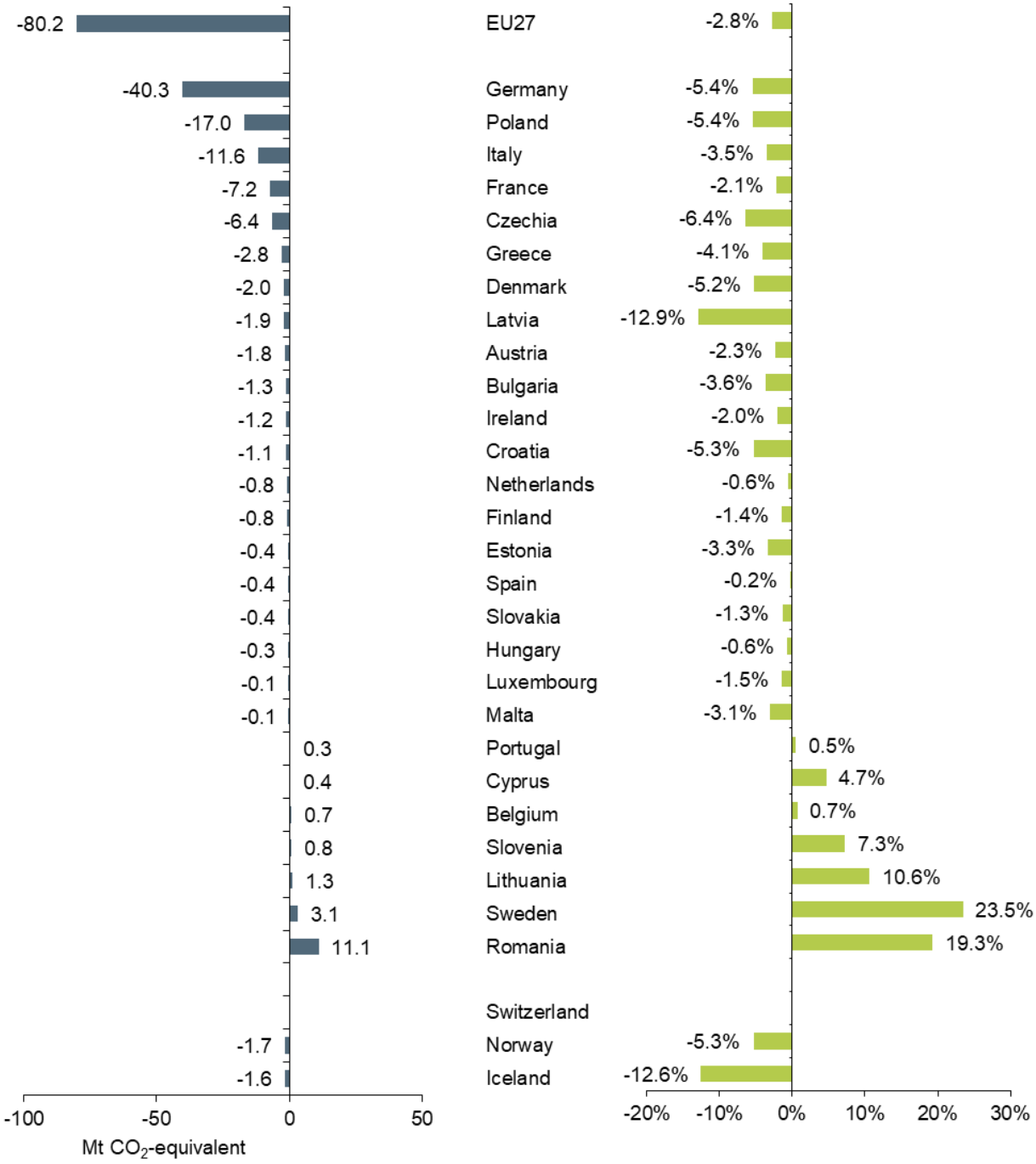
Total GHG emissions without LULUCF including indirect CO_2. (**right**).

Comparing the changes across Member States (Figure 2-3), the largest absolute emission change occurred in Germany, where emissions decreased by 40 Mt CO_2 eq. Apparent decrease in emissions occurred also for Poland (-17 Mt CO_2 eq.) and Italy (-12 Mt CO_2 eq.). The most absolute emission increase occurred in Romania (+11 Mt CO_2 eq.) followed by Sweden (+3 Mt CO_2 eq.) and Lithuania (+1 Mt CO_2 eq.).

The largest relative declines in emissions compared to the previous year took place in Latvia (-12.9 %), Czechia (-6.4 %) and Poland (-5.5 %). The most relative increases were in Sweden (+23.5 %), Romania (+19.3 %) and Lithuania (+10.6%).

In the non-EU member countries of the EEA, emissions decreased in Switzerland (-1.5 %, or -0.6 Mt CO_2 eq.), Iceland (-12.6 % or -1.6 Mt CO_2 eq.) and Norway (-5.3 % or -1.7 Mt CO_2 eq.). Switzerland changes were not shown as Switzerland did not submit LULUCF values. Norway submitted previous year LULUCF values.

Figure 2-3 Member States' emissions, change 2023-2024

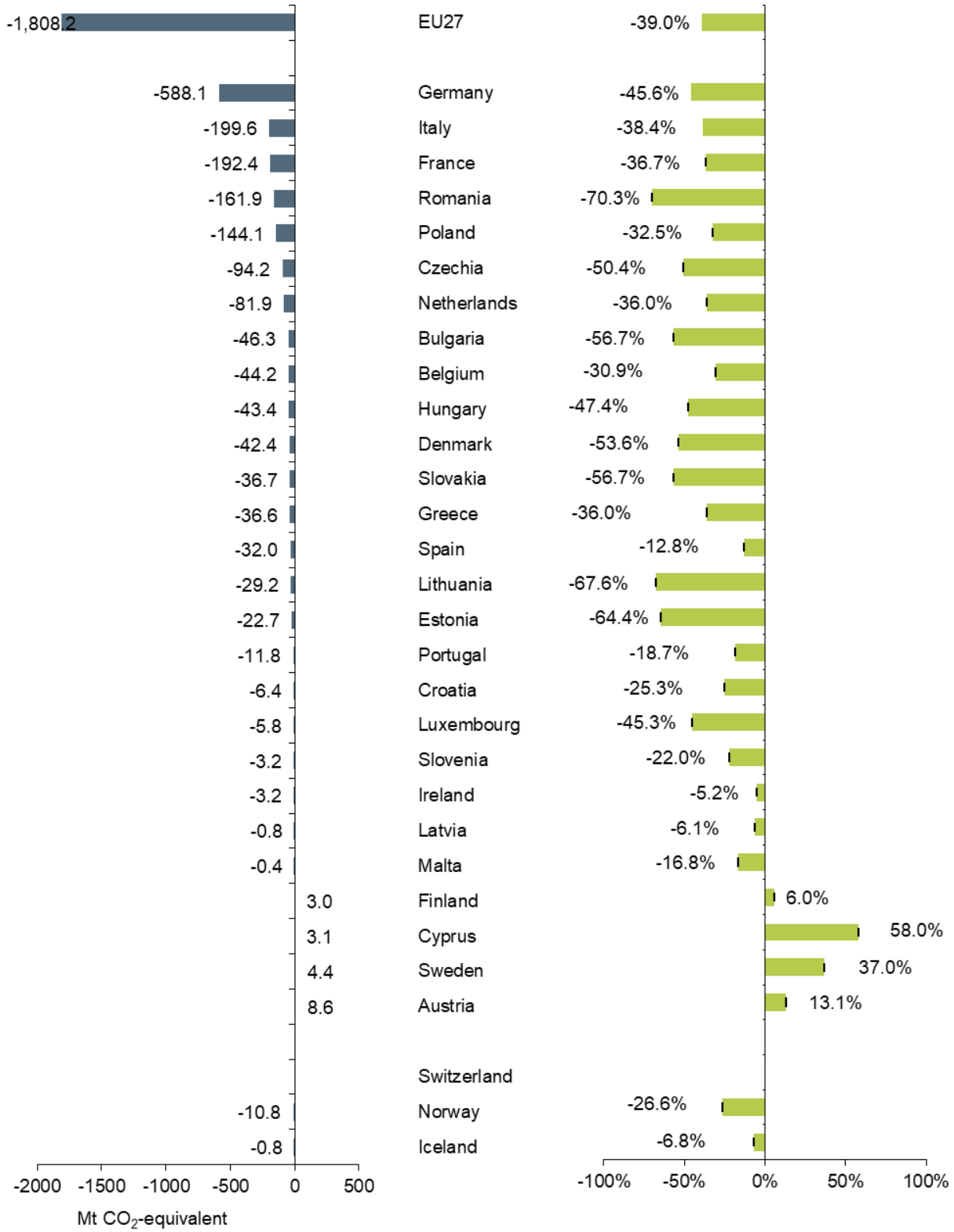


Note: Total GHG emissions with LULUCF including indirect CO_2. Switzerland did not report LULUCF data

2.1.2 Changes in member states GHG emissions 1990 to 2024

Total EU27 GHG emissions including LULUCF and indirect CO_2 in 2024 are estimated to be −39.0 % or −1808 Mt CO_2 eq. below 1990 levels as shown in Figure 2-4. Emissions for most EU27 Member States are lower than in 1990 while emissions in Austria, Cyprus, Finland and Sweden are higher than in 1990.

Figure 2-4 Member States' emissions change 1990-2024



Note: Total GHG emissions with LULUCF including indirect CO2. Switzerland did not report LULUCF data.

The largest absolute decrease was in Germany, followed by Italy, France, Romania and Poland, which all reduced their GHG emissions by more than 100 Mt CO_2 eq. since 1990. The absolute increases were experienced by Austria (+8.6 Mt CO_2 eq.), Sweden (+4.4 Mt CO_2 eq.), Cyprus (+3.1 Mt CO_2 eq.) and Finland with 3.0 Mt CO_2 eq.

The largest relative emission decreases were in Romania, Lithuania, Estonia, Slovakia, Denmark, Bulgaria and Czechia which all reduced their emissions by more than 50 % compared to 1990. The relative emission decreases of further three Member States are stronger than the EU27 average.

All the three non-EU member countries of the EEA considered in this report had in 2024 lower GHG emissions compared to 1990 level.

2.1.3 Detailed results for the EU27

This section begins with a brief comparison of the effect of including emissions from international aviation and LULUCF in the totals. Table 2-1 summarises the emissions as CO_2 eq. and percentage changes. It should be noted, that in their proxy submissions, several Member States used the 2023 value for emissions from LULUCF sector as an approximated value for 2024: Austria, Belgium, Cyprus, Denmark, Estonia, Hungary, Ireland and Sweden. Flight and emissions data from Eurocontrol was used to gap-fill international aviation emissions where Member States did not include an estimate. For the EU 2024 proxy, this method was applied to Denmark, Luxembourg and Portugal.

Table 2-1 Total emissions including indirect CO2 with and without LULUCF (kt CO_2 eq.)

European Union (EU27)	1990	2023	2024	2024-2023	2024/2023	2024-1990	2024/1990
Total excl. LULUCF incl. indirect CO2	**4 867 571**	**3 106 002**	**3 038 895**	**-67 107**	**-2.2%**	**-1 828 676**	**-37.6%**
LULUCF	-237 323	-198 421	-211 871	-13 450	6.8%	-25 452	10.7%
Total incl. LULUCF incl. indirect CO2	**4 635 248**	**2 907 581**	**2 827 024**	**--80 557**	**-2.8%**	**-1 808 224**	**-39.0%**

Table 2-2 shows the detailed results for the EU27. Summary tables for 2024 for each Member State as submitted by the Member States or gap-filled by EEA for Member States which did not submit their own approximated emissions report are provided in Annex 1.

Table 2-2 Summary table of approximated GHG emissions for 2024 for EU27 (total emissions including indirect CO_2)

Implementing Regulation Article 7: Reporting on approximated Greenhouse Gas Inventories

Member States shall report their approximated greenhouse gas inventories pursuant to Article 26(2) of Regulation (EU) 2018/1999

Year 2024
Submission 2025
Country EU27
Geographical scope Sum of 27 MSs

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2(1)	CH4	N2O	HFCs	PFCs	SF6	Unspecified mix of HFCs and PFCs	NF3	Total
	CO2 equivalent (kt)								
Total (net emissions)(1)	2198603.65	391441.82	173854.33	54338.99	1147.77	3707.75	127.21	89.39	2823308.10
1. Energy	2229173.99	54181.58	19643.45						2302999.02
A. Fuel combustion (sectoral approach)	2211969.62	22977.30	19622.99						2254569.91
1. Energy industries	630,619	3,852	4,115						638585.82
2. Manufacturing industries and construction	359,979	2,304	2,696						364979.27
3. Transport (3)	791,365	1,577	7,220						800161.69
4. Other sectors	422,432	15,210	5,537						443179.46
5. Other	7,574	34	55						7663.67
B. Fugitive emissions from fuels	17204.37	31204.28	20.46						48429.10
1. Solid fuels	2,936	16,959	0						19891.56
2. Oil and natural gas	14,269	14,246	20						28537.54
C. CO2 transport and storage	-								0.00
2. Industrial processes and product use	197779.41	1420.42	4839.51	54338.99	1147.77	3707.75	127.21	89.39	263450.30
A. Mineral industry	86,175								86174.58
B. Chemical industry	46,938	1,217	2,621	74	301	70	-	-	51245.52
C. Metal industry	58,453	123	14	14	126	81	-	-	58822.44
D. Non-energy products from fuels and solvent use	6,014	2	4						6019.85
E. Electronic Industry				27	469	163	35	89	773.11
F. Product uses as ODS substitutes				54,192	90	-	4	-	54267.03
G. Other product manufacture and use	126	69	2,124	29	162	3,389	89	-	5979.96
H. Other	73	9	76	4	1	4	-	-	167.82
3. Agriculture	9383.88	224863.13	126381.03						360625.39
A. Enteric fermentation		176,195							176194.96
B. Manure management		44,100	17,340						61440.76
C. Rice cultivation		2,461							2461.12
D. Agricultural soils		-	108,751						108751.40
E. Prescribed burning of savannas		2	-						0.00
F. Field burning of agricultural residues		590	167						756.80
G. Liming	5,094								5094.03
H. Urea application	3,699								3698.72
I. Other carbon-containing fertilizers	591								590.95
J. Other	-	1,514	122						1636.65
4. Land use, land-use change and forestry(1)	-239719.76	16759.23	11,090						-211870.97
A. Forest land	- 293,237	2,433	4,971						-285833.06
B. Cropland	30,564	1,536	1,381						33481.06
C. Grassland	11,731	3,711	728						16168.80
D. Wetlands	12,894	8,555	242						21690.08
E. Settlements	26,903	281	3,719						30902.52
F. Other land	1,115	0	49						1164.83
G. Harvested wood products	- 29,716	-							-29715.55
H. Other	26	244	-						270.35
5. Waste	1986.12	94217.46	11900.77						108104.36
A. Solid waste disposal	-	72,963							72962.51
B. Biological treatment of solid waste		4,768	1,828						6595.82
C. Incineration and open burning of waste	1,974	400	343						2716.95
D. Waste water treatment and discharge		16,079	9,705						25783.47
E. Other	12	9	25						45.61
6. Other (as specified in summary 1.A)	-	-	-	-	-	-	-	-	NO

Memo items:									
International bunkers	199,143	862	2,105						252300.04
Aviation	124,200	78	1,300						125578.77
Navigation	96,719	788	961						126721.27
CO2 emissions from biomass	393,869								489562.26
CO2 captured	51								51.48
Indirect CO2 (2)	3,716								
Total CO2 equivalent emissions without land use, land-use change and forestry									3035179.07
Total CO2 equivalent emissions with land use, land-use change and forestry									2823308.10
Total CO2 equivalent emissions, including indirect CO2, without land use, land-use change and forestry									3038895.44
Total CO2 equivalent emissions, including indirect CO2, with land use, land-use change and forestry									2827024.48

2.2 Sectoral results

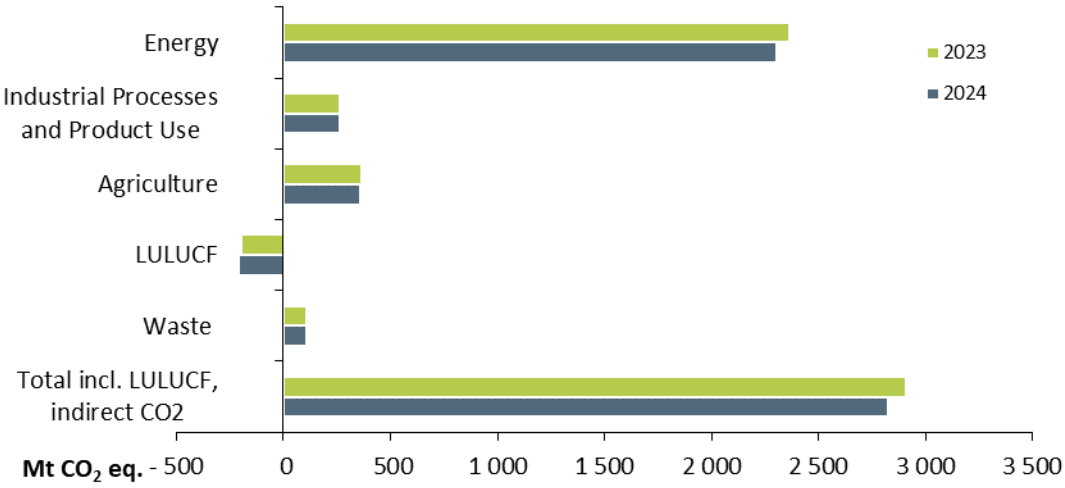
Table 2-3 and Figure 2-5 show the changes between 2023 and 2024 at the sectoral level for the EU27.

Table 2-3 Emissions by sector, change 2023-2024

Change 2023 / 2024, EU27	Mt CO_2 eq.	%
Energy	-61.0	-2. 6%
Industrial Processes and Product Use	-1.3	-0.5%
Agriculture	-4.3	-1.2%
LULUCF	-13.5	-6.8%
Waste	-0.8	-0.7%
Total incl. LULUCF incl. indirect CO_2	-80.5	-2.8%

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Figure 2-5 Emissions by sector, EU27, 2023-2024



Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

On a sectoral basis, the largest absolute emission change occurred in the Energy sector (i.e. all combustion activities and fugitive emissions from energy). GHG emissions decreased by 61.0 Mt CO_2 eq. (-2.6 %) across the EU. More detailed explanations for the trends in the energy sector are provided in section 2.2.1.

The greenhouse gas emissions from Industrial Processes and Product Use decreased by 1.3 Mt CO_2 eq. (−0.5 %), the agricultural sector experienced a decrease of 4.3 Mt CO_2 eq. (-1.2 %), LULUCF net sink increased by 13.5 Mt CO_2 eq. and the waste sector indicated a decrease of 0.8 Mt CO_2 eq. (−0.7 %).

2.2.1 Energy

Emissions from the energy sector contributed about 81.3 % of total EU emissions in 2023 and are expected to have slightly increased share of 81.5 % of total EU emissions for 2024. Emissions from fuel combustion saw a decrease of 55.2 Mt CO_2 eq. or 2.4 % compared to 2023. Table 2-4 shows that the largest change in the sector 1.B Fugitive Emissions from Fuels (-5.8 Mt CO_2 eq. or -10.6 %), followed by a decrease in fuel

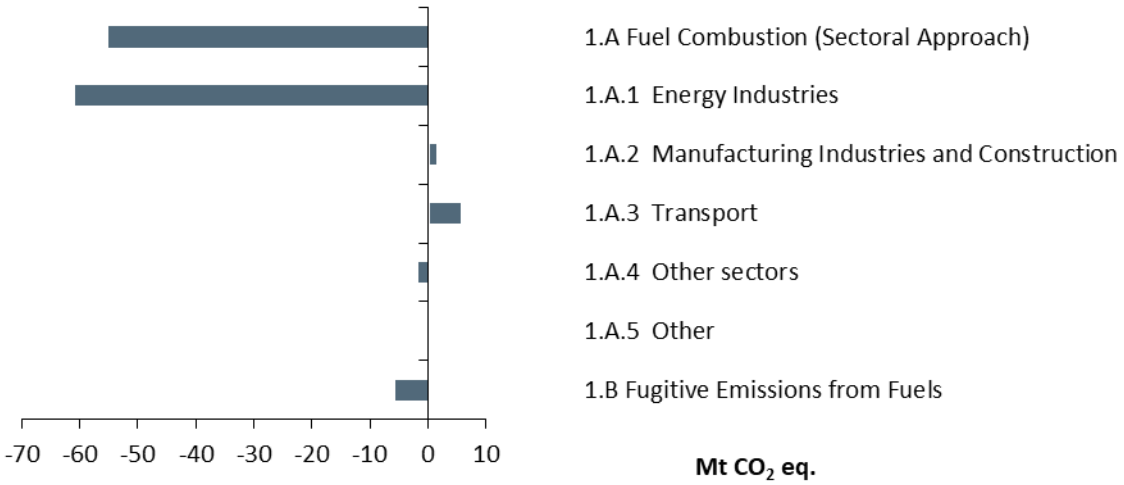
combustion emissions occurred in 1.A.1 Energy Industries with a decrease of 61.0 Mt CO_2 eq. (-8.7 %) and 1.A.4 Other sectors (-1.9 Mt CO_2 eq. or -0.4 %). The largest increases occurred in sector 1.A.3 Transport (5.8 Mt CO_2 eq. or 0.7 %). In sectors 1.A.2 Manufacturing Industries and Construction (1.5 Mt CO_2 eq. or 0.4 %) and 1.A.5 Other (0.3 Mt CO_2 eq. or 4.6 %) emissions increased only slightly.

Table 2-4 Energy sector emissions, change 2023-2024

Change 2023 / 2024, EU27	Mt CO_2eq	%
1.A Fuel Combustion (Sectoral Approach)	-55.2	-2.4%
1.A.1 Energy Industries	-61.0	-8.7%
1.A.2 Manufacturing Industries and Construction	1.5	-0.4%
1.A.3 Transport	5.8	0.7%
1.A.4 Other sectors	-1.9	-0.4%
1.A.5 Other	0.3	-4.6%
1.B. Fugitive Emissions from Fuels	-5.8	-10.6%

Source: The EEA's ETC/CM, based on the 2024 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Figure 2-6 Energy sector emissions, EU27 change 2023-2024



Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2024 and proxy estimates for 2024.

The largest increase in emissions for 1.A Fuel Combustion on Member States level was noted for Romania (+17.5 Mt CO_2 eq.) and Sweden (+3.1 Mt CO_2 eq.). The largest emission decrease was in Germany (− 21.6 Mt CO_2 eq.) followed by Poland (−16.5 Mt CO_2 eq.) and Italy (−9.4 Mt CO_2 eq.).

Going to more detail in the subcategory 1.A.1 Energy Industries, the largest reduction was in Germany (−17.5 Mt CO_2 eq.), followed by the Italy (−11.3 Mt CO_2 eq.), Poland (−9.1 Mt CO_2 eq.) and Czechia (−5.8 Mt CO_2 eq.). The largest increases were in Romania (+4.9 Mt CO_2 eq.) and Slovenia (+0.3 Mt CO_2 eq.). In the sector 1.A.2 Manufacturing Industries and Construction, the largest decrease was in France (−0.7 Mt CO_2 eq.), followed by Poland (−0.6 Mt CO_2 eq.) and Croatia (−0.5 Mt CO_2 eq.)., The largest increase occurred in Romania with 3.6 Mt CO_2 eq. increase followed by Netherland with 0.6 Mt CO_2 eq.).

The largest increase in emissions from 1.A.3 Transport was in Romania (+6.7 Mt CO_2 eq.), Sweden (+3.0 Mt CO_2 eq.) and Spain (+1.8 Mt CO_2 eq.). The most significant decrease was in Poland (-2.7 Mt CO_2 eq.) and Germany (-2.1 Mt CO_2 eq.).

2.2.2 Industrial Processes and Product Use

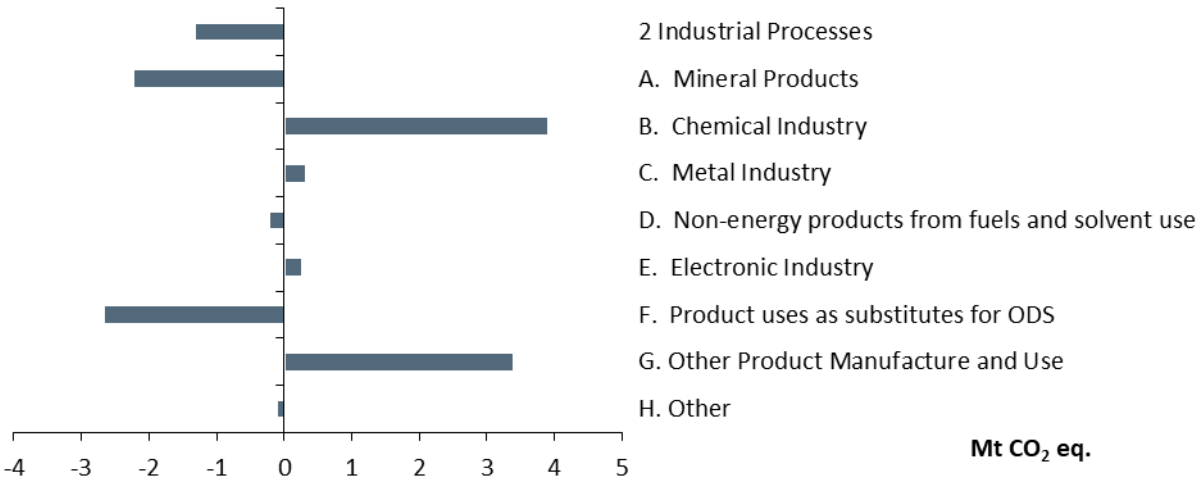
The Sector Industrial Processes and Product Use (IPPU) contribute to about 9 % of total EU emissions and is the third most important source after energy and agriculture. Emissions from Industrial Processes decreased by 1.3 Mt CO_2 eq. in the EU (-0.5 %). Table 2-5 and Figure 2-7 show the subsector contribution to this trend in emissions. The largest emission decrease occurred in the subsector 2.F Product uses as substitutes for ODS followed by 2.A Mineral products, 2.D Non-energy products from fuels and solvent use and 2.A Mineral Products. The increases occurred in the subcategory B. Chemical and G. Other Product Manufacture and Use.

Table 2-5 Industrial Processes and Product Use emissions, change 2023-2024

Change 2023 / 2024, EU27	Mt CO_2 eq.	%
2 Industrial Processes	-1.3	-0.5%
A. Mineral Products	-2.2	-2.5%
B. Chemical Industry	3.9	8.3%
C. Metal Industry	0.3	0.6%
D. Non-energy products from fuels and solvent use	-0.2	-3.5%
E. Electronic Industry	0.3	52.6%
F. Product uses as substitutes for ODS	-2.7	-4.7%
G. Other Product Manufacture and Use	-0.2	-3.7%
H. Other	-0.1	-38.7%

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Figure 2-7 Industrial Processes and Product Use emissions, EU27, change 2023-2024



Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

In nine of the EU27 Member States emissions from IPPU increased. The largest increase of IPPU emissions was in Netherland (+1.6 Mt CO_2 eq.) followed by Spain, Belgium and Poland with (+0.8 Mt CO_2 eq.) while

the largest decreases were in Italy (−2.3 Mt CO_2 eq.) followed by France (−0.8 Mt CO_2 eq.) and Slovakia (−0.6 Mt CO_2 eq.).

In the subcategory 2.A Mineral Products, emissions decreased in the EU by 2.3 Mt CO_2, the highest decrease is in Germany (-1.1 Mt CO_2) and France (-0.8 Mt CO_2), the largest increase in Czechia was +1.1 Mt CO_2 eq.

Emissions from 2.B Chemical Products increased in the EU (+3.9 Mt CO_2 eq. or +8.2 %). The largest decrease was in the Spain (-0.2 Mt CO_2 eq.) while the largest increase was in Netherlands (+1.5 Mt CO_2 eq.).

Emissions from 2.C Metal Industry decreased by -0.3 Mt CO_2 eq. or -0.6 % with the largest decrease in Slovakia (-0.7 Mt CO_2 eq.) while the largest increase occurred in Belgium (+0.9 Mt CO_2 eq.)

The subsector 2.D Non-energy Products from Fuels and Solvent Use has had less significant decrease in the emissions (-0.2 Mt CO_2 eq. or -3.5 %). The highest increase was in Romania (+0.04 Mt CO_2 eq.) and highest decrease in France (-0.4 Mt CO_2 eq.).

The subsector 2.F Product uses as substitutes for ODS saw emissions increase by 2.7 Mt CO_2 eq. (+4.7 %). In six Member States emissions increased in this source category, in 16 Member States emissions decreased and four Member States reported constant values. The largest decrease of emissions was in Italy, where 2.F emissions fell by 2.0 Mt CO_2 eq. and in Czechia (−0.9 Mt CO_2 eq.). The highest increase was in Spain (+0.9 Mt CO_2 eq.).

2.2.3 Agriculture

Agriculture (excluding LULUCF) contributes to under 13 % of European GHG emissions. Emissions from agriculture decreased by 4.3 Mt CO_2 eq. or 1.2 % since 2023. The largest greenhouse gas emitting activities within the sector are CH_4 from livestock and N_2O from soils. Enteric fermentation and soils contributed about 49 % and 30 % of the sector's emissions respectively. As shown in Table 2-6 and Figure 2-8 the decrease in agriculture sector emissions is largely driven by decreased emissions from 3.A Enteric fermentation and 3.B Manure management. The largest increase was in the subcategory 3.G Liming.

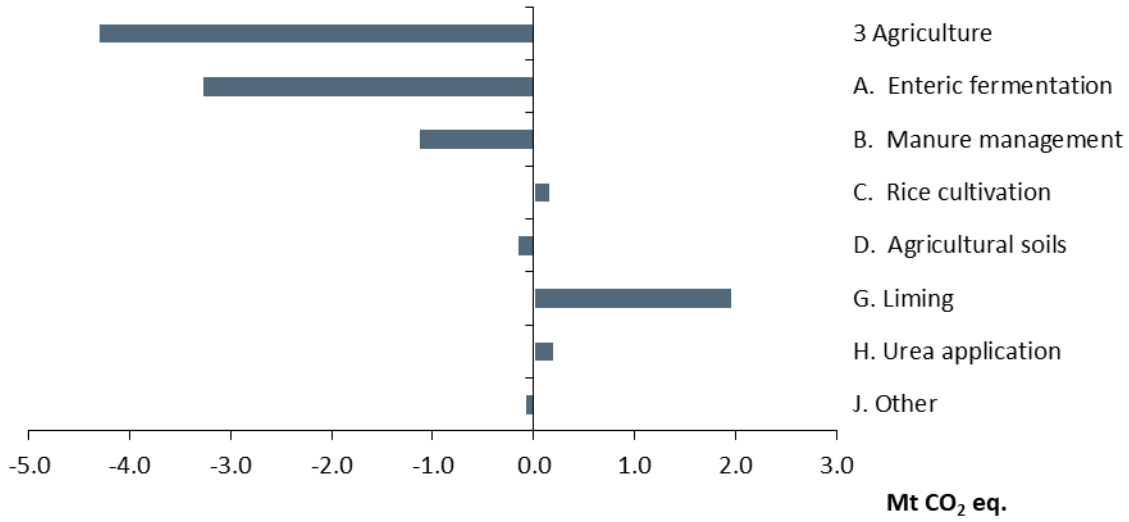
Table 2-6 and Figure 2-8 show the subsector 2023-2024 change, with CH_4 and N_2O emissions shown as CO_2 equivalents (Mt CO_2 eq.).

Table 2-6 Agriculture sector emissions, change 2023-2024

Change 2023/2024, EU27	Mt CO_2 eq.	%
3 Agriculture	-4.3	-1.2%
A. Enteric fermentation	-3.3	-1.8%
B. Manure management	-1.1	-1.8%
C. Rice cultivation	0.2	7.1%
D. Agricultural soils	-0.2	-0.2%
E. Prescribed burning of savannas	0.0	-
F. Field burning of agricultural residues	0.0	-0.9%
G. Liming	2.0	62.9%
H. Urea application	0.2	6.0%
I. Other carbon-containing fertilizers	-0.1	-14.4%
J. Other	-0.1	-5.1%

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Figure 2-8 Agriculture sector emissions, EU27, change 2023-2024



Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Emissions from Enteric Fermentation decreased by 3.3 Mt CO_2 eq. or -1.8 %. The largest decrease was in Germany (-0.8 Mt CO_2 eq.). Emissions of CH_4 and N_2O from manure management contribute to about 17 % of the agriculture sector and have decreased by 1.4 Mt CO_2 eq. or -1.8 %. The largest decrease was in Italy (-0.4 Mt CO_2 eq.). Agricultural soils have decreased by 0.2 Mt CO_2 eq. or -0.2 %. The largest decrease was seen in Czechia (-0.3 Mt CO_2 eq.) and Romania (-0.2 Mt CO_2 eq.). The largest increase was in Spain (+0.4 Mt CO_2 eq.).

2.2.4 Land use, land-use change and forestry

In the EU, the LULUCF sector has higher removals by sinks than emissions by sources, resulting in a net carbon sink. LULUCF removals increased between 2023 and 2024 (-13.5 Mt CO_2 eq. or 6.8 %). Table 2-7 and Figure 2-9 show the subsector contributions to this trend. The trends of 4.A Forest land significantly dominate the LULUCF sector.

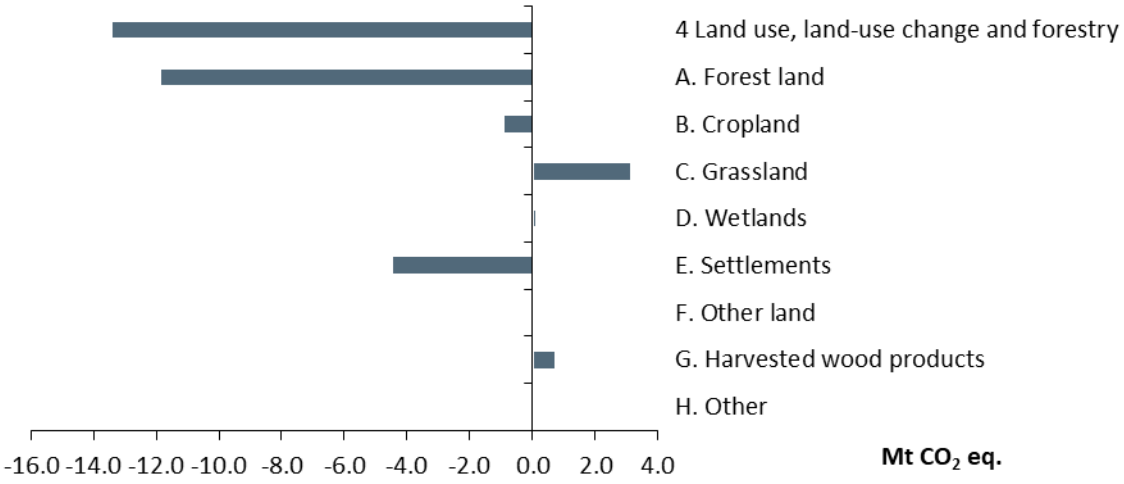
In 2024, eight Member States reported net removals within the LULUCF sector while ten Member States reported net emissions. For the remaining nine Member States constant emissions were estimated. The largest increase of removals was noted for Germany (−17.4 Mt CO_2 eq.) and Czechia (−2.0 Mt CO_2 eq.), on the contrary the largest increase in emissions was seen in Portugal (+2.6 Mt CO_2 eq.).

Table 2-7 LULUCF sector emissions and removals, change 2023-2024

Change 2023/2024, EU27	Mt CO_2 eq.	%
4 Land use, land-use change and forestry	-13.5	-6.8%
A Forest land	-11.9	4.3%
B Cropland	-0.9	-2.7%
C Grassland	3.1	24.1%
D Wetlands	0.1	0.6%
E Settlements	-4.5	-12.7%
F Other land	0.0	1.8%
G Harvested wood products	0.8	-2.5%
H Other	0.0	0.0%

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Figure 2-9 LULUCF sector emissions and removals, EU27, change 2023-2024



Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

2.2.5 Waste

The Waste sector contributes to about 3.8 % of European emissions. Waste related emissions continue to decrease reflecting the large relative proportion of emissions from solid waste disposal (68 % share of Waste emissions) and the ongoing effect of restrictions on landfilling of organic degradable waste that was implemented decades ago.

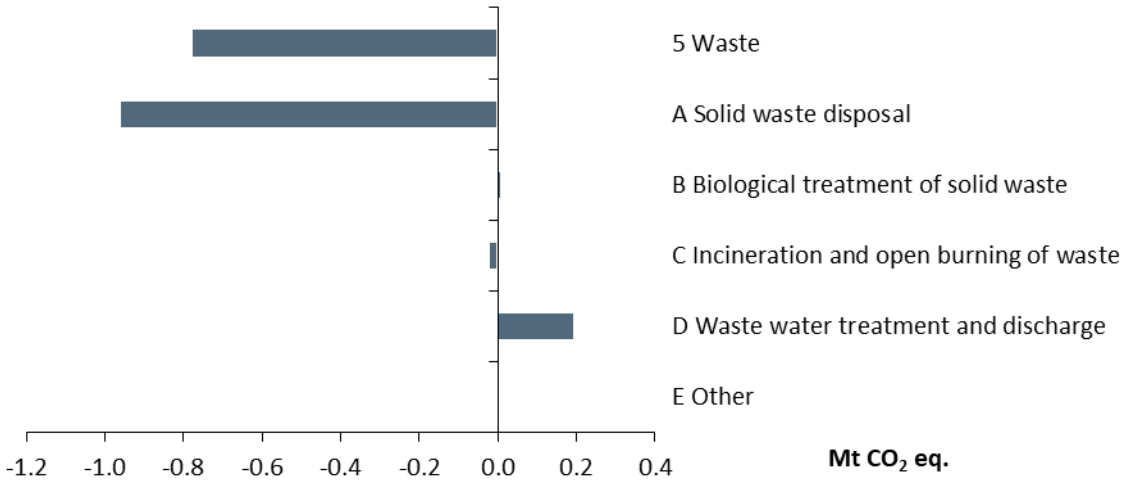
Emissions from the Waste sector decreased by −0.8 Mt CO_2 eq. or 0.7 % compared to 2023. Table 2-8 and Figure 2-10 show the subsector contributions to this trend in emissions. Bulgaria, Czech Republic, Denmark, Spain, France and Romania reported same 2023 values as 2024 values.

Table 2-8 Waste sector emissions, change 2023-2024

Change 2023/2024, EU27	Mt CO_2 eq.	%
5 Waste	-0.8	-0.7%
A. Solid Waste Disposal	-1.0	-1.3%
B. Biological Treatment of Solid Waste	0.0	0.2%
C. Incineration and Open burning of Waste	0.0	-0.9%
D. Wastewater Treatment and Discharge	0.2	0.8%
E. Other	0.0	-2.9%

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

Figure 2-10 Waste sector emissions, EU27, change 2023-2024



Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023 and proxy estimates for 2024.

The largest decrease of waste emissions was noted for Italy (-0.4 Mt CO_2 eq.). The trends of 5.A Solid Waste emissions generally dominate the waste sector. Fifteen Member States decreased emissions from solid waste (largest decrease in Italy with −0.5 Mt CO_2 eq.) while four Member States had an increase in emissions (the largest one in Spain with +0.1 Mt CO_2 eq.) For the remaining Member States constant emissions were estimated. Bulgaria, Czechia, Denmark, Spain, France and Romania, did not update their emissions in this sector.

2.3 ETS versus ESR

Within the European Union there are three policy instruments for achieving the GHG emission reductions: One part is covered by the EU Emissions Trading System (ETS) while the other is the Effort Sharing Regulation (ESR) which replaced Effort Sharing Decision (ESD) since 2021. The LULUCF Regulation covers emissions and reductions in the LULUCF sector.

ESR emissions are calculated by deducting ETS emissions and CO_2 emissions from domestic aviation from total emissions including indirect CO_2 emissions. LULUCF is excluded from ESR emissions.

$$E_{ESR} = E_{total} - E_{Biomass,CO2} - E_{ETS} - E_{1A3a,CO2}$$

E_{ESR}	Emission under Effort Sharing Regulation
E_{total}	Total emissions excl. LULUCF incl. indirect CO_2
$E_{Biomass,CO2}$	Negative emissions from CO_2 captured from biomass combustion and transferred to long-term storage
E_{ETS}	Emissions included in the ETS
$E_{1A3a,CO2}$	CO_2 emissions from domestic aviation

Table 2-9 shows total (excluding LULUCF, including indirect CO_2), ETS and Effort Sharing emissions per country. ETS emissions are taken from the EEA ETS data viewer (EEA 2025 c) for stationary installations. ESR emissions are calculated as described in the formula above. Relative changes in emissions between the years 2023 and 2024 can be seen on the right.

Table 2-9 Total, ETS and ESR emissions 2023 and 2024, kt CO_2 eq.

MS	2023 GHG emissions			2024 GHG emissions			Change 2024 versus 2023		
	Total	ETS	ESR	Total	ETS	ESR	Total	ETS	ESR
AT	68 696	24 413	44 259	66 940	23 923	42 997	-2.6%	-2.0%	-2.9%
BE	98 221	35 403	62 816	98 951	35 851	63 098	0.7%	1.3%	0.4%
BG	45 365	21 640	23 710	44 033	19 000	25 032	-2.9%	-12.2%	5.6%
CY	8 504	4 343	4 160	8 887	4 347	4 540	4.5%	0.1%	9.1%
CZ	102 487	46 672	55 811	98 112	40 563	57 545	-4.3%	-13.1%	3.1%
DE	672 020	289 346	381 715	649 059	272 786	375 322	-3.4%	-5.7%	-1.7%
DK	39 286	9 243	29 859	37 252	8 321	28 755	-5.2%	-10.0%	-3.7%
EE	10 862	5 260	5 600	10 430	4 497	5 930	-4.0%	-14.5%	5.9%
ES	269 968	81 134	185 589	268 518	76 915	188 134	-0.5%	-5.2%	1.4%
FI	41 103	15 360	25 611	38 815	13 268	25 403	-5.6%	-13.6%	-0.8%
FR	376 397	70 652	296 884	369 204	63 485	301 430	-1.9%	-10.1%	1.5%
EL	71 935	25 466	46 063	69 245	26 549	42 260	-3.7%	4.3%	-8.3%
HR	25 419	6 567	18 822	24 361	5 492	18 838	-4.2%	-16.4%	0.1%
HU	54 313	13 437	40 875	53 923	12 697	41 225	-0.7%	-5.5%	0.9%
IE	54 934	12 194	42 720	53 752	11 297	42 433	-2.2%	-7.4%	-0.7%
IT	384 742	114 784	267 581	371 636	101 394	267 809	-3.4%	-11.7%	-0.1%
LT	17 888	4 752	13 136	18 280	4 962	13 317	2.2%	4.4%	1.4%
LU	7 769	890	6 878	7 611	831	6 779	-2.0%	-6.6%	-1.4%
LV	9 981	1 739	8 242	9 732	1 600	8 132	-2.5%	-8.0%	-1.3%
MT	2 246	797	1 448	2 175	736	1 437	-3.2%	-7.6%	-0.7%
NL	142 637	58 887	83 161	142 536	59 864	82 033	-0.1%	1.7%	-1.4%
PL	348 436	153 019	195 283	331 695	148 708	182 860	-4.8%	-2.8%	-6.4%
PT	53 250	12 762	39 983	50 930	11 279	39 146	-4.4%	-11.6%	-2.1%
RO	103 862	23 830	79 974	116 535	22 903	93 574	12.2%	-3.9%	17.0%
SE	44 386	17 234	26 813	47 474	16 676	30 503	7.0%	-3.2%	13.8%
SI	14 804	4 582	10 222	15 392	5 007	10 384	4.0%	9.3%	1.6%
SK	36 115	16 994	19 119	33 419	15 308	18 110	-7.5%	-9.9%	-5.3%
EU27	3 105 625	1 071 401	2 016 335	3 038 895	1 008 259	2 017 013	-2.1%	-5.9%	0.0%
IS	4 646	1 813	2 817	4 773	1 889	2 869	2.7%	4.2%	1.8%
NO	46 675	21 327	24 392	45 007	20 452	23 603	-3.6%	-4.1%	-3.2%

Note: Only emissions from stationary installations are included in these ETS data hence emissions from aviation are excluded.

Total emissions are without LULUCF, including indirect CO_2.

Source: The EEA's ETC/CM, based on the 2025 Member States' GHG inventories submitted to the EU for the years 1990-2023, proxy estimates for 2024 totals. ETS data is from EUTL (verified emissions for 2023 and 2024, not from the Member States proxies). Value for domestic aviation (which is used for calculation of ESR emissions) was obtained from Eurocontrol.

Total emissions excluding LULUCF and including indirect CO_2 changed by -2.2 % within the EU between 2023 and 2024. Emissions decreased in the ETS sector and the remained unchanged in the ESR sector. The decrease in the ETS sector (-5.9 %) is significant. Figure 2-11 illustrates all emission trend changes.

In absolute terms, the total emission decrease in the EU was -66 Mt CO_2 eq. A decrease of 63 Mt CO_2 eq. occurred in the ETS sectors.

ETS emissions decreased in 21 Member States. The largest absolute decrease was experienced in Germany (−16.5 Mt CO_2 eq.), followed by Poland (−13.4 Mt CO_2 eq.). Croatia saw the highest relative ETS emission decrease (−16.4 %).

In six EU Member States ETS emissions increased. The largest absolute increase was experienced in Greece (+1.1 Mt CO_2 eq.). Slovenia saw the highest relative ETS emission increase (+9.3 %).

ESR emissions decreased in 13 Member States. The largest absolute decrease was experienced in Poland (−12.8 Mt CO_2 eq.), followed by Germany (−6.4 Mt CO_2 eq.) and Greece (−3.8 Mt CO_2 eq.).

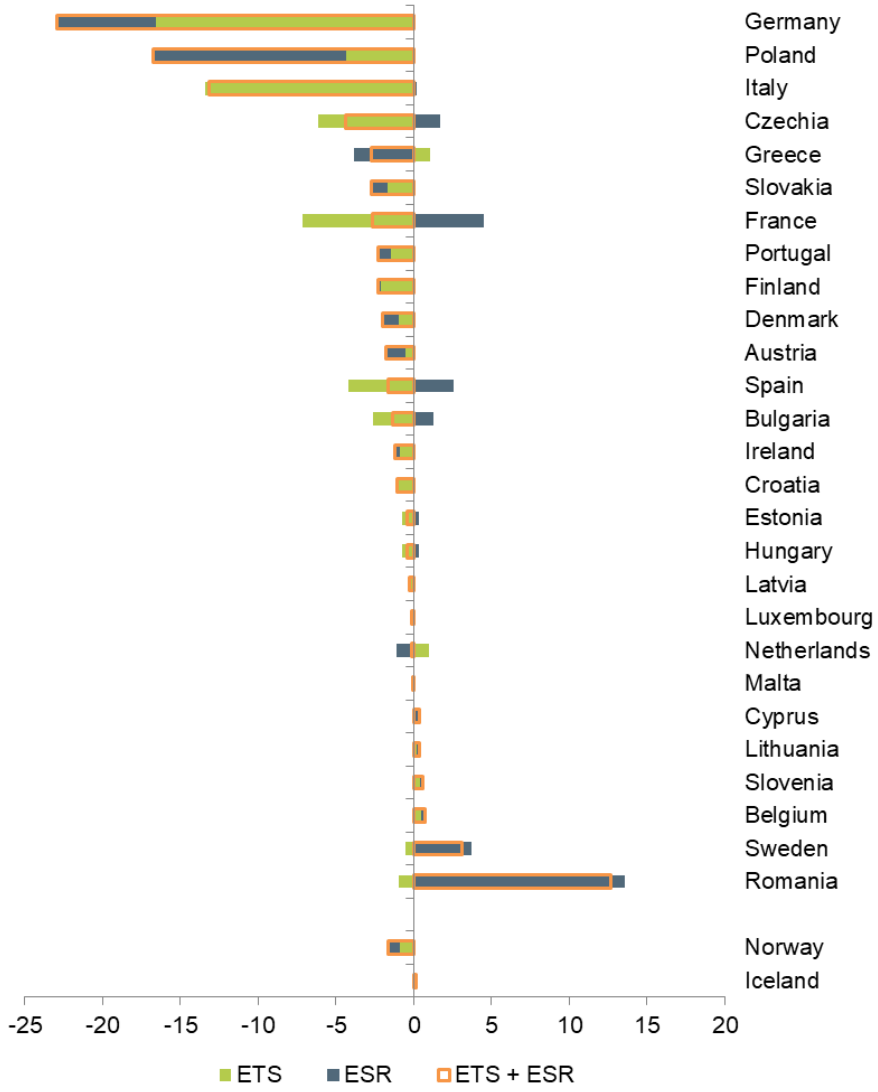
Fourteen Member States saw increases in ESR emissions. The largest absolute and relavite ESR emission increase was in Romania (+13.6 Mt CO_2 eq.) and the largest relative increase was in Romania (+17.0 %).

Increases of both ETS and ESR emissions can be observed for four Member States. On the other hand, there are 11 Member States which had decreases in both ETS and ESR emissions.

In ten Member States emissions in the ETS sector decreased while emissions in the ESR sector increased. A contrasting development can be observed in two Member States, where ETS emissions increased and ESR emissions decreased.

The emission trends both in the ETS and the ESR resemble the emission changes discussed in chapter 2.2.

Figure 2-11 ETS and Effort Sharing emissions, change 2023-2024



3 Performance of last year's EU proxy

National GHG inventories are required to fulfil certain principles as laid out in the UNFCCC reporting guidelines for GHG inventories: inventories must be transparent, consistent, comparable, complete and accurate (TCCCA). The IPCC Guidelines (IPCC, 2006) recommends Parties to perform QA/QC procedures that are important information to enable continuous improvement to inventory estimates. Through the quantification of deviations at the source level and for the inventory, improvements can be prioritized. Thus, Parties may change methodologies to improve their greenhouse gas estimates at source level (e.g. moving from Tier 2 to Tier 3), or get updated data from different sources (inventories, modelling etc.). Such methodological changes and updates at Member States level cannot be captured in the calculation of the approximated GHG inventory for the EU. On-going quality improvements in Member States' inventories to take effect in next year's official submissions to UNFCCC are therefore a source of uncertainty for the EU proxy inventory.

This section compares the differences between the previous proxy estimates and the subsequent official inventory submissions. Since the previous proxy estimates emphasised, total emissions including indirect CO_2 and LULUCF (total net emissions), the total emissions mentioned in this chapter include indirect CO_2 and LULUCF as well.

Last year's proxy GHG estimates for 2023 underestimated the GHG emissions (Total EU emissions including indirect CO_2, including LULUCF) for the EU by 45.2 Mt CO_2 eq. or 1.6 %.

The effect of Member States' recalculations of GHG estimates and methodological improvements dominate the differences of the 2023 proxy emission estimates compared to 2023 emissions officially reported in 2025. After taking these recalculations into account difference between the proxy GHG inventory for 2023 and final GHG inventory submission was 0.2 % for total emissions for the EU.

3.1 Difference between MS proxy and final GHG inventories

The proxy submissions by Member States closely mirrored the decrease in official emissions as reported to the EU this year. The differences per Member State given in Table 3-1 arise from several factors: different methodologies and data with varying precision used across the Member States (resp. ETC/CM for gap-filling); the lack of updated (t-1) activity data for some key emission sources; and, from Member States' own recalculations of GHG estimates and methodological improvements which mainly cannot be reflected in the approximated data where usually constant methodologies and emission factors are assumed.

The largest deviations in relative terms occurred for Sweden (proxy 77.2 % lower), followed by Slovenia (proxy 37.5 % higher). In absolute terms the deviations were highest for Germany (underestimate by proxy of 63.1 Mt CO_2 eq.) and Italy (overestimate by proxy of 29.3 Mt CO_2 eq.). By comparing the percentage changes in emission levels 2022/2023 as derived from the 2024 proxy GHG inventory[3] on the one hand and from the 2025 official GHG inventory submissions to UNFCCC on the other, the deviations are in almost all cases in the same order of magnitude, see Figure 3-1. Also the direction of the emission trend was estimated correctly.

After considering recalculations, the relative differences were largest for Sweden (+85.4 %) and Croatia (-15.1 %).

[3] The 2022 value used in this recalculation comes from 2024 submission.

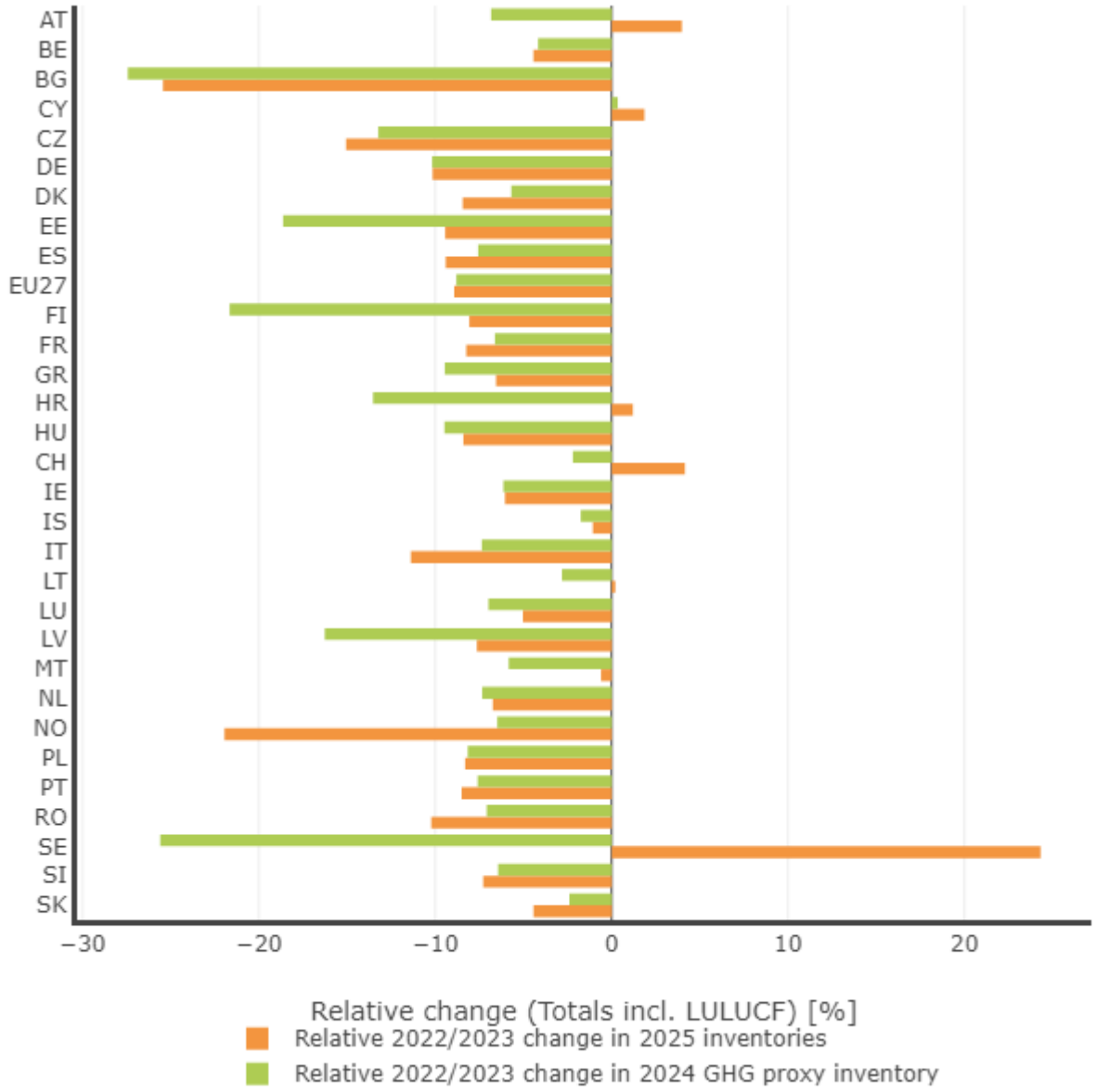
Table 3-1 Difference per Member State for year 2023 between proxy and final GHG inventories

MS	Inventory 2023 (Submission 2025)	Proxy 2023 (Submission 2024)	Deviation 2023		Recalcu-lations	Deviation 2023 cleared of impact of recalculations	Proxy calculated by
	kt CO_2 eq.			%			
AT	76226	63696	-12530	-16.4	7.2	-9.2	MS
BE	97915	98866	951	1.0	-0.7	0.3	MS
BG	36764	35518	-1245	-3.4	0.7	-2.6	ETC/CM
CY	8193	8508	315	3.9	-5.1	-1.3	MS
CZ	98918	105046	6128	6.2	-3.8	2.4	MS
DE	740673	677568	-63106	-8.5	9.3	0.8	MS
DK	38785	39303	518	1.3	1.7	3.0	MS
EE	12993	11629	-1365	-10.5	0.4	-10.1	MS
ES	218935	228106	9172	4.2	-2.1	2.1	MS
FI	53102	39283	-13819	-26.0	15.2	-10.8	MS
FR	339016	352204	13187	3.9	-2.0	1.8	MS
EL	67832	65983	-1848	-2.7	-0.4	-3.1	MS
HR	19893	18006	-1888	-9.5	-5.6	-15.1	MS
HU	48502	47734	-768	-1.6	0.4	-1.2	MS
IE	58829	60624	1795	3.1	-3.1	0.0	MS
IT	331153	360441	29288	8.8	-4.0	4.9	MS
LT	12634	12232	-402	-3.2	0.2	-3.0	MS
LU	7093	7017	-76	-1.1	-1.0	-2.1	MS
LV	14610	12623	-1987	-13.6	4.9	-8.7	MS
MT	2247	2131	-116	-5.1	-0.1	-5.3	MS
NL	146441	146815	374	0.3	-0.9	-0.6	MS
PL	315780	316730	950	0.3	-0.1	0.2	MS
PT	51217	46624	-4593	-9.0	10.9	2.0	MS
RO	57438	58768	1331	2.3	1.2	3.5	MS
SE	13162	3000	-10162	-77.2	162.6	85.4	MS
SI	10513	14451	3938	37.5	-26.6	10.9	MS
SK	28339	29112	773	2.7	-0.6	2.1	MS
EU27	2907204	2862019	-45185	-1.6	1.7	0.2	ETC/CM

Note: Total GHG emissions with LULUCF including indirect CO_2

Source: Member States submissions to the EU and proxy estimates for 2023.

Figure 3-1 Relative difference between proxy and submitted inventories by Member State 2022/2023



Note: Total GHG emissions with LULUCF including indirect CO_2

Source: Member States submissions to UNFCCC and proxy estimates for 2023.

3.2 Sectoral differences between proxy and final GHG inventories

At the sectoral level, the largest difference between the proxy and the final GHG inventory in absolute terms was in 4.A Forest land [LULUCF] (-34.2 Mt CO_2 eq.) and 4.B Cropland [LULUCF] (-13.9 Mt CO_2 eq.). After accounting for recalculation effects, the differences for LULUCF sector are significantly smaller. Apart from LULUCF sector, the highest differences were in 1.A.2 Manufacturing Industries and Construction [Energy] (+7.7 Mt CO_2 eq.) and 1.A.1 [Energy] (-4.7 Mt CO_2 eq.). Categories with highest relative deviation after allowing for recalculation effects were 4.C Grassland [LULUCF] (+45.4 %), 4.E Settlements [LULUCF] (-27.0 %) and 4.B Cropland [LULUCF] (+24.4 %), see Table 3-2.

Changes in the data reported as proxy in last year and as final in 2025 submissions to the EU are mostly affected by the sources of the activity data. The data available during preparation of the proxy inventory

for the Energy sector are based on preliminary data and energy balances provided by the statistical offices. For the inventory submitted in 2025 however, final energy balances were used. In case of the IPPU sector, data for the year X-1 is not usually available when preparing the approximated inventories, thus extrapolation and interpolation of the activity data are mostly used. In Agriculture and Waste there is usually the case that activity data are partly available (for instance population data), however statistical methods are also partly applied to estimate the proxy inventory.

Table 3-2 Difference per sector for year 2023 between proxy and final GHG inventories

Sector	Inventory 2023 (Submission 2025)	Proxy 2023 (Submission 2024)	Deviation 2023	Recalcu-lations	Deviation 2023 cleared of impact of recalculations
	kt CO_2eq			%	
Total incl. indirect CO_2 incl. LULUCF	**2907204**	**2862019**	**-45185**	**-1.6**	**1.7**	**0.2**
1 Energy	**2363955**	**2375550**	**11595**	**0.5**	**0.0**	**0.5**
1.A Fuel combustion	2309766	2318316	8550	0.4	0.0	0.4
1.A.1 Energy industries	699547	694861	-4686	-0.7	0.0	-0.7
1.A.2 Manufacturing industries	363430	371129	7699	2.1	-0.2	1.9
1.A.3 Transport	794394	797184	2790	0.4	0.1	0.5
1.A.4 Other sectors	445070	448040	2970	0.7	0.2	0.8
1.A.5 Other	7325	7102	-223	-3.0	-0.2	-3.2
1.B Fugitive emissions	54189	57234	3045	5.6	-1.7	3.9
2 Industrial processes & product use	**264784**	**273917**	**9133**	**3.4**	**-0.5**	**2.9**
2.A Mineral products	88414	92256	3842	4.3	0.1	4.4
2.B Chemical industry	47344	47955	612	1.3	-1.5	-0.2
2.C Metal production	58583	61099	2516	4.3	-0.6	3.7
2.D Non-energy products	6235	7341	1106	17.7	-1.6	16.1
2.E Electronic Industry	776	803	27	3.5	3.7	7.1
2.F Product uses as ODS substitutes	56947	57257	310	0.5	-0.2	0.3
2.G Other product manufacture and use	6207	6961	754	12.1	0.5	12.6
2.H Other	278	245	-33	-11.7	1.6	-10.1
3 Agriculture	**364936**	**358285**	**-6651**	**-1.8**	**0.5**	**-1.3**
3.A Enteric fermentation	179484	176762	-2722	-1.5	0.4	-1.1
3.B Manure management	62584	60781	-1803	-2.9	3.1	0.2
3.C Rice cultivation	2299	2471	172	7.5	-7.0	0.4
3.D Agricultural soils	108917	106612	-2305	-2.1	-0.3	-2.4
3.F Field burning of agricultural residues	763	947	183	24.0	-3.6	20.5
3.G Liming	5198	5254	55	1.1	-2.7	-1.7
3.H Urea application	3489	3260	-229	-6.6	-0.2	-6.7
3.I Other carbon-containing fertilizers	565	576	11	1.9	-4.5	-2.5
3.J Other	1637	1623	-14	-0.9	0.9	0.0
4 LULUCF	**-198421**	**-256557**	**-58136**	**29.3**	**-22.5**	**6.8**
4.A Forest land	-273959	-308164	-34205	12.5	-13.7	-1.2
4.B Cropland	34420	20447	-13973	-40.6	65.0	24.4
4.C Grassland	13028	18569	5541	42.5	2.9	45.4

Sector	Inventory 2023 (Submission 2025)	Proxy 2023 (Submission 2024)	Deviation 2023	Recalcu-lations	Deviation 2023 cleared of impact of recalculations
	kt CO_2eq			%	
4.D Wetlands	21558	22970	1412	6.5	2.0	8.5
4.E Settlements	35378	28976	-6403	-18.1	-8.9	-27.0
4.F Other land	1144	1136	8	-0.7	-1.3	-2.0
4.G Harvested wood products	-30482	-38924	-8442	27.7	-3.6	24.1
4.H Other LULUCF	270	274	4	1.5	0.0	1.5
5 Waste	**108508**	**108294**	**-214**	**-0.2**	**0.4**	**0.2**
5.A Solid waste disposal	73924	73787	-137	-0.2	-0.5	-0.7
5.B Biological treatment of solid waste	6586	6911	326	4.9	-3.9	1.1
5.C Incineration & open burning of waste	2740	3560	820	29.9	-16.0	14.0
5.D Waste water treatment & discharge	25588	23985	-1603	-6.3	8.5	2.2
5.E Other	47	51	4	9.5	-1.0	8.5

In the Energy sector, deviations are very small especially in the 1.A subcategories. For Energy sector overall deviations after recalculation is 0.5 %.

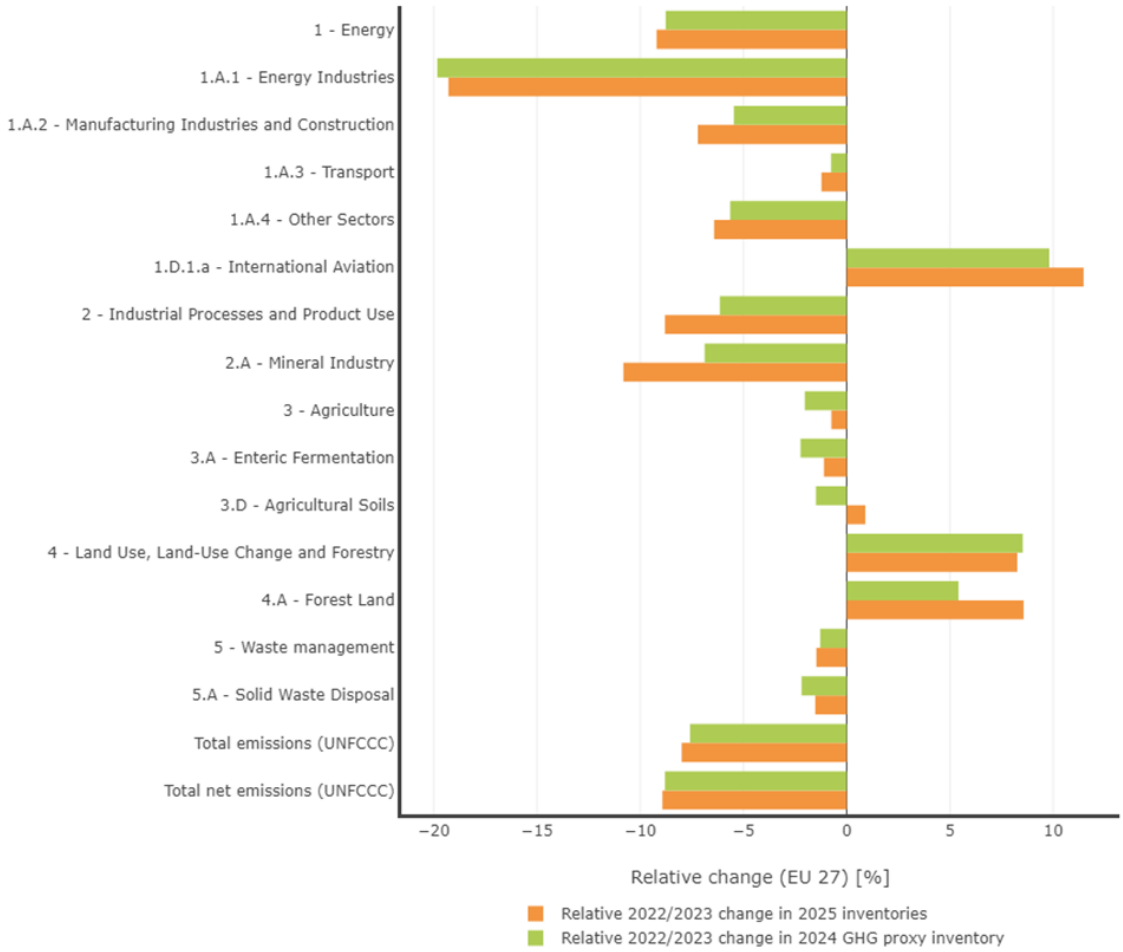
In IPPU, deviation before allowing for recalculation is +3.4 % and deviation after allowing for recalculations is +2.9 %. The largest relative deviations occurred in 2.D Non-energy Products from Fuels and Solvent Use (+16.1 %), followed by category 2.G Other product manufacture and use (+12.6 %). The largest absolute difference was in 2.A Mineral products (+3.8 Mt CO2 eq.).

In the Agricultural sector, deviation before allowing for recalculation is -1.8 % and deviation after allowing for recalculations is -1.3 %. This can indicate that most of the recalculations were already considered when approximated inventories were created. The largest absolute deviations were in 3.A Enteric fermentation (-2.7 Mt CO_2 eq.).

In the Waste sector, emissions before taking the recalculations effect into consideration were underestimated by 0.2 % whereas after taking the recalculations effect into consideration, the emissions were overestimated by 0.2 %. The largest absolute deviation was found in subsector 5.D Wastewater treatment & discharge (-1.6 Mt CO_2 eq.). The largest relative deviation was in 5.C Incineration & open burning of waste (+29.9 % or +14.0 % after considering recalculation).

By comparing the percentage changes in emission levels 2022/2023 as derived from the 2024 proxy GHG inventory on the one hand and from the 2025 official GHG inventory submissions to UNFCCC on the other by sectors, the differences are visible the most for 4.1 Forest Land, see Figure 3-2.

Figure 3-2 Relative difference between proxy and submitted inventories by sector 2022/2023



Note: Only sectors with GHG emissions of more than 70 Mt CO_2 eq. in 2023 are shown.

Source: Member States submissions to the EU and proxy estimates for 2023.

4 Methodologies and data sources at Member State level

4.1 Description of different approaches

This report presents the estimated GHG emissions for 2024 based on Member State emissions estimates, submitted to EEA by 31 July. The aggregated EU proxy GHG emission estimates are based on these submissions and gap filling where necessary.

Under the Regulation (EU) 2018/1999, which replaces Regulation (EU) 525/2013 on the mechanism for monitoring and reporting GHG emissions (EU MMR) and its implementing provisions, Member States submit, where possible, to the European Commission approximated GHG inventories by 31 July every year for the preceding year t–1. Where a Member State has not submitted a 'proxy' inventory, the EEA uses its own estimates for gap-filling purposes to have a complete approximated GHG inventory at EU level.

In previous years the EEA and its ETC/CM developed and used the latest activity data available at country level to estimate the emissions. For emission sources for which no appropriate data sets exist, emissions from the previous year are kept constant where historic data do not show a clear linear trend. That methodology which estimated emissions using a 'bottom-up' approach was complex and time-consuming. This year, submission of approximated greenhouse gas inventory was missing from Bulgaria, which has a share less than 2 % of the emissions of the whole EU. Previous year gap-filling for Bulgaria had -0.7 % deviation between the 2023 proxy and final GHG inventory of Bulgaria.

In some cases, it has been necessary to allocate or distribute the reported emissions to sectors or within sub-sectors. This is done to allow for the aggregation and explanation of trends at EU level. Details are given in section 4.4.

4.2 MS proxies submitted

Member States are responsible for the methodological choice regarding their own estimates. The MS should submit approximated GHG inventories for the preceding year (*t*–1) in accordance with the table in Annex VI of Regulation (EU) 2020/1208 which is based on Summary2 table of the Common Reporting Table (CRT). The implementing regulation of the EU Governance Regulation requires the calculation at a level of disaggregation of source categories reflecting the activity data and methods available for the preparation of the proxy estimates. Therefore, it is in line with the legislation if Member States submit only partially complete aggregated table with their proxy estimates. Additionally, Member States should split emissions – where available – into ETS and non-ETS emissions and shall provide information on drivers and trends for *t*–1.

4.3 Gap-filling for MS not submitting a proxy inventory

This year estimates by the EEA and ETC/CM are made for all source categories. Relevant data sources with updated activity or emissions data for the year *t*-1 were identified and used to calculate emissions. For source categories for which no international data sets with updated activity data exist or which are too complex for a simple approach, emissions from the previous year were kept constant. On this basis, a simple approach was developed covering the full scope of emissions included in a GHG inventory submission.

The EEA estimates are based on publicly available data sets at the European level. For the estimation of approximated emissions, the following data sources for emissions or activities were used:

- Verified emissions reported under the EU-ETS and recorded in the EUTL (EEA);
- Eurostat data on Supply, transformation and consumption

Based on these data sources, emission estimates for year 2024 were made for the following source categories:

- 1. Energy
  - 1.A Fuel Combustion
    - 1.A.1 Energy Industries
    - 1.A.2 Manufacturing Industries and Construction
    - 1.A.3 Transport
- 2. Industrial Processes and Product Use
  - 2.A Mineral Industry
  - 2.B Chemical Industry
  - 2.C Metal Production

All other source categories were filled by using previous year emissions.

The timing of these calculations depends on the release of the underlying data sources. The availability of data sources (including the MS GHG inventories) is shown in Table 4-1.

Table 4-1 Time of availability of data used for the proxy inventory

Data source	Availability
EUTL verified emissions	Data as of 1 September 2025 was used
Eurostat	Data as of 15 August was used for RES and 15 July 2025 for PEC.
GHG inventory data from CRT files	mid-April
Eurocontrol flight and emissions data	25 August

Source: ETC/CM

National GHG inventories are required to fulfil certain principles as laid out in the UNFCCC reporting guidelines for GHG inventories: inventories must be transparent, consistent, comparable, complete and accurate (TCCCA). The IPCC Good Practice Guidance recommends Parties to perform QA/QC procedures that are important information to enable continuous improvement to inventory estimates. Through the quantification of uncertainty at the source level and for the inventory, improvements can be prioritised. Thus, Parties may change methodologies to improve their greenhouse gas estimates at source level (e.g. moving from Tier 2 to Tier 3). Such methodological changes at Member States level cannot be captured in the calculation of the approximated GHG inventory for the EU. On-going quality improvements in Member States' inventories to take effect in next year's official submissions to UNFCCC are therefore a source of uncertainty for the proxy inventory.

It needs to be considered, that any recent national improvements of GHG reporting methodologies could not be considered for approximated GHG inventories calculated centrally by EEA and its ETC/CM, as the 2025 estimates for the 2024 proxy inventory were based on the national methodologies used for 2025 inventory submissions (covering emissions until 2023). Thus, revised methodologies and parameters at Member States level can result in differences between the final inventory and the proxy inventory.

4.3.1 Energy and IPPU emissions from selected categories

To estimate CO_2, CH_4 or N_2O emissions from 1.A.1 Energy industries, 2.A Mineral industry and 2.C Metal industry, the following calculation was performed.

$$E_{\mathrm{GHG}}^{Y-1} = \frac{E_{ETS,Activities}^{Y-1}}{E_{ETS,Activities}^{Y-2}} \cdot E_{GHG}^{Y-2}$$

E_{GHG}^{Y-1} Emission of CO_2, CH_4 or N_2O in source category in the proxy year
$E_{ETS,Activities}^{Y-1}$ ETS emissions for some activities in the proxy year
$E_{ETS,Activities}^{Y-2}$ ETS emissions for some activities in the previous year
E_{GHG}^{Y-2} Emission of CO_2, CH_4 or N_2O in source category in the previous year

ETS emission data from the European Transaction Log (EUTL) was used. The following table shows the ETS activities that were aggregated for the calculation.

Table 4-2 ETS activities used for the emission estimates

Energy industries	20-99 All stationary installations
Mineral industry	29 Production of cement clinker
	30 Production of lime, or calcination of dolomite/magnesite
	31 Manufacture of glass
	32 Manufacture of ceramics
	33 Manufacture of mineral wool
Chemical industry	38 Production of nitric acid
	41 Production of ammonia
Metal industry	24 Production of pig iron or steel
	25 Production or processing of ferrous metals
	28 Production or processing of non-ferrous metals

To estimate CO_2, CH_4 or N_2O emissions from 1.A.2 Manufacturing industries and construction and 1.A.3 Transport, the following calculation was performed.

$$E_{\mathrm{GHG}}^{Y-1} = \frac{E_{ESTAT,fuel\ consumption}^{Y-1}}{E_{ESTAT,fuel\ consumption}^{Y-2}} \cdot E_{GHG}^{Y-2}$$

E_{GHG}^{Y-1} Emission of CO_2, CH_4 or N_2O in source category in the proxy year
$E_{ESTAT,fuel\ consumption}^{Y-1}$ Consumption of selected fuel in the proxy year
$E_{ESTAT,fuel\ consumption}^{Y-2}$ Consumption of selected fuel in the previous year
E_{GHG}^{Y-2} Emission of CO_2, CH_4 or N_2O in source category in the previous year

The following table shows a description of Eurostat data used for the calculation.

Table 4-3 Eurostat data used for the emission estimates

Manufacturing industries and construction	Inland consumption – calculated: Natural Gas
Transport	Gross inland deliveries – calculated: Gas oil and diesel oil (excluding biofuel portion)

4.3.2 Other emissions

For the source categories not mentioned before the emission values from previous year (2023) were used as proxy estimates for the year 2024. Also, for all emissions of fluorinated greenhouse gases (HFCs, PFCs, SF_6, NF_3) previous year values were used as proxy estimates.

4.4 Methodology for gap-filling of partially complete proxy submissions

The approximated GHG emissions data are submitted by Member States in a form consistent with CRT Summary2 tables. However, these tables are not always submitted with complete sub-sector level disaggregation. Because EU emissions are the sum of the Member States' emissions, to achieve a complete EU proxy inventory, some gap filling has been required. For some MS proxies the reported emissions have been allocated or distributed within sub-sectors. This is done to allow for the aggregation and explanation of trends at EU level. Allocations were needed for Germany and Sweden. Waste sector total was changed to match sum of reported Waste sector gases for Cyprus.

4.4.1 Total CO_2 eq., including indirect CO_2, without LULUCF in ETS and non-ETS

Most Member States did report *Total CO_2 equivalent emissions, without LULUCF*. There has however been some ambiguity about how to report included indirect CO_2 emissions. In previous years, a total was included in cell J68 whether or not the total included indirect CO_2 emissions. Many MS leave this cell blank even if they do report indirect CO_2 emissions. For consistency this calculation has been adjusted (J68 =SUM J66, B65), in all proxy sheets so that there is a total shown in cell J68 whether or not the MS has calculated any indirect CO_2 emissions.

Most Member States provided a split of ETS and non-ETS emissions in their submissions.

4.4.2 F-gases

Emissions from fluorinated greenhouse gases (F-gases[4]) can appear in the following source categories of industrial processes and product use:

- 2.B Chemical industry
- 2.C Metal industry
- 2.E Electronic industry
- 2.F Product uses as ODS substitutes
- 2.G Other product manufacture and use
- 2.H Other

Germany reported F-gas emissions but did not disaggregate into source categories. Reported F-gas emissions were allocated using the shares of F-gas emissions per source categories of the latest available GHG inventories.

The gap-filling approach used for Bulgaria and Hungary (described in section 4.3), calculates proxy estimates for whole of the IPPU sector. For Bulgaria, the F-gas emissions were distributed in the same way as for Germany and Sweden using allocations derived from reports for the previous year.

4.4.3 Gap-filling LULUCF

Previous years values were applied to gap-fill LULUCF. Gap-filling was done only for Croatia.

4.4.4 Gap-filling aviation data

Gap-filling of aviation data was done by applying Eurocontrol data. International aviation was gap-filled for Denmark, Luxembourg and Portugal. Domestic aviation was gap-filled for all Member States. Eurocontrol aviation data is divided into three parts; international aviation, domestic aviation and to other

[4] F-gas emissions include emission of the following gases or groups of gases: hydrofluorocarbons = HFCs; perfluorocarbons = PFCs; sulphur hexafluoride = SF_6; nitrogen triflouride =NF_3.

aviation, when Eurocontrol has been uncertain where to allocate the data. Domestic aviation data has an effect on total ESR value.

4.4.5 Gap-filling navigation data

Gap-filling of international navigation data was done by applying Eurostat monthly data about supply and transformation of oil and petroleum products (Eurostat 2024). This database contains information about international maritime bunkers. International navigation was gap-filled for Denmark and Portugal.

5 References

Copernicus 2025. https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level

EEA 2025. Total GHG emissions and removals in the EU (europa.eu).

EEA 2025 a. The approximated energy efficiency estimates 2024, for the EEA by ETC/CM, 25.9.2025.

EEA 2025 b. The approximated renewable energy shares 2024, for the EEA by ETC/CM, 25.9.2025.

EEA 2025 c. European Union Emissions Trading System data viewer, 1 September 2025. https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1

EU 2018. Regulation (EU) 2018/842. Binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

Eurocontrol 2025. Eurocontrol_2024_proxy.xlsx, 3 July 2025.

Eurostat 2025. Supply and transformation of oil and petroleum products – monthly data. https://ec.europa.eu/eurostat/databrowser/view/nrg_cb_oilm/default/table?lang=en

Eurostat 2025 a. https://ec.europa.eu/eurostat/databrowser/view/nrg_chdd_a/default/table

Eurostat 2025 b. https://ec.europa.eu/eurostat/web/products-euro-indicators/w/2-07032025-ap

IPCC 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. www.ipcc-nggip.iges.or.jp/public/2006gl/

Annex 1: Detailed results for each Member State

Country	Compiled by	Submission date	Resubmission date
Austria	Member State	30 July 2025	
Belgium	Member State	14 July 2025	
Bulgaria	EEA, ETC/CM		
Cyprus	Member State	18 July 2025	
Czechia	Member State	30 July 2025	
Germany	Member State	10 July 2025	
Denmark	Member State	14 July 2025	
Spain	Member State	30 July 2025	
Estonia	Member State	31 July 2025	
Finland	Member State	19 June 2025	
France	Member State	08 July 2025	
Greece	Member State	09 July 2025	
Croatia	Member State	30 July 2025	
Hungary	Member State	04 August 2025	
Ireland	Member State	06 August 2025	
Italy	Member State	31 July 2025	
Lithuania	Member State	31 July 2025	
Luxembourg	Member State	31 July 2025	
Latvia	Member State	16 July 2025	
Malta	Member State	31 July 2025	
Netherlands	Member State	28 July 2025	
Poland	Member State	14 July 2025	
Portugal	Member State	22 July 2025	
Romania	Member State	31 July 2025	
Slovakia	Member State	18 July 2025	
Slovenia	Member State	30 July 2025	
Sweden	Member State	01 July 2025	
European Union (EU27)	**EEA, ETC/CM**		
Iceland	Country	5 July 2025	
Switzerland	Country	16 July 2025	
Norway	Country	30 July 2025	

All the above submissions are available in PDF and excel format under this link: Reportnet 3 (europa.eu)

Bulgaria (EEA calculated)

Implementing Regulation Article 7: Reporting on approximated Greenhouse Gas Inventories

Member States shall report their approximated greenhouse gas inventories pursuant to Article 26(2) of Regulation (EU) 2018/1999

Year 2025
Submission 2024
Country BULGARIA
Geographical scope(4)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO2(1)	CH4	N2O	HFCs	PFCs	SF6	Unspecified mix of HFCs and PFCs	NF3	Total	ETS	non-ETS
	CO2 equivalent (kt)									CO2 equivalent (Gg)	
Total (net emissions)(1)	24446.82	6011.19	4342.20	631.39	0.00	0.00	NO, NA	NO, NA	35431.60		
1. Energy	29938.93	1300.31	263.72						31502.96		
A. Fuel combustion (sectoral approach)	29246.01	306.74	262.98						29815.73		
1. Energy industries	13760.85	18.91	64.59						13844.35		
2. Manufacturing industries and construction	4045.65	17.54	32.91						4096.10		
3. Transport (3)	10349.82	20.41	93.33						10463.57		
4. Other sectors	1027.18	249.84	71.85						1348.87		
5. Other	62.51	0.04	0.29						62.85		
B. Fugitive emissions from fuels	692.92	993.56	0.75						1687.23		
1. Solid fuels	16.98	678.49	0.00						695.46		
2. Oil and natural gas	675.95	315.08	0.75						991.77		
C. CO2 transport and storage	0.00								0.00		
2. Industrial processes and product use	3150.29	0.00	92.22	631.39	0.00	0.00	NO, NA	NO, NA	3873.90		
A. Mineral industry	1908.83								1908.83		
B. Chemical industry	1035.17	0.00	81.20	0.00	0.00	0.00	0.00	0.00	1116.37		
C. Metal industry	172.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	172.34		
D. Non-energy products from fuels and solvent use	12.83	0.00	0.00						12.83		
E. Electronic Industry				0.00	0.00	0.00	0.00	0.00	0.00		
F. Product uses as ODS substitutes				631.39	0.00	0.00	0.00	0.00	631.39		
G. Other product manufacture and use	21.12	0.00	11.02	0.00	0.00	0.00	0.00	0.00	32.14		
H. Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
3. Agriculture	91.29	2108.44	3741.89						5941.62		
A. Enteric fermentation		1607.77							1607.77		
B. Manure management		357.25	254.59						611.84		
C. Rice cultivation		113.00							113.00		
D. Agricultural soils		0.00	3481.26						3481.26		
E. Prescribed burning of savannas		0.00	0.00						0.00		
F. Field burning of agricultural residues		30.42	6.03						36.46		
G. Liming	24.73								24.73		
H. Urea application	66.56								66.56		
I. Other carbon-containing fertilizers	0.00								0.00		
J. Other	0.00	0.00	0.00						0.00		
4. Land use, land-use change and forestry(1)	-8740.49	24.67	114.75						-8601.07		
A. Forest land	-8261.16	24.67	15.65						-8220.83		
B. Cropland	875.25	0.00	61.16						936.40		
C. Grassland	-508.93	0.00	14.77						-494.16		
D. Wetlands	68.34	0.00	9.30						77.64		
E. Settlements	328.20	0.00	13.86						342.07		
F. Other land	0.00	0.00	0.00						0.00		
G. Harvested wood products	-1242.19	0.00							-1242.19		
H. Other	0.00	0.00	0.00						0.00		
5. Waste	6.79	2577.77	129.63						2714.19		
A. Solid waste disposal	0.00	2101.09							2101.09		
B. Biological treatment of solid waste		9.01	5.04						14.05		
C. Incineration and open burning of waste	6.79	0.00	0.46						7.26		
D. Waste water treatment and discharge		467.67	124.13						591.80		
E. Other	0.00	0.00	0.00						NO		
6. Other (as specified in summary 1.A)	NO	NO	NO	NO	NO	NO	NO	NO	NO		

Memo items:											
International bunkers	NE	NE	NE						NE		
Aviation	NE	NE	NE						NE		
Navigation	NE	NE	NE						NE		
CO2 emissions from biomass											
CO2 captured											
Indirect CO2 (2)	NO										
Total CO2 equivalent emissions without land use, land-use change and forestry									44032.67	18999.98	25032.70
Total CO2 equivalent emissions with land use, land-use change and forestry									35431.60		
Total CO2 equivalent emissions, including indirect CO2, without land use, land-use change and forestry									44032.67		
Total CO2 equivalent emissions, including indirect CO2, with land use, land-use change and forestry									35431.60		

(1) For carbon dioxide (CO2) from land use, land-use change and forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(2) For Member States that report indirect CO2 the national totals shall be provided with and without indirect CO2.

(3) CO2 emissions from civil aviation are treated as zero for effort sharing purposes.

(4) Where applicable: please clarify the geographical scope

Annex 2: List of abbreviations

AR5	IPCC Fifth Assessment Report: Climate Change 2014
BP	British Petroleum
CH_4	Methane
CO_2	Carbon dioxide
CO_2 eq.	Carbon dioxide equivalent
CRF	Common reporting format
EC	European Commission
EEA	European Environment Agency The EEA has 32 member countries: the 27 European Union Member States together with Iceland, Liechtenstein, Norway, Switzerland and Turkey
ESD	Effort Sharing Decision
ESR	Effort Sharing Regulation
ETC/CM	European Topic Centre for Climate Change Mitigation
ETS	Emissions Trading System
EU	European Union
EU27	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden
EUTL	European Union Transaction Log
F-gas	Fluorinated greenhouse gas; umbrella term including HFC, PFC, SF_6 and NF_3
GDP	Gross domestic product
GHG	Greenhouse gas
GWP	Global warming potential
HDD	Heating degree days
HFCs	Hydrofluorocarbons
IEA	International Energy Agency
IEF	Implied emission factor
kt	Kilotons (thousand tons)
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial processes and product use
LULUCF	Land use, land-use change and forestry
MMR	Monitoring Mechanism Regulation (Regulation (EU) 525/2013)
Mt	Megatons (million tons)
N_2O	Nitrous oxide
NF_3	Nitrogen trifluoride
ODS	Ozone-depleting substance
PEC	Primary Energy Consumption
PFCs	Perfluorocarbons
QA/QC	Quality assurance and quality control
QELRC	Quantified emission limitation and reduction commitment
SF_6	Sulphur Hexafluoride
UNFCCC	United Nations Framework Convention on Climate Change

Annex 3: Abbreviations of member states and EEA countries included in this report

AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
CY	Cyprus
CZ	Czechia
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
EL	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
IS	Iceland
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
CH	Switzerland
NO	Norway
IS	Iceland

European Topic Centre on
Climate change mitigation

https://www.eionet.europa.eu/etcs/etc-cm

The European Topic Centre on Climate change mitigation (ETC-CM) is a consortium of European institutes under contract of the European Environment Agency.

European Environment Agency
European Topic Centre
Climate change mitigation