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Reporting from and review of Parties included in Annex I to the Convention
Reports on national greenhouse gas inventory data from Parties included in Annex I to the Convention

National greenhouse gas inventory data for the period 1990–2022

Revised report by the secretariat

Summary

In decision 6/CP.27 the deadline for the submission by Parties included in Annex I to the Convention (Annex I Parties) of their greenhouse gas (GHG) inventories due in 2024 was changed to 31 December 2024. This document was updated to include information on those Parties' GHG emissions and removals for 1990–2022 based on the national inventory reports received from them as at 31 March 2025.

In 1990–2022, total aggregate GHG emissions without emissions and removals from land use, land-use change and forestry (LULUCF) for all Annex I Parties decreased by 19.5 per cent, while total GHG emissions and removals with LULUCF decreased by 26.1 per cent. For Annex I Parties with economies in transition, GHG emissions without and with LULUCF decreased by 44.6 and 64.0 per cent respectively. For Annex I Parties that do not have economies in transition, GHG emissions without and with LULUCF decreased by 8.8 and 10.7 per cent respectively.

Abbreviations and acronyms

Annex I Party	Party included in Annex I to the Convention
C	confidential
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COP	Conference of the Parties
CRT	common reporting table
EIT Party	Party with economy in transition
F-gas	fluorinated gas
GHG	greenhouse gas
IE	included elsewhere
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
N_2O	nitrous oxide
NA	not applicable
NE	not estimated
NID	national inventory document
NIR	national inventory report
NO	not occurring
non-EIT Party	Party that does not have an economy in transition

I. Introduction

A. Mandate

1. The COP requested Annex I Parties to submit national inventory data on GHG emissions by sources and removals by sinks by 15 April of each year.[1] COP 20 requested the secretariat to compile and summarize information on the GHG inventory data submitted by Annex I Parties, inter alia, for consideration by the COP and the subsidiary bodies.[2]

2. COP 24 decided that, to fulfil national inventory reporting obligations under the Convention, Parties to the Paris Agreement submitting annual NIRs under the Convention shall use the modalities, procedures and guidelines for NIRs contained in chapter II of the annex to decision 18/CMA.1 by the date that the reports are first due under the Paris Agreement.[3]

3. COP 27 decided to change the deadline for the submission by Annex I Parties that are Parties to the Paris Agreement of their annual GHG inventories due in 2024 to 31 December 2024.[4]

B. Scope

4. This document presents the status of reporting of the 2024 GHG inventories by Annex I Parties (see chap. II below) and provides a summary of the latest available data on those Parties' GHG emissions and removals for 1990–2022 (see chap. III below). Data are provided for CO_2, CH_4 and N_2O, as well as for F-gases,[5] and, where Parties have elected to report them, indirect CO_2 emissions from the atmospheric oxidation of CH_4, carbon monoxide and non-methane volatile organic compounds. Data are provided on total[6] aggregate[7] GHG emissions, both without and with net GHG emissions and removals from LULUCF.

5. The information provided in this document is based on the NIRs[8] received from Annex I Parties (see table 1) as at 31 March 2025.

C. Possible action by the Subsidiary Body for Implementation

6. The Subsidiary Body for Implementation may wish to take note of the information herein and to seek guidance from the COP, as appropriate.

II. Status of reporting

7. According to the modalities, procedures and guidelines for NIRs, the NIR consists of an NID and the CRTs, including a time series of data for 1990 up until no more than two years prior to the submission of the NIR.

8. As at 31 March 2025, NIDs had been received from 43 Annex I Parties, while CRTs had been received from 42 Parties. After the initial submissions, four Parties resubmitted

[1] Decision 3/CP.1, para. 2(b).
[2] Decision 13/CP.20, paras. 8 and 10.
[3] Decision 1/CP.24, para. 42.
[4] Decision 6/CP.27, para. 6.
[5] Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, an unspecified mix of hydrofluorocarbons and perfluorocarbons, and nitrogen trifluoride.
[6] The term "total" implies that emissions from the CRT sectors are summed; the inclusion of emissions from LULUCF in the sum is indicated separately, as appropriate; unless stated otherwise, totals do not include indirect CO_2 emissions.
[7] The term "aggregate" implies that GHG emissions and removals are calculated as a weighted sum of CO_2, CH_4, N_2O and F-gases using the global warming potential values agreed under the Convention.
[8] Available at https://unfccc.int/ghg-inventories-annex-i-parties/2024.

their NIDs, and four Parties resubmitted their CRTs. The dates of the initial submissions of the NIDs and CRTs are shown in table 1.

Table 1
Greenhouse gas inventory submissions from Annex I Parties as at 31 March 2025

Party	*NID submission date*[a]	*CRTs submission date*[a]
Australia	12 April 2024	12 April 2024
Austria	19 December 2024	14 November 2024
Belarus	30 December 2024	30 December 2024
Belgium	18 December 2024	18 December 2024
Bulgaria	18 December 2024	18 December 2024
Canada	2 May 2024	24 October 2024
Croatia	17 December 2024	17 December 2024
Cyprus	20 September 2024	20 September 2024
Czechia	17 December 2024	17 December 2024
Denmark	16 December 2024	16 December 2024
Estonia	30 December 2024	30 December 2024
European Union	13 December 2024	–
Finland	17 December 2024	17 December 2024
France	26 December 2024	26 December 2024
Germany	15 April 2024	*10 January 2025*
Greece	30 December 2024	30 December 2024
Hungary	*21 February 2025*	*21 February 2025*
Iceland	20 December 2024	20 December 2024
Ireland	18 December 2024	18 December 2024
Italy	17 November 2024	15 November 2024
Japan	12 April 2024	4 December 2024
Latvia	16 December 2024	16 December 2024
Liechtenstein	30 April 2024	23 December 2024
Lithuania	20 December 2024	20 December 2024
Luxembourg	31 December 2024	31 December 2024
Malta	13 September 2024	19 September 2024
Monaco	1 October 2024	1 October 2024
Netherlands (Kingdom of the)	19 November 2024	19 November 2024
New Zealand	1 November 2024	1 November 2024
Norway	22 November 2024	22 November 2024
Poland	27 November 2024	27 November 2024
Portugal	12 December 2024	12 December 2024
Romania	16 December 2024	16 December 2024
Russian Federation	8 November 2024	8 November 2024
Slovakia	12 December 2024	12 December 2024
Slovenia	12 December 2024	10 December 2024
Spain	25 October 2024	7 November 2024
Sweden	19 December 2024	19 December 2024
Switzerland	11 April 2024	12 December 2024
Türkiye	19 November 2024	19 November 2024
Ukraine	30 December 2024	30 December 2024
United Kingdom	24 December 2024	24 December 2024
United States	12 April 2024	19 December 2024

[a] Dates after 31 December 2024 are shown in italics.

III. Overview of emission trends and sources in Annex I Parties

A. Total aggregate greenhouse gas emissions

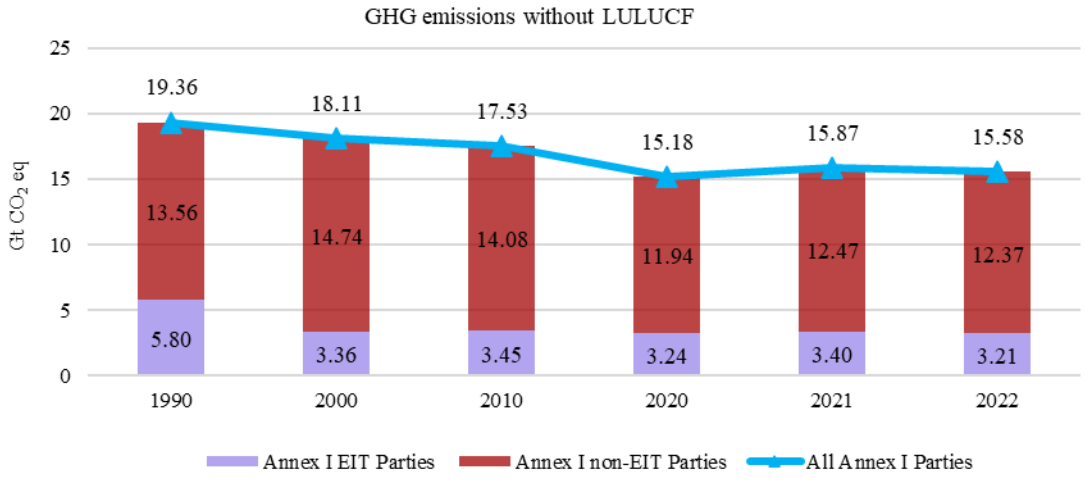
9. From 1990 to 2022, total aggregate GHG emissions without LULUCF for all Annex I Parties decreased by 19.5 per cent, from 19,362.09 to 15,580.59 Mt CO_2 eq. During the same period, total aggregate GHG emissions with LULUCF decreased by 26.1 per cent, from 17,644.53 to 13,043.73 Mt CO_2 eq. From 2000 to 2022, GHG emissions without and with LULUCF decreased by 14.0 and 15.3 per cent respectively. Between 2021 and 2022, GHG emissions decreased by 1.8 per cent without LULUCF and by 3.5 per cent with LULUCF.

10. For Annex I EIT Parties, GHG emissions decreased by 44.6 per cent without LULUCF and by 64.0 per cent with LULUCF from 1990 to 2022. From 2000 to 2022, GHG emissions without and with LULUCF decreased by 4.5 and 2.3 per cent respectively. Between 2021 and 2022, GHG emissions decreased by 5.5 per cent without LULUCF and by 20.5 per cent with LULUCF.

11. For Annex I non-EIT Parties, GHG emissions decreased by 8.8 per cent without LULUCF and by 10.7 per cent with LULUCF from 1990 to 2022. From 2000 to 2022, GHG emissions without and with LULUCF decreased by 16.1 and 17.2 per cent respectively. Between 2021 and 2022, GHG emissions without LULUCF decreased by 0.8 per cent, while GHG emissions with LULUCF increased slightly, by 0.03 per cent.

12. Figures 1–2 show the trends in total aggregate GHG emissions from 1990 to 2022 for all Annex I Parties taken together, for Annex I EIT Parties and for Annex I non-EIT Parties.

Figure 1
Greenhouse gas emissions of Annex I Parties, 1990–2022



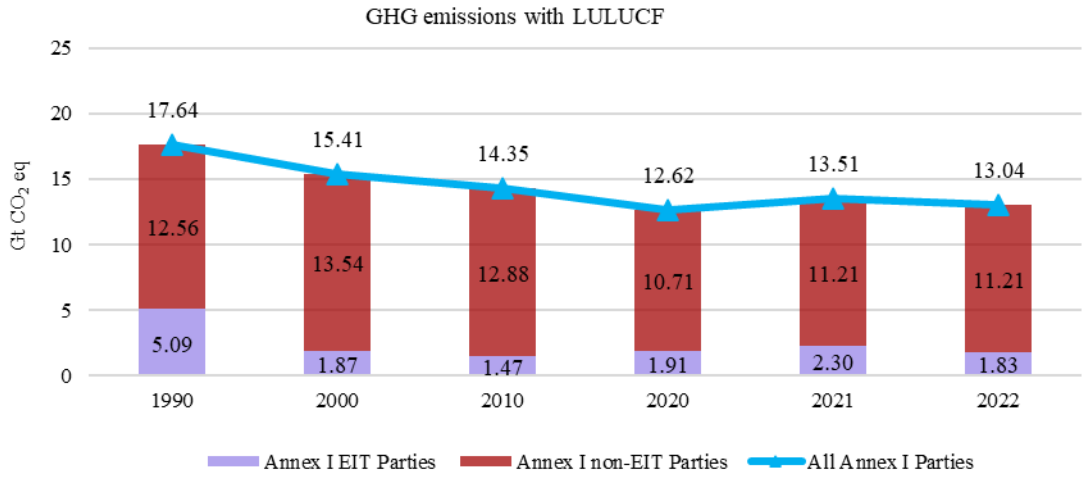
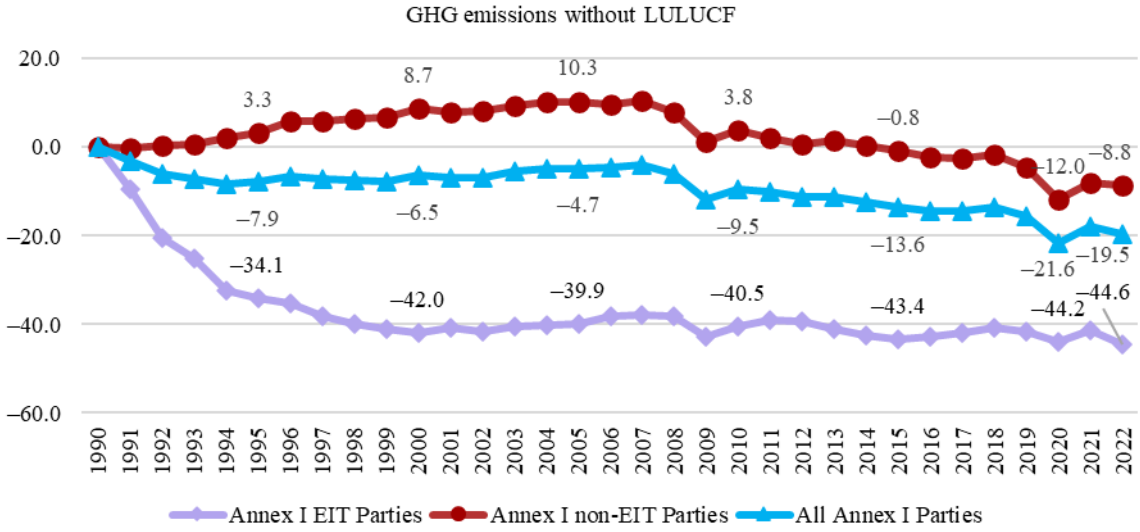
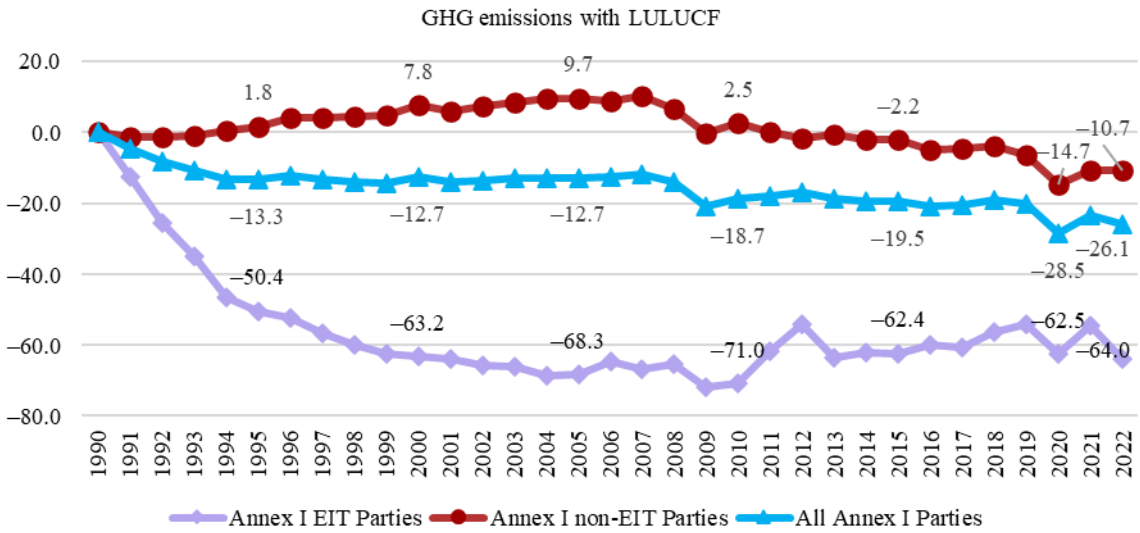


Figure 2
Percentage changes from 1990 level in greenhouse gas emissions of Annex I Parties, 1990–2022

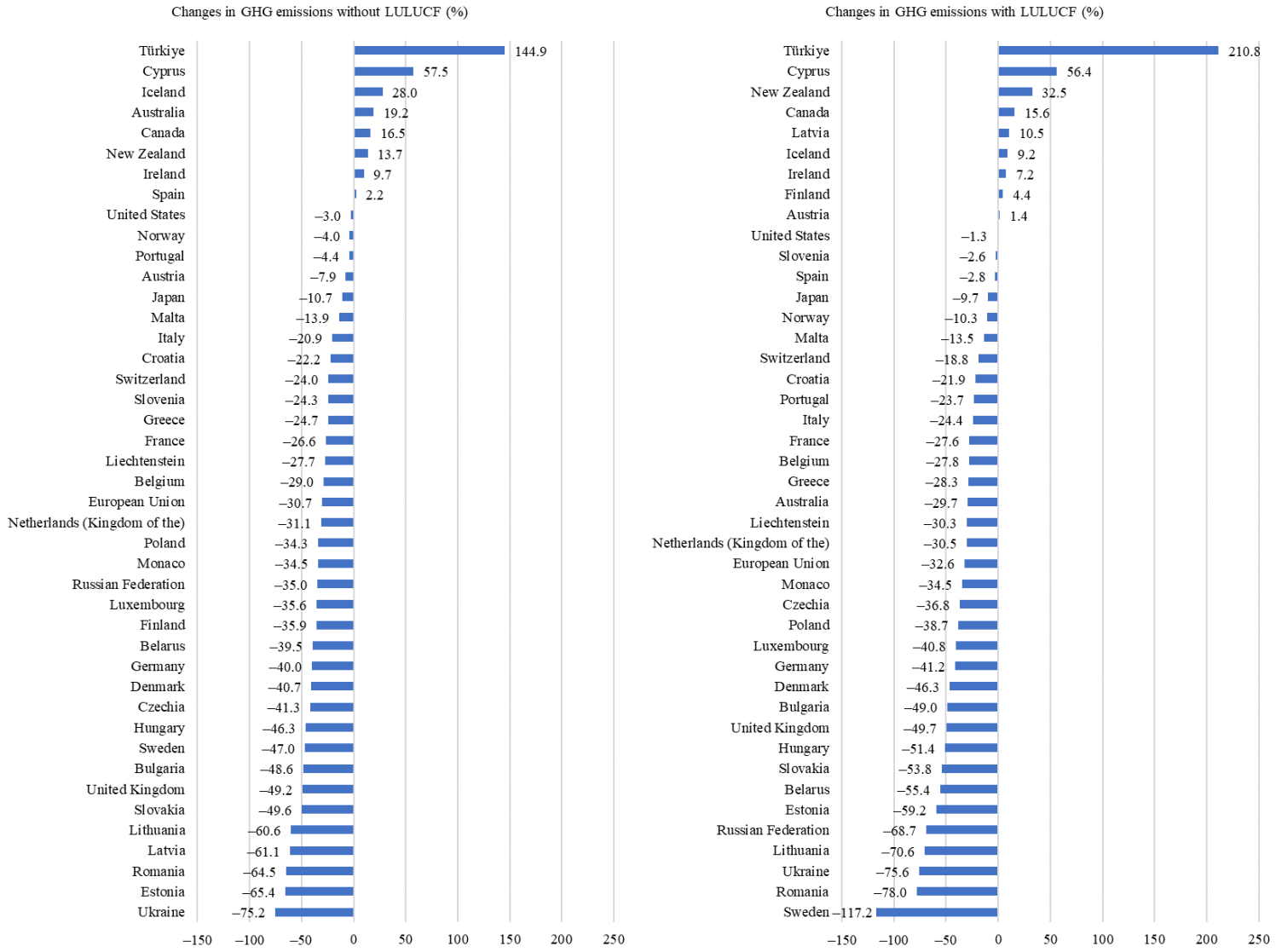




13. The changes in total aggregate GHG emissions in 1990–2022 varied considerably among Parties (see figure 3). For emissions without LULUCF, the largest decrease was in Ukraine (by 75.2 per cent), while the largest increase in emissions was in Türkiye (by 144.9 per cent). For emissions with LULUCF, Sweden experienced the largest decrease (by 117.2 per cent), while the greatest increase was in Türkiye (by 210.8 per cent).

Figure 3

Changes in total aggregate emissions of individual Annex I Parties, 1990–2022



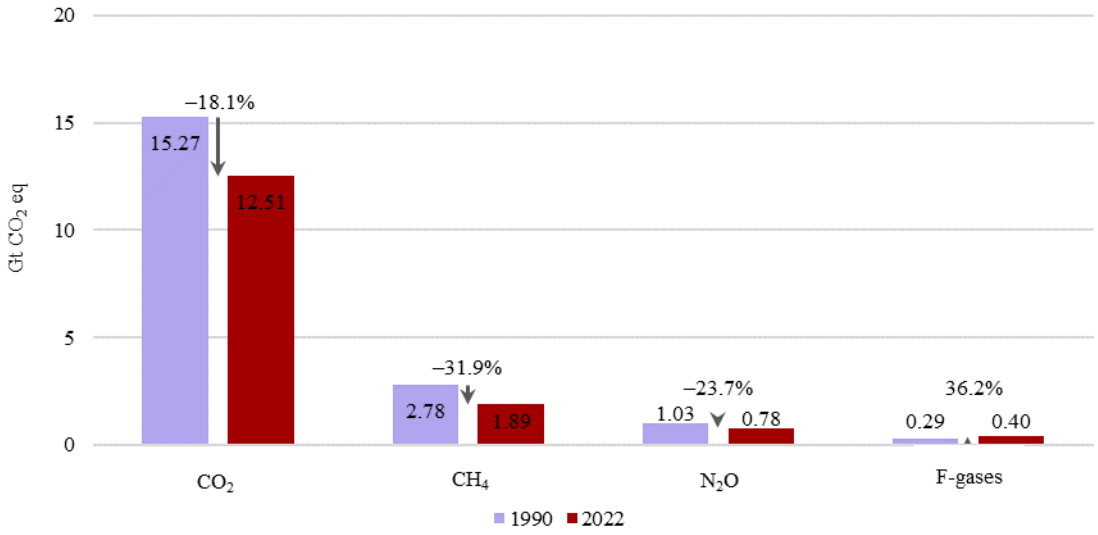
B. Greenhouse gas emissions by gas

14. Throughout 1990–2022, CO_2 accounted for the largest share of total emissions, contributing 78.8 per cent in 1990 and 80.3 per cent in 2022. CH_4 was the second-highest contributor to total GHG emissions (14.3 per cent in 1990 and 12.1 per cent in 2022), followed by N_2O (5.3 per cent in 1990 and 5.0 per cent in 2022). F-gases contributed 1.5 per cent in 1990 and 2.6 per cent in 2022 to total GHG emissions.

15. Between 1990 and 2022, emissions of CO_2, CH_4 and N_2O decreased by 18.1, 31.9 and 23.7 respectively, while emissions of F-gases increased by 36.2 per cent. Between 2021 and 2022, emissions of CO_2, CH_4 and N_2O decreased by 1.6, 2.9 and 3.4 per cent respectively, while emissions of F-gases increased by 1.3 per cent.

16. Figure 4 shows the contribution of each GHG to the total emissions without LULUCF for 1990 and 2022 and the changes in the total emissions of each GHG in 1990–2022.

Figure 4
Greenhouse gas emissions without land use, land-use change and forestry of Annex I Parties by gas, 1990 and 2022

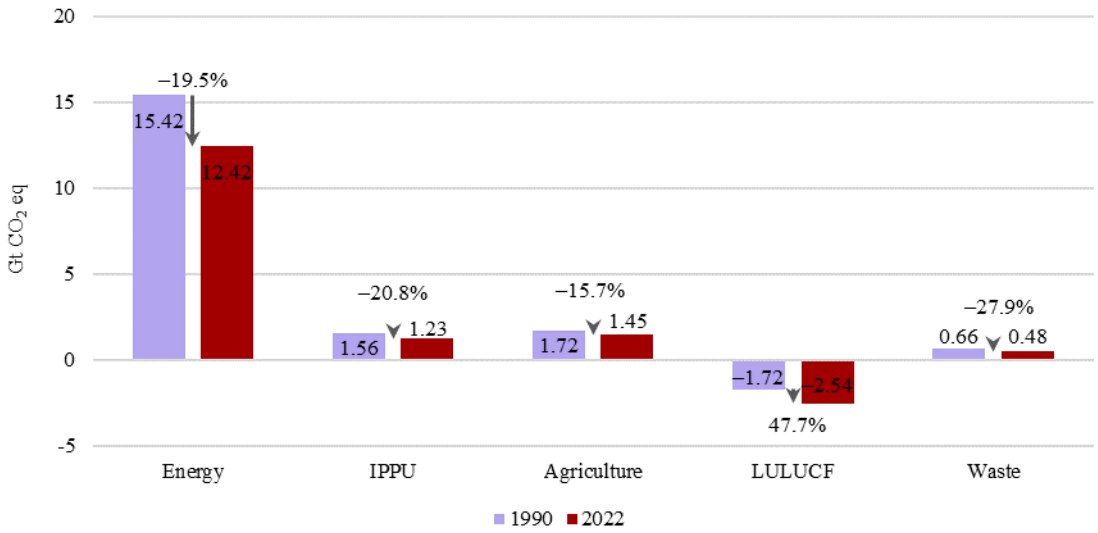


C. Greenhouse gas emissions by sector

17. Emissions from all sectors decreased between 1990 and 2022 (see figure 5). The largest relative decrease in emissions occurred in the waste sector (by 27.9 per cent), followed by the IPPU, energy and agriculture sectors (by 20.8, 19.5 and 15.7 per cent respectively). Over the same period, net GHG removals from LULUCF increased by 47.7 per cent.

18. Between 2021 and 2022, emissions from the energy, IPPU, agriculture and waste sectors decreased by 1.3, 6.7, 2.4 and 0.8 per cent respectively. Over the same period, net GHG removals from LULUCF increased by 7.6 per cent.

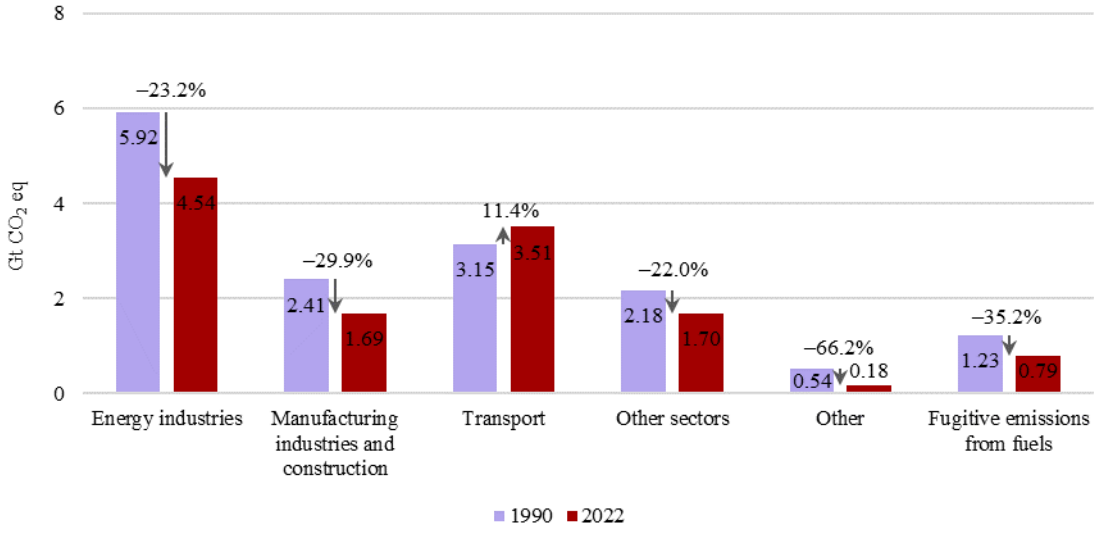
Figure 5
Greenhouse gas emissions and removals of Annex I Parties by sector, 1990 and 2022



Note: The sector other is not included in this figure because its contribution to total GHG emissions was very small; emissions from that sector decreased by 11.4 per cent between 1990 and 2022.

19. From 1990 to 2022, GHG emissions decreased in all subsectors of the energy sector except transport, where emissions increased by 11.4 per cent (see figure 6). The largest relative emission reduction occurred in the subsector other (by 66.2 per cent).

Figure 6
Greenhouse gas emissions of Annex I Parties in the energy sector, 1990 and 2022

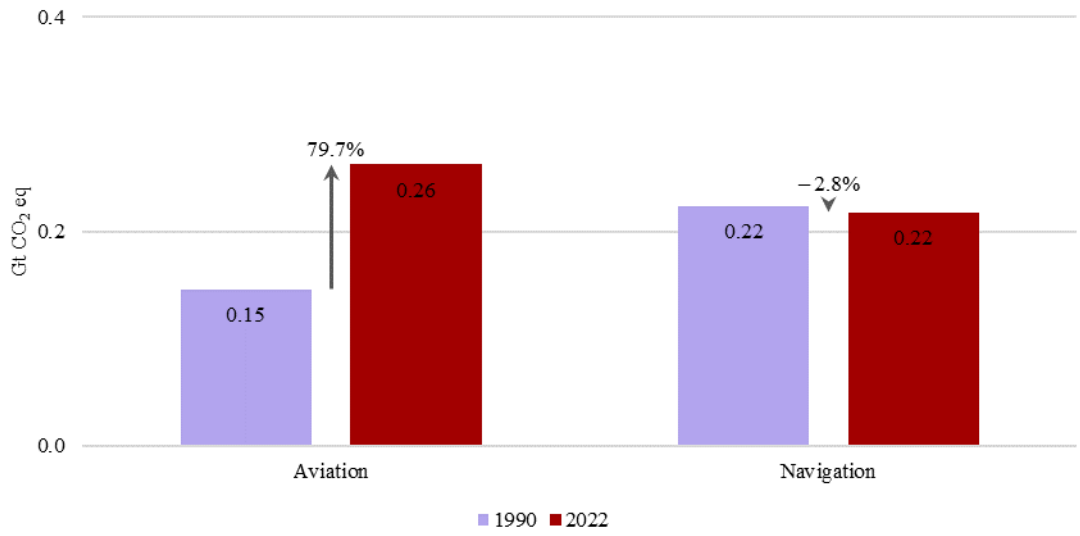


Note: The CO_2 transport and storage subsector is not included in this figure because its contribution to total GHG emissions was very small; emissions from that subsector increased by 1,780.1 per cent between 1990 and 2022.

20. Between 2021 and 2022, emissions from energy industries, manufacturing industries and construction, other sectors, other and fugitive emissions from fuels decreased by 1.6, 2.8, 2.2, 6.0 and 4.0 per cent respectively. In the same period, emissions from transport increased by 1.3 per cent.

21. In 1990–2022, emissions from international bunkers increased by 79.7 per cent for aviation, while emissions for navigation decreased by 2.8 per cent (see figure 7).

Figure 7
Greenhouse gas emissions from international bunker fuels for Annex I Parties, 1990 and 2022



22. Between 2021 and 2022, emissions from international bunkers increased by 47.0 per cent for aviation and by 1.5 per cent for navigation.

D. Emission data for individual Annex I Parties

23. Tables 2–14 present detailed GHG inventory data for 1990–2022 for the individual Annex I Parties based on their NIDs or CRTs as at 31 March 2025. Total aggregate GHG emissions without and with emissions and removals from LULUCF are provided in tables 2–3; emissions of CO_2, CH_4 and N_2O (without and with emissions and removals from LULUCF) are provided in tables 4–9; F-gas emissions are provided in table 10; emissions and removals from LULUCF are provided in tables 11–13; and indirect CO_2 emissions are provided in table 14.

24. The cells with an en dash (–) in the tables denote that either data were not available or notation keys, such as “NA”, “NE”, “NO”, “IE” or “C”, were used to report emission data. Negative values denote removals; positive values denote emissions.

25. The changes in emissions from 1990 to 2022 were calculated using exact (not rounded) values and may therefore differ from percentage changes calculated with the rounded numbers provided in the tables.

Table 2
Total aggregate anthropogenic emissions of CO_2, CH_4, N_2O and F-gases without emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	437 120	545 875	535 776	527 276	520 995	19.2
Austria	79 083	84 793	74 030	77 360	72 844	–7.9
Belarus[a]	146 017	92 325	90 096	92 147	88 357	–39.5
Belgium	145 849	133 529	107 421	110 196	103 576	–29.0
Bulgaria[a, b]	113 642	59 364	47 963	54 031	58 421	–48.6
Canada	607 749	728 517	686 362	698 442	707 768	16.5
Croatia[a]	31 546	28 290	23 914	24 437	24 552	–22.2
Cyprus	5 570	9 460	8 515	8 718	8 772	57.5
Czechia[a]	199 387	140 529	113 393	118 776	117 077	–41.3
Denmark	70 388	64 127	42 252	43 246	41 769	–40.7
Estonia[a]	40 274	21 096	11 343	12 579	13 952	–65.4
European Union[c]	4 858 000	4 165 000	3 282 000	3 453 000	3 365 000	–30.7
Finland	71 166	75 400	47 587	47 546	45 649	–35.9
France	537 837	505 152	388 660	410 792	394 826	–26.6
Germany	1 250 658	927 912	731 753	759 600	749 963	–40.0
Greece	103 986	119 234	75 855	78 004	78 314	–24.7
Hungary[a, b]	110 834	66 509	62 683	63 745	59 535	–46.3
Iceland	3 645	4 868	4 495	4 631	4 666	28.0
Ireland	55 231	62 760	58 746	61 755	60 605	9.7
Italy	521 062	521 511	378 346	410 542	412 313	–20.9
Japan	1 269 431	1 300 198	1 140 469	1 162 196	1 133 638	–10.7
Latvia[a]	26 020	11 871	10 491	10 734	10 120	–61.1
Liechtenstein	229	228	180	183	166	–27.7
Lithuania[a]	48 020	20 633	20 010	20 174	18 904	–60.6
Luxembourg	12 727	12 158	9 037	9 383	8 192	–35.6
Malta	2 626	2 966	2 086	2 099	2 262	–13.9
Monaco	102	86	69	73	67	–34.5
Netherlands (Kingdom of the)	221 844	213 984	164 039	166 573	152 927	–31.1
New Zealand	68 958	82 098	81 882	81 809	78 395	13.7
Norway	50 797	54 556	49 252	49 125	48 755	–4.0
Poland[a, b]	578 909	406 677	370 911	398 898	380 090	–34.3
Portugal	58 857	68 776	57 501	56 117	56 255	–4.4
Romania[a, b]	309 574	124 814	111 608	115 509	109 973	–64.5
Russian Federation[a, d]	3 142 797	1 997 140	2 001 271	2 098 146	2 042 027	–35.0
Slovakia[a]	73 368	45 840	37 131	41 162	37 013	–49.6
Slovenia[a, b]	20 638	19 741	15 930	16 074	15 615	–24.3
Spain	287 168	354 488	270 004	287 876	293 602	2.2
Sweden	71 263	64 157	40 281	46 543	37 803	–47.0
Switzerland	54 666	55 160	43 697	45 042	41 536	–24.0
Türkiye[e]	228 002	405 269	530 175	571 988	558 270	144.9
Ukraine[a]	962 528	416 608	324 525	332 894	238 263	–75.2
United Kingdom	805 611	614 638	407 084	424 546	409 552	–49.2
United States	6 536 915	7 066 007	6 001 807	6 328 794	6 343 209	–3.0
Number of Parties showing a decrease in emissions of more than 1%:						*35*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*8*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Information provided by the Russian Federation. The General Assembly addressed the status of the Autonomous Republic of Crimea and the city of Sevastopol in resolution 68/262 of 27 March 2014.

[e] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 3
Total aggregate anthropogenic emissions of CO_2, CH_4, N_2O and F-gases with emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	615 387	609 169	474 544	438 745	432 621	–29.7
Austria	67 401	65 354	68 187	66 284	68 370	1.4
Belarus[a]	126 182	51 471	63 076	59 686	56 276	–55.4
Belgium	142 909	133 169	107 036	109 915	103 157	–27.8
Bulgaria[a, b]	95 934	47 427	38 358	44 452	48 881	–49.0
Canada	656 933	767 973	712 004	711 979	759 227	15.6
Croatia[a]	25 198	21 383	18 256	18 673	19 685	–21.9
Cyprus	5 417	9 195	8 216	8 482	8 473	56.4
Czechia[a]	190 550	132 817	123 092	125 364	120 454	–36.8
Denmark	77 082	66 488	43 545	43 444	41 388	–46.3
Estonia[a]	35 038	16 427	12 586	13 391	14 291	–59.2
European Union[c]	4 641 000	3 814 000	3 041 000	3 212 000	3 129 000	–32.6
Finland	47 991	53 021	42 232	51 020	50 092	4.4
France	519 548	468 511	367 305	391 746	376 326	–27.6
Germany	1 283 538	926 798	737 550	762 221	754 345	–41.2
Greece	101 717	115 832	70 653	72 991	72 923	–28.3
Hungary[a, b]	108 461	61 714	55 591	56 563	52 749	–51.4
Iceland	11 377	12 635	12 197	12 330	12 423	9.2
Ireland	60 242	68 008	63 898	66 383	64 588	7.2
Italy	517 419	481 828	350 847	385 755	391 113	–24.4
Japan	1 196 723	1 221 482	1 082 163	1 103 924	1 080 463	–9.7
Latvia[a]	13 630	9 976	11 250	12 936	15 064	10.5
Liechtenstein	236	248	182	180	164	–30.3
Lithuania[a]	42 668	10 203	13 919	14 652	12 529	–70.6
Luxembourg	12 736	11 953	8 589	8 778	7 544	–40.8
Malta	2 616	2 980	2 095	2 099	2 263	–13.5
Monaco	101	86	69	73	66	–34.5
Netherlands (Kingdom of the)	227 217	219 410	168 365	170 960	157 987	–30.5
New Zealand	44 634	53 524	60 821	61 303	59 157	32.5
Norway	39 022	28 266	33 137	37 382	35 009	–10.3
Poland[a, b]	561 872	370 342	347 581	374 981	344 446	–38.7
Portugal	65 995	62 214	52 794	50 096	50 330	–23.7
Romania[a, b]	288 450	89 753	62 498	67 360	63 507	–78.0
Russian Federation[a]	2 601 458	212 849	807 206	1 136 609	813 189	–68.7
Slovakia[a]	64 475	41 135	29 952	33 951	29 787	–53.8
Slovenia[a, b]	15 857	12 570	15 529	15 749	15 442	–2.6
Spain	253 275	308 626	223 529	240 359	246 185	–2.8
Sweden	19 874	7 343	–2 762	2 952	–3 414	–117.2
Switzerland	51 706	52 042	43 046	43 769	41 969	–18.8
Türkiye[d]	161 572	333 211	472 534	524 113	502 175	210.8
Ukraine[a]	915 477	395 988	309 282	327 861	223 169	–75.6
United Kingdom	816 394	615 990	407 864	425 090	410 345	–49.7
United States	5 560 220	6 179 683	5 097 413	5 418 241	5 488 971	–1.3
Number of Parties showing a decrease in emissions of more than 1%:						*34*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*9*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 4
Total anthropogenic CO_2 emissions without emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	278 160	405 131	399 184	389 020	384 362	38.2
Austria	62 184	72 008	62 176	65 757	61 489	–1.1
Belarus[a]	108 459	62 515	59 123	60 861	57 121	–47.3
Belgium	120 297	114 490	91 228	94 886	89 002	–26.0
Bulgaria[a, b]	89 564	47 826	36 584	42 357	46 931	–47.6
Canada	458 015	554 734	526 582	540 312	550 612	20.2
Croatia[a]	22 874	20 986	16 882	17 411	17 608	–23.0
Cyprus	4 645	8 104	6 926	7 081	7 118	53.2
Czechia[a]	164 250	117 476	91 674	96 645	95 108	–42.1
Denmark	53 370	49 117	28 224	29 516	28 371	–46.8
Estonia[a]	36 917	18 965	9 198	10 391	11 757	–68.2
European Union[c]	3 873 000	3 433 000	2 630 000	2 808 000	2 740 000	–29.3
Finland	56 921	64 092	37 700	37 798	36 367	–36.1
France	396 966	385 426	288 712	314 019	301 766	–24.0
Germany	1 054 796	826 680	648 357	678 777	671 472	–36.3
Greece	83 438	97 354	55 558	57 519	58 122	–30.3
Hungary[a, b]	85 975	51 993	47 107	48 331	45 280	–47.3
Iceland	2 222	3 627	3 341	3 508	3 613	62.6
Ireland	32 945	41 792	35 124	37 544	36 711	11.4
Italy	438 208	435 701	302 614	335 920	340 904	–22.2
Japan	1 157 374	1 214 785	1 040 476	1 061 855	1 034 861	–10.6
Latvia[a]	19 662	8 555	6 998	7 238	6 620	–66.3
Liechtenstein	206	196	147	150	143	–30.8
Lithuania[a]	35 738	13 802	13 525	13 811	12 953	–63.8
Luxembourg	11 813	11 195	8 075	8 421	7 277	–38.4
Malta	2 427	2 619	1 600	1 611	1 774	–26.9
Monaco	97	75	61	65	57	–40.8
Netherlands (Kingdom of the)	162 798	182 289	136 670	139 684	127 241	–21.8
New Zealand	25 497	34 808	34 023	34 323	31 610	24.0
Norway	34 536	45 445	41 056	40 898	40 683	17.8
Poland[a, b]	471 415	334 222	302 433	330 979	315 042	–33.2
Portugal	45 311	52 890	41 738	40 284	40 687	–10.2
Romania[a, b]	208 996	84 410	73 943	77 506	73 251	–65.0
Russian Federation[a]	2 534 638	1 632 325	1 629 547	1 711 217	1 658 923	–34.5
Slovakia[a]	61 526	38 462	31 154	35 216	31 550	–48.7
Slovenia[a, b]	16 767	16 460	12 855	13 059	12 701	–24.2
Spain	230 174	282 938	211 843	229 069	234 657	1.9
Sweden	57 520	53 120	31 006	37 461	28 832	–49.9
Switzerland	44 149	45 034	34 228	35 780	32 819	–25.7
Türkiye[d]	154 141	317 555	414 378	455 248	441 423	186.4
Ukraine[a]	706 526	294 366	207 101	210 636	142 964	–79.8
United Kingdom	603 663	513 873	328 151	346 507	333 535	–44.7
United States	5 131 650	5 668 742	4 688 969	5 017 202	5 053 019	–1.5
Number of Parties showing a decrease in emissions of more than 1%:						*34*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*9*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 5
Total anthropogenic CO_2 emissions with emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	431 510	442 716	320 425	283 374	278 682	–35.4
Austria	50 332	52 404	56 176	54 526	56 860	13.0
Belarus[a]	88 600	21 641	32 047	28 368	25 021	–71.8
Belgium	117 352	114 044	90 747	94 507	88 484	–24.6
Bulgaria[a, b]	71 786	35 807	26 866	32 673	37 266	–48.1
Canada	506 039	593 042	551 339	552 921	601 180	18.8
Croatia[a]	16 480	13 951	11 003	11 480	12 534	–23.9
Cyprus	4 492	7 837	6 625	6 837	6 818	51.8
Czechia[a]	155 376	109 742	101 355	103 217	98 452	–36.6
Denmark	59 702	51 135	29 178	29 371	27 640	–53.7
Estonia[a]	31 371	13 968	10 100	10 861	11 755	–62.5
European Union[c]	3 627 000	3 056 000	2 364 000	2 541 000	2 477 000	–31.7
Finland	30 555	38 754	29 697	38 638	38 203	25.0
France	375 981	346 589	265 760	293 377	281 494	–25.1
Germany	1 080 534	818 099	646 544	673 808	668 219	–38.2
Greece	81 093	93 918	50 320	52 329	52 652	–35.1
Hungary[a, b]	83 555	47 168	39 978	41 109	38 360	–54.1
Iceland	8 174	9 607	9 266	9 431	9 542	16.7
Ireland	33 661	42 501	36 123	37 936	36 355	8.0
Italy	432 937	395 419	274 409	310 024	318 796	–26.4
Japan	1 083 678	1 135 461	981 690	1 003 094	981 201	–9.5
Latvia[a]	6 263	5 601	6 349	8 006	10 105	61.4
Liechtenstein	206	210	143	142	127	–38.3
Lithuania[a]	30 285	3 259	7 317	8 163	6 463	–78.7
Luxembourg	11 812	10 972	7 619	7 807	6 626	–43.9
Malta	2 417	2 633	1 608	1 611	1 774	–26.6
Monaco	97	75	61	64	57	–40.8
Netherlands (Kingdom of the)	167 476	186 999	140 317	143 392	131 623	–21.4
New Zealand	804	5 821	12 618	13 551	12 019	1 394.6
Norway	22 349	18 709	24 482	28 693	26 481	18.5
Poland[a, b]	452 285	296 810	276 998	305 013	277 295	–38.7
Portugal	51 016	45 302	36 326	33 409	33 918	–33.5
Romania[a, b]	187 687	49 099	24 733	29 282	26 635	–85.8
Russian Federation[a]	1 975 406	–174 961	409 383	703 864	413 174	–79.1
Slovakia[a]	52 503	33 703	23 910	27 953	24 234	–53.8
Slovenia[a, b]	11 921	9 239	12 418	12 699	12 480	4.7
Spain	195 446	236 648	165 051	181 192	186 788	–4.4
Sweden	4 500	–5 234	–13 590	–7 710	–13 957	–410.1
Switzerland	41 101	41 856	33 516	34 444	33 183	–19.3
Türkiye[d]	87 568	245 437	356 519	406 153	385 185	339.9
Ukraine[a]	659 262	273 529	191 205	205 440	127 733	–80.6
United Kingdom	606 966	508 208	321 931	340 056	327 310	–46.1
United States	4 096 971	4 727 173	3 716 204	4 033 784	4 131 227	0.8
Number of Parties showing a decrease in emissions of more than 1%:						*31*
Number of Parties showing a change in emissions within 1%:						*1*
Number of Parties showing an increase in emissions of more than 1%:						*11*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 6
Total anthropogenic CH_4 emissions without emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	140 144	117 568	110 010	109 825	108 473	–22.6
Austria	11 321	7 917	6 607	6 622	6 498	–42.6
Belarus[a]	23 132	18 650	19 481	19 806	19 837	–14.2
Belgium	12 900	9 122	7 972	7 871	7 657	–40.6
Bulgaria[a, b]	15 189	7 546	6 385	6 583	6 562	–56.8
Canada	108 158	139 543	119 653	119 501	117 105	8.3
Croatia[a]	5 009	4 571	3 998	3 876	3 797	–24.2
Cyprus	776	974	1 063	1 084	1 078	38.8
Czechia[a]	26 813	15 709	13 087	13 205	13 060	–51.3
Denmark	9 208	9 114	8 614	8 726	8 450	–8.2
Estonia[a]	2 152	1 294	1 129	1 139	1 123	–47.8
European Union[c]	–	–	–	–	–	–
Finland	8 624	5 839	4 822	4 726	4 554	–47.2
France	77 892	71 440	61 027	59 493	58 168	–25.3
Germany	133 610	60 965	47 870	46 598	45 539	–65.9
Greece	12 527	12 505	11 380	11 750	11 807	–5.7
Hungary[a, b]	14 621	9 861	9 173	9 001	8 730	–40.3
Iceland	689	728	629	626	609	–11.7
Ireland	16 225	14 604	17 246	17 573	17 658	8.8
Italy	54 971	52 874	47 402	47 036	45 714	–16.8
Japan	49 815	34 831	30 404	30 378	29 867	–40.0
Latvia[a]	4 061	2 003	1 898	1 889	1 893	–53.4
Liechtenstein	22	21	22	22	22	0.5
Lithuania[a]	7 857	4 104	3 332	3 313	3 210	–59.1
Luxembourg	682	673	665	662	648	–4.9
Malta	140	166	226	226	227	62.8
Monaco	2	1	0.8	0.7	0.8	–66.4
Netherlands (Kingdom of the)	35 772	21 594	18 820	18 522	17 928	–49.9
New Zealand	37 520	39 521	39 031	38 618	38 339	2.2
Norway	6 784	5 772	4 985	4 970	4 921	–27.5
Poland[a, b]	77 561	47 198	42 899	42 301	40 637	–47.6
Portugal	9 978	10 809	10 187	10 283	10 188	2.1
Romania[a, b]	74 067	29 775	26 158	25 703	25 471	–65.6
Russian Federation[a]	454 177	298 477	277 000	289 689	281 783	–38.0
Slovakia[a]	8 314	4 604	3 900	3 918	3 712	–55.4
Slovenia[a, b]	2 925	2 385	2 090	2 047	1 908	–34.8
Spain	40 913	43 816	41 306	41 913	41 850	2.3
Sweden	8 324	5 848	4 590	4 543	4 462	–46.4
Switzerland	6 222	5 417	4 943	4 952	4 910	–21.1
Türkiye[d]	51 257	60 064	73 491	73 919	72 162	40.8
Ukraine[a]	207 909	97 273	82 764	82 550	66 247	–68.1
United Kingdom	145 104	70 024	52 314	51 610	51 039	–64.8
United States	871 659	807 599	735 349	720 468	702 355	–19.4
Number of Parties showing a decrease in emissions of more than 1%:						*33*
Number of Parties showing a change in emissions within 1%:						*1*
Number of Parties showing an increase in emissions of more than 1%:						*8*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 7
Total anthropogenic CH_4 emissions with emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	*1990–2022 (%)*
Australia	160 771	138 304	124 198	123 765	122 431	–23.8
Austria	11 348	7 944	6 634	6 649	6 526	–42.5
Belarus[a]	23 141	18 656	19 508	19 825	19 846	–14.2
Belgium	12 900	9 122	7 972	7 871	7 657	–40.6
Bulgaria[a, b]	15 190	7 563	6 399	6 591	6 583	–56.7
Canada	108 982	140 350	120 260	120 139	117 716	8.0
Croatia[a]	5 010	4 573	4 035	3 882	3 834	–23.5
Cyprus	776	974	1 064	1 090	1 078	38.8
Czechia[a]	26 833	15 721	13 097	13 214	13 080	–51.3
Denmark	9 502	9 415	8 916	9 032	8 761	–7.8
Estonia[a]	2 225	1 368	1 204	1 214	1 198	–46.2
European Union[c]	666 000	472 000	419 000	416 000	409 000	–38.6
Finland	10 317	6 930	5 676	5 578	5 402	–47.6
France	78 521	72 225	61 764	60 228	59 010	–24.8
Germany	139 785	67 315	54 275	53 011	51 994	–62.8
Greece	12 597	12 524	11 401	11 904	11 869	–5.8
Hungary[a, b]	14 645	9 871	9 185	9 014	8 803	–39.9
Iceland	2 468	2 514	2 404	2 400	2 435	–1.3
Ireland	20 325	18 660	20 977	21 403	21 602	6.3
Italy	55 691	53 071	47 588	47 525	46 072	–17.3
Japan	49 932	34 918	30 483	30 465	29 947	–40.0
Latvia[a]	4 584	2 539	2 743	2 753	2 782	–39.3
Liechtenstein	22	21	22	22	22	0.5
Lithuania[a]	7 861	4 106	3 332	3 314	3 210	–59.2
Luxembourg	682	673	665	662	648	–4.9
Malta	140	166	226	226	227	62.8
Monaco	2	1	0.8	0.7	0.8	–66.4
Netherlands (Kingdom of the)	36 370	22 218	19 418	19 118	18 522	–49.1
New Zealand	37 596	39 623	39 128	38 655	38 422	2.2
Norway	6 979	5 982	5 201	5 188	5 141	–26.3
Poland[a, b]	77 616	47 212	42 958	42 309	40 664	–47.6
Portugal	10 796	11 104	10 304	10 532	10 447	–3.2
Romania[a, b]	74 067	29 775	26 178	25 708	25 518	–65.5
Russian Federation[a]	465 622	312 894	292 629	318 551	291 401	–37.4
Slovakia[a]	8 327	4 626	3 928	3 938	3 758	–54.9
Slovenia[a, b]	2 926	2 385	2 091	2 047	1 917	–34.5
Spain	41 264	43 914	41 388	42 023	42 019	1.8
Sweden	8 863	6 316	5 044	5 001	4 927	–44.4
Switzerland	6 257	5 431	4 956	4 965	4 928	–21.2
Türkiye[d]	51 351	60 090	73 613	74 699	72 234	40.7
Ukraine[a]	207 951	97 315	83 094	82 561	66 291	–68.1
United Kingdom	150 676	75 631	58 014	57 315	56 761	–62.3
United States	924 802	858 440	794 654	782 584	760 794	–17.7
Number of Parties showing a decrease in emissions of more than 1%:						*35*
Number of Parties showing a change in emissions within 1%:						*1*
Number of Parties showing an increase in emissions of more than 1%:						*7*

[a] EIT Party.
[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.
[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.
[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 8
Total anthropogenic N_2O emissions without emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	13 251	16 042	15 288	16 510	16 709	26.1
Austria	4 028	3 014	3 105	3 143	3 040	–24.5
Belarus[a]	14 427	11 160	11 493	11 480	11 400	–21.0
Belgium	8 951	6 699	4 815	4 763	4 489	–49.8
Bulgaria[a, b]	8 887	3 558	4 179	4 279	4 202	–52.7
Canada	30 645	24 819	27 870	26 901	28 384	–7.4
Croatia[a]	2 535	2 159	1 453	1 444	1 325	–47.7
Cyprus	146	172	173	175	175	20.0
Czechia[a]	8 236	4 771	4 815	5 091	5 183	–37.1
Denmark	7 772	5 043	5 049	4 713	4 674	–39.9
Estonia[a]	1 204	665	833	856	871	–27.7
European Union[c]	–	–	–	–	–	–
Finland	5 567	4 124	4 133	4 156	3 935	–29.3
France	51 821	29 467	26 410	26 087	24 959	–51.8
Germany	49 928	26 578	23 974	23 327	23 005	–53.9
Greece	6 856	5 035	3 962	3 943	3 735	–45.5
Hungary[a, b]	9 897	3 289	4 445	4 474	3 668	–62.9
Iceland	287	247	239	243	237	–17.4
Ireland	6 025	5 243	5 670	5 893	5 494	–8.8
Italy	24 475	18 305	17 570	17 457	15 738	–35.7
Japan	28 878	20 573	17 692	17 592	17 252	–40.3
Latvia[a]	2 298	1 090	1 340	1 336	1 344	–41.5
Liechtenstein	8	8	8	8	8	–10.4
Lithuania[a]	4 425	2 473	2 641	2 524	2 201	–50.3
Luxembourg	231	234	241	246	216	–6.4
Malta	59	56	53	52	56	–5.0
Monaco	2	4	2	3	2	15.4
Netherlands (Kingdom of the)	15 966	7 725	7 315	7 012	6 543	–59.0
New Zealand	5 103	6 692	7 389	7 221	6 877	34.8
Norway	3 814	2 293	2 214	2 219	2 211	–42.0
Poland[a, b]	29 801	19 604	20 349	20 547	19 836	–33.4
Portugal	3 568	3 600	3 548	3 539	3 356	–6.0
Romania[a, b]	22 504	9 667	9 594	10 338	9 227	–59.0
Russian Federation[a]	108 812	50 208	61 504	63 737	65 905	–39.4
Slovakia[a]	3 313	2 156	1 399	1 325	1 248	–62.3
Slovenia[a, b]	727	638	677	661	703	–3.2
Spain	12 540	11 930	11 869	11 765	11 625	–7.3
Sweden	4 797	3 890	3 699	3 606	3 625	–24.4
Switzerland	4 049	3 261	2 986	2 885	2 453	–39.4
Türkiye[d]	22 179	24 446	36 114	35 916	34 286	54.6
Ukraine[a]	47 881	24 220	32 615	37 412	26 667	–44.3
United Kingdom	42 056	18 995	17 337	17 716	16 852	–59.9
United States	408 151	418 263	391 168	398 167	389 708	–4.5
Number of Parties showing a decrease in emissions of more than 1%:						*37*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*5*

[a] EIT Party.
[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.
[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.
[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 9
Total anthropogenic N_2O emissions with emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	17 541	21 015	18 627	19 684	20 056	14.3
Austria	4 171	3 152	3 234	3 271	3 168	–24.1
Belarus[a]	14 441	11 175	11 521	11 493	11 409	–21.0
Belgium	8 956	6 785	4 912	4 861	4 588	–48.8
Bulgaria[a, b]	8 955	3 623	4 279	4 376	4 305	–51.9
Canada	30 981	25 160	28 148	27 191	28 663	–7.5
Croatia[a]	2 580	2 285	1 637	1 604	1 495	–42.1
Cyprus	146	173	174	179	176	20.7
Czechia[a]	8 254	4 781	4 823	5 097	5 196	–37.0
Denmark	7 839	5 084	5 086	4 751	4 712	–39.9
Estonia[a]	1 442	918	1 099	1 122	1 138	–21.1
European Union[c]	298 000	191 000	184 000	183 000	175 000	–41.3
Finland	7 065	5 992	5 927	5 938	5 694	–19.4
France	53 887	30 879	27 271	26 948	25 888	–52.0
Germany	50 896	27 695	25 178	24 505	24 184	–52.5
Greece	6 862	5 051	3 976	3 967	3 752	–45.3
Hungary[a, b]	9 920	3 309	4 471	4 500	3 728	–62.4
Iceland	288	248	240	244	239	–17.1
Ireland	6 220	5 726	6 093	6 299	5 890	–5.3
Italy	25 383	18 707	18 090	18 076	16 288	–35.8
Japan	29 749	21 093	18 092	17 995	17 658	–40.6
Latvia[a]	2 784	1 612	1 902	1 906	1 914	–31.3
Liechtenstein	9	8	8	8	8	–8.3
Lithuania[a]	4 523	2 584	2 757	2 649	2 315	–48.8
Luxembourg	241	252	250	255	219	–9.2
Malta	59	56	54	53	57	–4.5
Monaco	2	4	2	3	2	15.1
Netherlands (Kingdom of the)	16 064	7 816	7 396	7 095	6 628	–58.7
New Zealand	5 395	7 004	7 636	7 450	7 147	32.5
Norway	4 031	2 529	2 457	2 464	2 447	–39.3
Poland[a, b]	31 838	20 668	22 395	22 589	21 911	–31.2
Portugal	4 183	4 331	4 136	4 143	3 941	–5.8
Romania[a, b]	22 690	9 916	9 673	10 408	9 330	–58.9
Russian Federation[a]	115 261	58 788	71 973	80 691	73 199	–36.5
Slovakia[a]	3 431	2 189	1 436	1 357	1 293	–62.3
Slovenia[a, b]	790	687	713	696	743	–6.0
Spain	13 023	12 261	12 104	12 015	11 909	–8.6
Sweden	5 889	4 963	4 799	4 728	4 731	–19.7
Switzerland	4 103	3 307	3 034	2 933	2 504	–39.0
Türkiye[d]	22 228	24 480	36 210	36 357	34 355	54.6
Ukraine[a]	48 053	24 394	32 938	37 565	26 761	–44.3
United Kingdom	43 964	20 405	18 636	19 006	18 149	–58.7
United States	412 992	422 666	400 233	408 916	398 822	–3.4
Number of Parties showing a decrease in emissions of more than 1%:						*38*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*5*

[a] EIT Party.
[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.
[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.
[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 10
Total aggregate anthropogenic emissions of F-gases

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	5 565	7 135	11 295	11 922	11 451	105.8
Austria	1 550	1 854	2 143	1 837	1 816	17.2
Belarus[a]	–	–	–	–	–	–
Belgium	3 701	3 218	3 405	2 677	2 428	–34.4
Bulgaria[a, b]	3	434	815	812	726	21 239.1
Canada	10 930	9 421	12 257	11 728	11 668	6.7
Croatia[a]	1 128	574	1 582	1 707	1 822	61.5
Cyprus	3	211	353	377	402	14 604.9
Czechia[a]	87	2 573	3 817	3 835	3 726	4 191.2
Denmark	39	853	364	290	275	603.8
Estonia[a]	–	173	183	193	200	–
European Union[c]	50 000	94 000	75 000	72 000	66 000	32.0
Finland	56	1 346	932	867	793	1 307.6
France	11 159	18 819	12 511	11 194	9 933	–11.0
Germany	12 324	13 689	11 552	10 897	9 948	–19.3
Greece	1 165	4 339	4 955	4 792	4 649	299.1
Hungary[a, b]	341	1 366	1 957	1 939	1 858	445.1
Iceland	446	266	287	254	207	–53.6
Ireland	36	1 121	706	745	741	1 986.7
Italy	3 408	14 631	10 760	10 129	9 957	192.2
Japan	33 364	30 009	51 897	52 371	51 657	54.8
Latvia[a]	–	224	256	271	263	–
Liechtenstein	10	14	10	9	18	83.3
Lithuania[a]	–	253	512	526	540	–
Luxembourg	0.9	56	56	54	51	5 588.7
Malta	0.01	124	207	209	205	1 873 991.4
Monaco	0.08	6	5	5	6	6 960.3
Netherlands (Kingdom of the)	7 307	2 376	1 233	1 355	1 214	–83.4
New Zealand	839	1 077	1 439	1 647	1 569	87.1
Norway	5 663	1 046	997	1 038	940	–83.4
Poland[a, b]	132	5 652	5 230	5 070	4 575	3 357.6
Portugal	–	1 477	2 028	2 011	2 024	–
Romania[a, b]	4 006	962	1 913	1 962	2 024	–49.5
Russian Federation[a]	45 170	16 129	33 221	33 503	35 415	–21.6
Slovakia[a]	214	618	678	704	502	134.7
Slovenia[a, b]	220	259	308	307	303	37.7
Spain	3 541	15 803	4 986	5 129	5 470	54.5
Sweden	622	1 298	985	934	884	42.3
Switzerland	246	1 447	1 540	1 426	1 355	450.7
Türkiye[d]	425	3 204	6 192	6 904	10 400	2 349.0
Ukraine[a]	212	749	2 045	2 295	2 384	1 024.5
United Kingdom	14 788	11 754	9 288	8 720	8 133	–45.0
United States	125 455	171 403	186 322	192 957	198 128	57.9
Number of Parties showing a decrease in emissions of more than 1%:						*9*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*29*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 11
Net anthropogenic CO_2 emissions and removals from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	153 350	37 585	–78 759	–105 645	–105 680	–168.9
Austria	–11 852	–19 604	–6 000	–11 231	–4 629	60.9
Belarus[a]	–19 858	–40 875	–27 076	–32 494	–32 100	–61.6
Belgium	–2 945	–446	–482	–379	–518	82.4
Bulgaria[a, b]	–17 778	–12 019	–9 718	–9 684	–9 665	45.6
Canada	48 024	38 308	24 758	12 609	50 568	5.3
Croatia[a]	–6 394	–7 036	–5 879	–5 930	–5 074	20.6
Cyprus	–153	–267	–300	–245	–301	–96.4
Czechia[a]	–8 875	–7 734	9 681	6 572	3 344	137.7
Denmark	6 332	2 018	953	–145	–731	–111.5
Estonia[a]	–5 546	–4 997	902	470	–2	100.0
European Union[c]	–	–	–	–	–	–
Finland	–26 366	–25 338	–8 003	840	1 836	107.0
France	–20 985	–38 836	–22 952	–20 641	–20 272	3.4
Germany	25 738	–8 581	–1 812	–4 970	–3 252	–112.6
Greece	–2 345	–3 436	–5 238	–5 190	–5 470	–133.3
Hungary[a, b]	–2 419	–4 825	–7 129	–7 222	–6 920	–186.0
Iceland	5 952	5 980	5 925	5 923	5 929	–0.4
Ireland	716	710	999	392	–356	–149.8
Italy	–5 271	–40 282	–28 205	–25 895	–22 108	–319.4
Japan	–73 696	–79 325	–58 785	–58 762	–53 660	27.2
Latvia[a]	–13 399	–2 953	–649	768	3 485	126.0
Liechtenstein	7	20	1	–3	–1	–122.6
Lithuania[a]	–5 453	–10 543	–6 208	–5 648	–6 490	–19.0
Luxembourg	–1	–223	–456	–614	–651	–55 899.6
Malta	–10	14	8	0.04	0.19	101.9
Monaco	–0.1	–0.09	–0.07	–0.08	–0.08	34.7
Netherlands (Kingdom of the)	4 678	4 711	3 647	3 708	4 382	–6.3
New Zealand	–24 693	–28 987	–21 405	–20 771	–19 591	20.7
Norway	–12 188	–26 736	–16 574	–12 205	–14 202	–16.5
Poland[a, b]	–19 129	–37 412	–25 435	–25 966	–37 747	–97.3
Portugal	5 705	–7 587	–5 412	–6 875	–6 769	–218.7
Romania[a, b]	–21 310	–35 311	–49 210	–48 224	–46 616	–118.8
Russian Federation[a]	–559 232	–1 807 287	–1 220 164	–1 007 353	–1 245 749	–122.8
Slovakia[a]	–9 023	–4 759	–7 244	–7 263	–7 317	18.9
Slovenia[a, b]	–4 847	–7 221	–437	–360	–221	95.4
Spain	–34 728	–46 290	–46 792	–47 877	–47 870	–37.8
Sweden	–53 020	–58 354	–44 596	–45 171	–42 788	19.3
Switzerland	–3 047	–3 178	–712	–1 336	365	112.0
Türkiye[d]	–66 572	–72 118	–57 859	–49 096	–56 237	15.5
Ukraine[a]	–47 264	–20 837	–15 896	–5 196	–15 231	67.8
United Kingdom	3 303	–5 665	–6 220	–6 451	–6 225	–288.5
United States	–1 034 678	–941 569	–972 765	–983 418	–921 792	10.9
Number of Parties showing a decrease in emissions of more than 1%:						*20*
Number of Parties showing a change in emissions within 1%:						*1*
Number of Parties showing an increase in emissions of more than 1%:						*22*

[a] EIT Party.

[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.

[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 12
Anthropogenic CH_4 emissions from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	20 627	20 735	14 188	13 940	13 959	–32.3
Austria	27	27	27	27	27	0.8
Belarus[a]	9	6	27	19	9	–1.4
Belgium	0.1	–	–	0.3	–	–
Bulgaria[a, b]	1	17	14	8	21	1 658.9
Canada	824	808	606	638	612	–25.8
Croatia[a]	1	2	36	7	37	2 595.6
Cyprus	0.03	0.7	0.4	5	0.3	744.6
Czechia[a]	19	12	10	9	21	5.9
Denmark	295	301	302	306	311	5.7
Estonia[a]	73	74	75	75	75	3.0
European Union[c]	–	–	–	–	–	–
Finland	1 693	1 092	855	852	848	–49.9
France	629	785	737	735	843	33.9
Germany	6 175	6 351	6 405	6 413	6 455	4.5
Greece	70	18	21	154	62	–11.5
Hungary[a, b]	23	10	12	13	73	212.0
Iceland	1 779	1 786	1 775	1 775	1 827	2.7
Ireland	4 100	4 056	3 731	3 830	3 944	–3.8
Italy	720	196	186	489	358	–50.3
Japan	117	88	79	87	80	–31.4
Latvia[a]	523	536	845	865	889	69.9
Liechtenstein	–	–	–	–	–	–
Lithuania[a]	2	2	0.4	0.1	0.4	–82.7
Luxembourg	–	–	–	–	–	–
Malta	0.03	–	–	–	–	–
Monaco	–	–	–	–	–	–
Netherlands (Kingdom of the)	598	624	598	596	593	–0.8
New Zealand	77	102	98	37	82	7.5
Norway	196	210	217	218	219	12.2
Poland[a, b]	55	14	59	8	27	–50.3
Portugal	818	295	117	249	259	–68.3
Romania[a, b]	0.2	0.4	20	5	47	28 521.3
Russian Federation[a]	11 445	14 416	15 629	28 862	9 617	–16.0
Slovakia[a]	12	22	27	20	46	268.4
Slovenia[a, b]	1	0.1	0.3	0.09	9	783.3
Spain	351	98	82	111	169	–52.0
Sweden	539	468	454	458	465	–13.8
Switzerland	34	14	13	14	18	–48.5
Türkiye[d]	94	26	122	780	72	–23.0
Ukraine[a]	42	42	330	10	44	4.2
United Kingdom	5 573	5 607	5 700	5 705	5 722	2.7
United States	53 143	50 841	59 305	62 116	58 439	10.0
Number of Parties showing a decrease in emissions of more than 1%:						*16*
Number of Parties showing a change in emissions within 1%:						*2*
Number of Parties showing an increase in emissions of more than 1%:						*19*

[a] EIT Party.
[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.
[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.
[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 13
Anthropogenic N_2O emissions from land use, land-use change and forestry

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	4 290	4 973	3 339	3 174	3 347	–22.0
Austria	143	138	129	128	127	–10.9
Belarus[a]	14	15	29	14	10	–31.5
Belgium	5	86	97	98	99	1 742.2
Bulgaria[a, b]	68	65	99	97	104	51.6
Canada	336	341	278	290	280	–16.8
Croatia[a]	45	127	184	160	170	280.1
Cyprus	0.03	1	1	4	1	3 759.9
Czechia[a]	18	10	8	7	13	–28.0
Denmark	67	41	37	38	39	–42.8
Estonia[a]	238	253	266	266	267	12.2
European Union[c]	–	–	–	–	–	–
Finland	1 498	1 868	1 794	1 782	1 759	17.4
France	2 066	1 411	861	861	930	–55.0
Germany	968	1 116	1 205	1 178	1 179	21.8
Greece	6	16	14	24	17	198.8
Hungary[a, b]	23	20	25	26	60	166.2
Iceland	0.9	1	1	2	1	59.7
Ireland	195	483	423	406	396	103.3
Italy	908	402	520	619	550	–39.4
Japan	871	521	400	403	405	–53.5
Latvia[a]	486	522	563	569	570	17.3
Liechtenstein	0.2	0.4	0.4	0.4	0.4	91.6
Lithuania[a]	98	111	116	125	114	16.5
Luxembourg	10	18	9	9	3	–72.4
Malta	0.3	0.1	0.6	0.6	0.6	80.1
Monaco	0.01	0.01	0.003	0.01	0.01	–34.5
Netherlands (Kingdom of the)	98	91	81	83	85	–13.1
New Zealand	292	312	246	229	270	–7.5
Norway	218	236	243	245	236	8.6
Poland[a, b]	2 037	1 064	2 046	2 042	2 075	1.9
Portugal	615	731	588	604	585	–4.9
Romania[a, b]	186	249	80	69	102	–45.0
Russian Federation[a]	6 448	8 579	10 469	16 955	7 293	13.1
Slovakia[a]	118	33	37	32	45	–61.8
Slovenia[a, b]	64	49	36	35	39	–38.2
Spain	483	330	235	250	283	–41.4
Sweden	1 091	1 073	1 100	1 122	1 106	1.3
Switzerland	54	46	48	49	51	–5.6
Türkiye[d]	48	34	96	440	69	43.4
Ukraine[a]	171	174	322	153	94	–45.4
United Kingdom	1 907	1 410	1 299	1 290	1 297	–32.0
United States	4 840	4 403	9 065	10 749	9 114	88.3
Number of Parties showing a decrease in emissions of more than 1%:						*21*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*21*

[a] EIT Party.
[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.
[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.
[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.

Table 14
Indirect CO_2 emissions

	kt CO_2 eq					*Change 1990–2022 (%)*
Party	*1990*	*2010*	*2020*	*2021*	*2022*	
Australia	–	–	–	–	–	–
Austria	–	–	–	–	–	–
Belarus[a]	–	–	–	–	–	–
Belgium	–	–	–	–	–	–
Bulgaria[a, b]	93	74	60	68	63	–31.5
Canada	–	–	–	–	–	–
Croatia[a]	–	–	–	–	–	–
Cyprus	8	12	9	8	6	–18.5
Czechia[a]	1 927	988	648	648	611	–68.3
Denmark	1 250	589	322	323	286	–77.1
Estonia[a]	–	–	–	–	–	–
European Union[c]	8 000	5 000	4 000	4 000	4 000	–50.0
Finland	165	68	67	58	51	–68.9
France	1 657	998	827	834	848	–48.8
Germany	–	–	–	–	–	–
Greece	–	–	–	–	–	–
Hungary[a, b]	–	–	–	–	–	–
Iceland	–	–	–	–	–	–
Ireland	–	–	–	–	–	–
Italy	1 311	860	705	740	728	–44.5
Japan	5 490	2 442	1 875	1 844	1 821	–66.8
Latvia[a]	41	16	13	13	11	–72.6
Liechtenstein	–	–	–	–	–	–
Lithuania[a]	33	32	38	40	38	15.4
Luxembourg	–	–	–	–	–	–
Malta	–	–	–	–	–	–
Monaco	0.2	0.3	0.2	0.2	0.2	–2.4
Netherlands (Kingdom of the)	917	458	419	503	457	–50.1
New Zealand	–	–	–	–	–	–
Norway	465	176	154	130	125	–73.2
Poland[a, b]	623	545	528	471	419	–32.8
Portugal	93	186	140	185	127	36.9
Romania[a, b]	–	–	–	–	–	–
Russian Federation[a]	–	–	–	–	–	–
Slovakia[a]	87	49	46	44	40	–54.5
Slovenia[a, b]	–	–	–	–	–	–
Spain	–	–	–	–	–	–
Sweden	–	–	–	–	–	–
Switzerland	391	133	100	95	94	–75.9
Türkiye[d]	–	–	–	–	–	–
Ukraine[a]	–	–	–	–	–	–
United Kingdom	–	–	–	–	–	–
United States	–	–	–	–	–	–
Number of Parties showing a decrease in emissions of more than 1%:						*16*
Number of Parties showing a change in emissions within 1%:						*0*
Number of Parties showing an increase in emissions of more than 1%:						*2*

[a] EIT Party.
[b] Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.
[c] Emission estimates of the European Union are as reported for its 27 member States as a group and are reported separately from those of each individual member State.
[d] Decision 26/CP.7 invited Parties to recognize the special circumstances of Türkiye, which place it in a situation different from that of other Annex I Parties.