Framework Convention on
Climate Change

FCCC/WEB/AGI/2019

27 June 2019

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention

Note by the secretariat

Contents

I. Mandate

1. The Conference of the Parties (COP), by its decision 13/CP.20, adopted the revised guidelines for the technical review of greenhouse gas (GHG) inventories from Parties included in Annex I to the Convention (Annex I Parties). As part of the process for the technical review of GHG inventories, the COP requested the secretariat to compile and tabulate aggregate information on greenhouse gas emissions by sources and removals by sinks and trends from the latest available GHG inventory submissions of Annex I Parties and publish this information in a stand-alone document.[1]

2. Pursuant to decision 4/CMP.11, the initial check and the scope of the individual review shall be conducted consistent with the initial assessment and apply the relevant provisions for the review contained in decision 13/CP.20.

3. The COP, by its decision 24/CP.19, adopted the revised "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories" (hereinafter referred to as the UNFCCC reporting guidelines) and a revised set of common reporting format (CRF) tables[2] to be used by Annex I Parties to report quantitative GHG inventory data. Similarly, the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), by decision 6/CMP.9, adopted the revised CRF tables[3] that Parties shall use for reporting information on anthropogenic greenhouse gas emissions by sources and removals by sinks from land use, land-use change and forestry (LULUCF) activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the second commitment period.

II. Comparison of greenhouse gas inventory information

A. Approach

4. This document contains GHG inventory information compiled in tabular format. The tables provide information on emissions by sources and removals by sinks, implied emission factors (IEFs), and activity data (AD) reported by Annex I Parties. In addition, the tables contain information on the methods and emission factors used, activity data from international sources and other information relating to GHG inventory estimates. This information is provided for both the base year/period and for the year 2017.

5. Where it has been submitted by Annex I Parties listed in annex B to the Kyoto Protocol, pages 50–73 of this document also contain inventory information on anthropogenic GHG emissions by sources and removals by sinks from LULUCF activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol, reported in accordance with decision 15/CMP.1, in conjunction with decision 3/CMP.11.

6. The information provided in this document is based on information in the CRF tables of the 2019 national GHG inventories submission, received from Parties as at 27 May 2019. It does not cover information contained in inventory submissions from previous years.

7. The inventory data is presented according to the sectors, subsectors and categories specified in the CRF tables.

[1] Decision 13/CP.20, paragraph 8.
[2] The tables, agreed in decision 24/CP.19, can be accessed here: <http://unfccc.int/5333.php>.
[3] The tables, agreed in decision 6/CMP.9, can be accessed here: <http://unfccc.int/7969.php>.

8. As at 27 May 2019, 44 Parties had submitted their CRF tables, including Kazakhstan, which is an Annex I Party for the purposes of the Kyoto Protocol, while remaining a Party not included in Annex I to the Convention for the purposes of the Convention.

9. Four Parties, Denmark, the European Union (EU), France and the United Kingdom of Great Britain and Northern Ireland, provided more than one set of CRF tables in order to address the different geographical areas used for reporting under the Convention and for reporting under the Kyoto Protocol. For the purposes of the this document, the following naming conventions are used to identify inventory submissions under the Convention: Denmark (Convention), covering the Kingdom of Denmark (Denmark mainland, Greenland and Faroe Islands); European Union (Convention), covering its 28 member States; France (Convention) covering metropolitan France, the French Overseas Departments, the French Overseas Collectivities and New Caledonia; and United Kingdom of Great Britain and Northern Ireland (Convention), covering United Kingdom, the Crown Dependencies, Bermuda, Cayman Islands, Falkland Islands and Gibraltar. The following naming conventions are used to identify inventory submissions under the Kyoto Protocol: Denmark (KP), covering Denmark mainland; European Union (KP), covering its 28 member states and Iceland; France (KP), covering metropolitan France and the French Overseas Departments (including Mayotte); and United Kingdom of Great Britain and Northern Ireland (KP), covering United Kingdom, the Crown Dependencies, Cayman Islands, Falkland Islands and Gibraltar.

10. The information contained in this report is not intended as a judgment of whether inventory problems exist, but as an indication of potential issues that need to be considered further during the individual review by the expert review team.

B. Explanatory notes to the tables

11. Blank cells in a table indicate that a Party did not report information for a given category, gas, AD or other parameter. Where a Party's value is very small compared with that of other Parties, it has been rounded to zero (0.0 or 0.00). Where a Party reports a zero numerical value, a zero value (0) is shown.

12. In tables where shares or contributions of categories, gases, AD or other parameters to a total are shown (e.g. contribution of specific fuel type to the total emissions of a combustion category), where a Party reports a notation key, zero value (0) or blank in either the numerator or denominator of the calculation, the share or contribution to the total is shown using the symbol "–".

13. The differences in AD between the values reported by Parties and international data sources were calculated as percentage deviations from the AD provided by the Party. A positive number indicates that the data from the international data source are higher than the data reported by the Party. Similarly, a negative number indicates that data from the international data source are lower than the data reported by the Party.

14. References to the base year refer to 1990, except for the following Parties with economies in transition which, in accordance with decisions 9/CP.2 and 11/CP.4, use base years other than 1990: Bulgaria (1988), Hungary (average 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986).

15. The column "Share of national total" in the tables indicates the contribution of that category to the Party's national total of GHG emissions in terms of carbon dioxide equivalent, without emissions and removals from LULUCF including indirect CO_2 emissions where reported.

16. Where Parties used notation keys “NO”, “NE”, “NA”, “IE” or “C”, these have been reproduced verbatim from the CRF tables provided by Parties. The notation keys, as described in the UNFCCC reporting guidelines, are as follows:

NO	Not occurring	IE	Included elsewhere
NE	Not estimated	C	Confidential
NA	Not applicable		

17. Where Parties used notation keys “R”, “NO”, “NR” or “IE”, these have been reproduced verbatim from the tables provided by Parties. The notations keys, as described in the tables referred to in decision 6/CMP.9, are as follows:

R	Reported	NR	Not reported
NO	Not occurring	IE	Included elsewhere

18. Tables on energy indicate whether IEFs given in the CRF are based on gross calorific value (GCV) or net calorific value (NCV). Australia, Canada, Japan, New Zealand and United States of America reported energy data on a GCV basis, whilst Denmark reported using a combination of GCV and NCV. Hence, reported IEFs are about 5 per cent lower for liquid, solid and other fuels, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

19. The following chemical formulae or abbreviations for GHGs are used in this document:

C	carbon
CH_4	methane
CO_2	carbon dioxide
HFCs	hydrofluorocarbons
N_2O	nitrous oxide
NF_3	nitrogen trifluoride
NMVOC	non-methane volatile organic compound
PFCs	perfluorocarbons
SF_6	sulphur hexafluoride

20. To indicate the methods and emission factors used by Parties, the following abbreviations have been used (see also footnotes to Summary table 3 of the CRF) in this document:

Methods:		Emission factors:	
D	IPCC default	D	IPCC default
RA	Reference approach	CR	CORINAIR
T1	IPCC tier 1	CS	Country specific
T1a	IPCC tier 1a	PS	Plant specific
T1b	IPCC tier 1b	M	Model
T1c	IPCC tier 1c	OTH	Other
T2	IPCC tier 2		
T3	IPCC tier 3		

CR	CORINAIR
CS	Country specific
M	Model
OTH	Other

21. The following units have been used in this document:

kg	kilogram (10^3 grams)
kt	kilotonne (10^9 grams)
Mg	megagram (10^6 grams) – same as tonne
t	tonne (10^6 grams)
Mt	megatonne (10^{12} grams)
TJ	terajoule (10^{12} joules)
PJ	petajoule (10^{15} joules)
km	kilometre
ha	hectare
kha	thousand hectares
m^3	cubic metre

22. The following abbreviations have been used in this document:

AB	area burned
AD	activity data
BB	biomass burned
CO	carbon monoxide
CRF	common reporting format
CSC	carbon stock change
dm	dry matter
DOM	dead organic matter
EF	emission factor
FAO	Food and Agriculture Organization of the United Nations
GCV	gross calorific value
GHG	greenhouse gas
IEA	International Energy Agency
IEF	implied emission factor
LPG	liquefied petroleum gas
LULUCF	land use, land-use change and forestry
N	nitrogen
NCV	net calorific value
NIR	national inventory report

NMVOC	non-methane volatile organic compounds
NO_X	nitrogen oxides
yr	year

C. List of sectoral figures and tables with information submitted under decision 24/CP.19

1. General

Figure number	Figure name
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2. Energy

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Table 1.2	Stationary combustion: liquid fuels – CO_2 (2017)
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Table 1.11d	Fugitive emissions from fuels: oil and natural gas – venting and flaring – CH_4, CO_2 (2017)
Table 1.12	CO_2 transport and storage (2017)

3. Industrial processes and product use

Figure number	Figure name
Figure 2.1	Contribution of subsectors to total GHG emissions in the Industrial processes and product use sector

Table number	Table name
Table 2.1	Mineral industry – CO_2 (2017)
Table 2.2	Chemical industry – CO_2 and N_2O (2017)
Table 2.3	Metal industry – CO_2 (2017)
Table 2.4	HFCs, PFCs, SF_6 and NF_3 (2017)

4. Agriculture

Figure number	Figure name
Figure 3.1	Contribution of subsectors to total GHG emissions in the Agriculture sector

Table number	Table name
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Table 3.2	Manure management – CH_4 (2017)
Table 3.3	Manure management – N_2O (2017)
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Table 4.4	Grassland – AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2017)
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6. Waste

Figure number	Figure name
Figure 5.1	Contribution of subsectors to total GHG emissions in the Waste sector

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Table 5.1a–b	Solid waste disposal on land, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge (2017)

D. List of tables with information submitted under Article 7, paragraph 1, of the Kyoto Protocol in accordance with decisions 15/CMP.1, in conjunction with 3/CMP.11, and 6/CMP.9

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Table 6.3(i)	Revegetation - area and implied carbon stock change factors from the change in carbon stocks for the base year
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Table 6.3(k)	Wetland drainage and rewetting - area and implied carbon stock change factors from the change in carbon stocks for the base year
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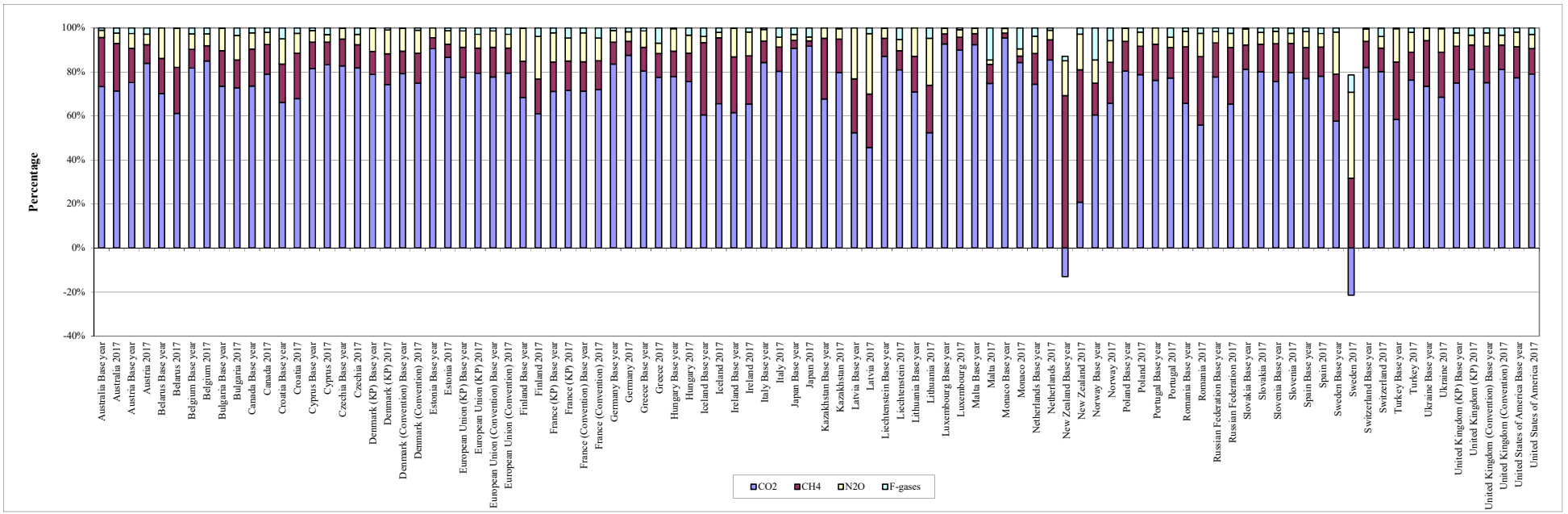
Table 6.7(d)	Emissions from biomass burning on revegetation land
Table 6.7(e)	Emissions from biomass burning on wetland drainage and rewetting land

Figure G.1

GHG emissions by gas[a] (with LULUCF): base year[b] and 2017

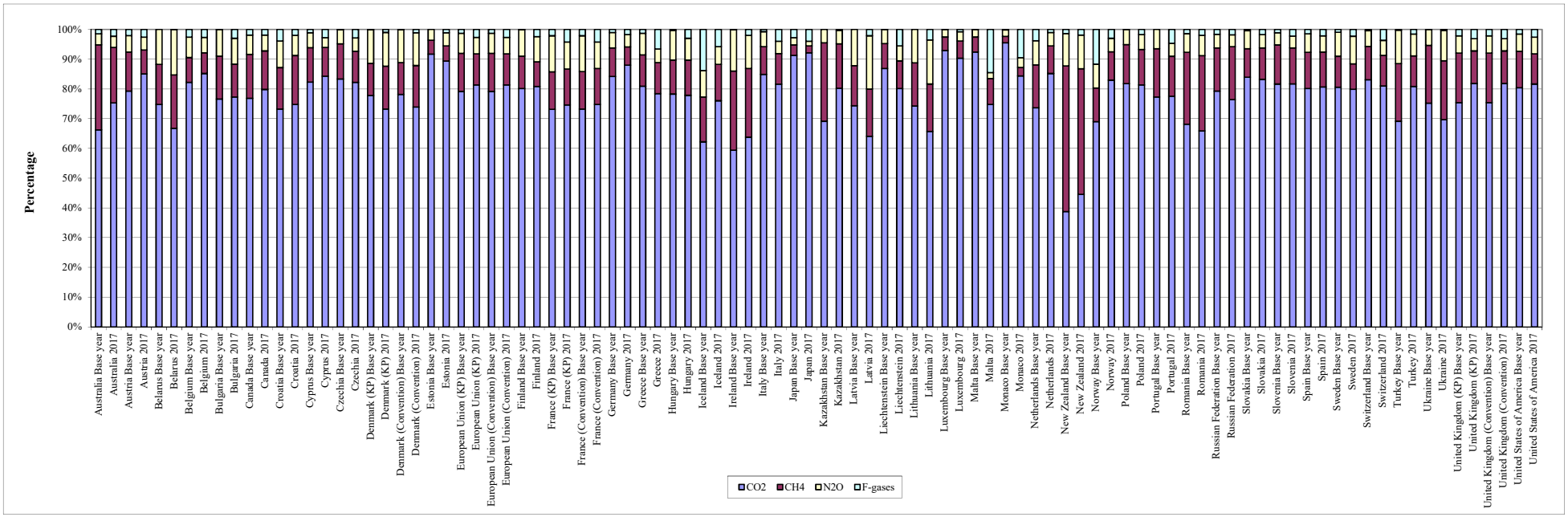


[a] The national totals and emissions by CO_2 in this graph include indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.2

GHG emissions by gas[a] (without LULUCF): base year[b] and 2017

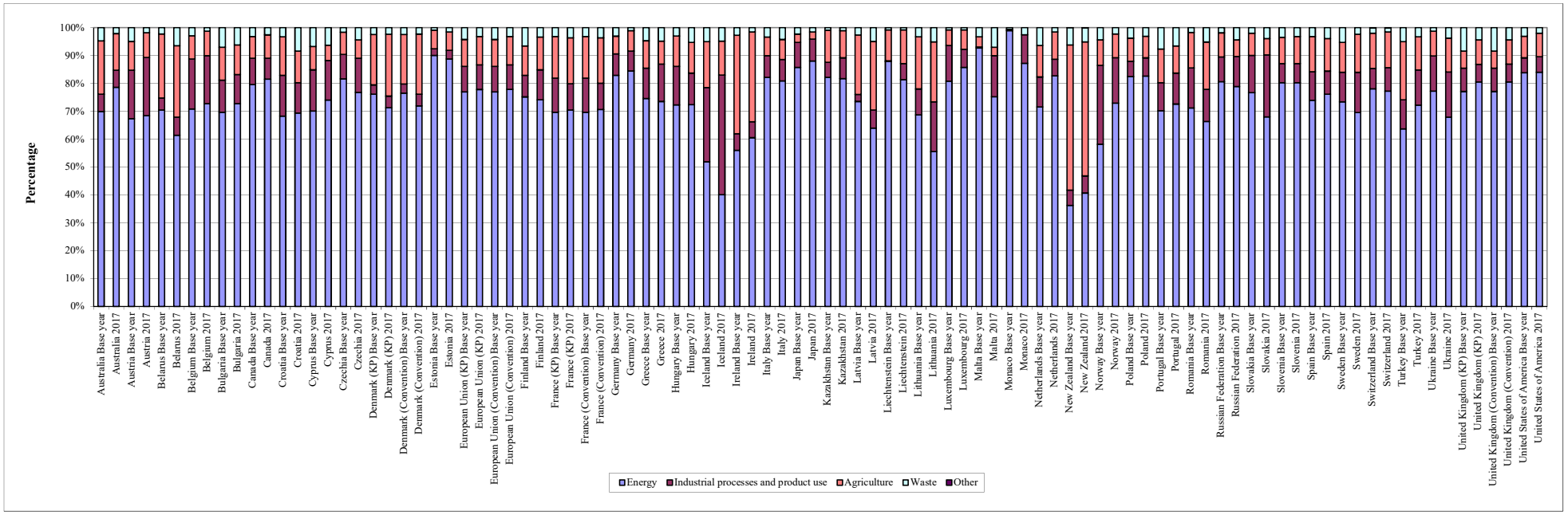


[a] The national totals and emissions by CO_2 in this graph include indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Figure G.3

GHG emissions[a] by sector (without LULUCF): base year[b] and 2017



[a] The national totals and emissions by CO_2 in this graph include indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table G.1

Submissions used in this report [a]

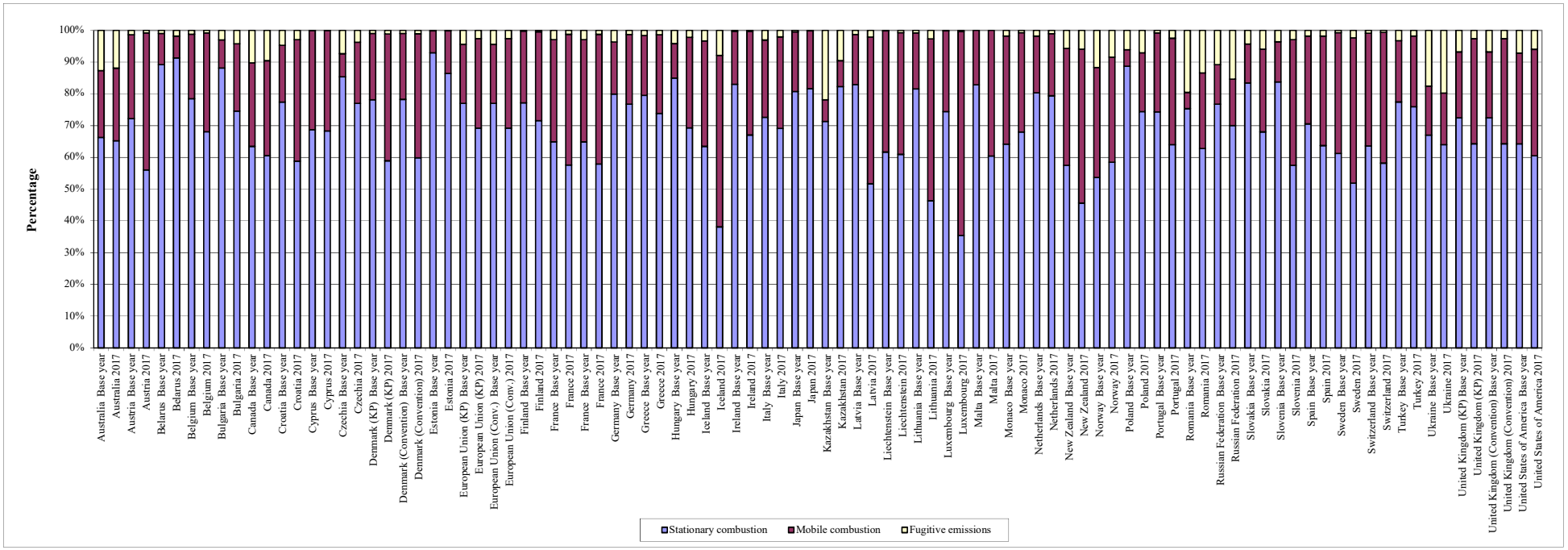
Party	Initial submission date	CRF for years	NIR	CRF submission date and version used in this report	CRF Reporter version (version used in this report)	CRF KP LULUCF [b] submission date and version used in this report	CRF KP LULUCF [b] Reporter version (version used in this report)
Australia	24 May 2019	1990-2017	24 May 2019	24 May 2019 (1)	6.0.7	24 May 2019 (1)	6.0.7
Austria	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Belarus	12 April 2019	1990-2017	12 April 2019	12 April 2019 (1)	6.0.7		
Belgium	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Bulgaria	15 April 2019	1988-2017	12 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Canada	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	NA	NA
Croatia	11 April 2019	1990-2017	23 May 2019	23 May 2019 (2)	6.0.7	23 May 2019 (2)	6.0.7
Cyprus	16 April 2019	1990-2017	15 May 2019	15 May 2019 (2)	6.0.7	15 May 2019 (2)	6.0.7
Czechia	12 April 2019	1990-2017	12 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Denmark (KP)	12 April 2019	1990-2017	12 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Denmark (Convention)	12 April 2019	1990-2017	12 April 2019	12 April 2019 (1)	6.0.7	NA	NA
Estonia	12 April 2019	1990-2017	11 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
European Union (KP)	15 April 2019	1990-2017	27 May 2019	27 May 2019 (2)	6.0.7	27 May 2019 (2)	6.0.7
European Union (Convention)	15 April 2019	1990-2017	27 May 2019	27 May 2019 (2)	6.0.7	NA	NA
Finland	10 April 2019	1990-2017	11 April 2019	10 April 2019 (1)	6.0.7	10 April 2019 (1)	6.0.7
France (KP)	2 April 2019	1990-2017	02 April 2019	02 April 2019 (1)	6.0.7	02 April 2019 (1)	6.0.7
France (Convention)	3 April 2019	1990-2017	02 April 2019	03 April 2019 (1)	6.0.7	NA	NA
Germany	12 April 2019	1990-2017	15 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Greece	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Hungary	15 April 2019	1985-87, 1986-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Iceland	14 April 2019	1990-2017	14 April 2019	14 April 2019 (1)	6.0.7	14 April 2019 (1)	6.0.7
Ireland	10 April 2019	1990-2017	09 April 2019	10 April 2019 (1)	6.0.7	10 April 2019 (1)	6.0.7
Italy	5 April 2019	1990-2017	15 April 2019	05 April 2019 (1)	6.0.7	05 April 2019 (1)	6.0.7
Japan	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Kazakhstan	15 April 2019	1990-2017		15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Latvia	12 April 2019	1990-2017	12 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Liechtenstein	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Lithuania	12 April 2019	1990-2017	16 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Luxembourg	4 April 2019	1990-2017	15 April 2019	04 April 2019 (1)	6.0.7	04 April 2019 (1)	6.0.7
Malta	10 May 2019	1990-2017	17 April 2019	10 May 2019 (1)	6.0.7	10 May 2019 (1)	6.0.7
Monaco	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
Netherlands	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
New Zealand	10 April 2019	1990-2017	11 April 2019	10 April 2019 (1)	6.0.7	10 April 2019 (1)	6.0.7
Norway	12 April 2019	1990-2017	12 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Poland	9 April 2019	1988-2017	23 May 2019	23 May 2019 (2)	6.0.7	23 May 2019 (2)	6.0.7
Portugal	2 April 2019	1990-2017	08 May 2019	08 May 2019 (2)	6.0.7	08 May 2019 (2)	6.0.7
Romania	15 April 2019	1989-2017	07 May 2019	07 May 2019 (3)	6.0.7	07 May 2019 (3)	6.0.7
Russian Federation	13 April 2019	1990-2017	14 April 2019	13 April 2019 (1)	6.0.7	13 April 2019 (1)	6.0.7
Slovakia	11 April 2019	1990-2017	30 April 2019	11 April 2019 (1)	6.0.7	11 April 2019 (1)	6.0.7
Slovenia	10 April 2019	1986-2017	15 April 2019	10 April 2019 (1)	6.0.7	10 April 2019 (1)	6.0.7
Spain	2 April 2019	1990-2017	02 April 2019	02 April 2019 (1)	6.0.7	02 April 2019 (1)	6.0.7
Sweden	12 April 2019	1990-2017	25 April 2019	12 April 2019 (1)	6.0.7	12 April 2019 (1)	6.0.7
Switzerland	15 April 2019	1990-2017	15 April 2019	15 April 2019 (2)	6.0.7	15 April 2019 (2)	6.0.7
Turkey	13 April 2019	1990-2017	13 April 2019	13 April 2019 (1)	6.0.7	NA	NA
Ukraine	16 May 2019	1990-2017	16 May 2019	16 May 2019 (1)	6.0.7	16 May 2019 (1)	6.0.7
United Kingdom of Great Britain and Northern Ireland (KP)	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	15 April 2019 (1)	6.0.7
United Kingdom of Great Britain and Northern Ireland (Convention)	15 April 2019	1990-2017	15 April 2019	15 April 2019 (1)	6.0.7	NA	NA
United States of America	13 April 2019	1990-2017	13 April 2019	13 April 2019 (1)	6.0.7	NA	NA

[a] Greenhouse gas inventories submitted by Parties in 2019 are available at the page https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019

[b] The tables of the common reporting format for the purpose of submission of information on anthropogenic greenhouse gas emissions by sources and removals by sinks from LULUCF activities under Article 3, paragraph 3, forest management, and, if any, elected activities under Article 3, paragraph 4, in accordance with Article 5, paragraph 2, of the Kyoto Protocol. These tables are contained in the annex to decision 6/CMP.9.

Figure 1.1

Contribution of subsectors to total GHG emissions in the Energy sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 1.1

CO_2 emissions from fuel combustion: reference approach and sectoral approach[a]

	Reference approach	Sectoral approach	Difference
	(kt CO_2)		(%)
Australia Base year	254 499	251 676	1.12
Australia 2017	383 020	378 659	1.15
Austria Base year	52 154	51 227	1.81
Austria 2017	55 838	54 923	1.67
Belarus Base year	–450	96 398	-100.47
Belarus 2017	3.4	56 352	-99.99
Belgium Base year	91 858	101 460	-9.46
Belgium 2017	78 430	81 473	-3.73
Bulgaria Base yearb	84 209	77 902	8.10
Bulgaria 2017	45 115	42 078	7.22
Canada Base year	423 712	416 197	1.81
Canada 2017	515 054	514 383	0.13
Croatia Base yearb	20 165	20 056	0.54
Croatia 2017	16 136	16 264	-0.79
Cyprus Base year	4 286	3 927	9.14
Cyprus 2017	6 531	6 579	-0.73
Czechia Base year	150 790	146 782	2.73
Czechia 2017	93 175	93 619	-0.47
Denmark Base year (KP)	51 135	51 299	-0.32
Denmark 2017 (KP)	32 502	32 814	-0.95
Denmark Base year (Convention)	51 766	52 589	-1.56
Denmark 2017 (Convention)	33 051	34 299	-3.64
Estonia Base year	36 108	36 093	0.04
Estonia 2017	16 755	18 240	-8.14
European Union (KP) Base year	4 009 158	4 097 638	-2.16
European Union (KP) 2017	3 181 001	3 231 276	-1.56
European Union (Convention) Base year	4 007 216	4 093 717	-2.11
European Union (Convention) 2017	3 181 487	3 227 132	-1.41
Finland Base year	52 646	52 531	0.22
Finland 2017	40 035	40 030	0.01
France Base year (KP)	370 892	360 939	2.76
France 2017 (KP)	331 264	317 718	4.26
France Base year (Convention)	371 109	363 147	2.19
France 2017 (Convention)	333 473	323 135	3.20
Germany Base year	1 003 977	985 570	1.87
Germany 2017	756 547	745 510	1.48
Greece Base year	74 770	74 622	0.20
Greece 2017	66 941	68 483	-2.25
Hungary Base yearb	74 440	74 209	0.31
Hungary 2017	43 819	44 170	-0.79
Iceland Base year	1 580	1 761	-10.30
Iceland 2017	1 679	1 697	-1.08
Ireland Base year	30 380	30 153	0.75
Ireland 2017	36 273	36 138	0.37
Italy Base year	398 853	405 266	-1.58
Italy 2017	326 982	331 085	-1.24
Japan Base year	1 059 960	1 078 839	-1.75
Japan 2017	1 121 337	1 128 396	-0.63
Kazakhstan Base year	267 911	245 180	9.27
Kazakhstan 2017	251 295	258 475	-2.78
Latvia Base year	18 801	18 488	1.69
Latvia 2017	6 663	6 716	-0.80
Liechtenstein Base year	199	199	0.01
Liechtenstein 2017	156	155	0.91
Lithuania Base year	32 460	32 240	0.68
Lithuania 2017	11 237	10 685	5.16
Luxembourg Base year	10 192	10 217	-0.25
Luxembourg 2017	8 635	8 659	-0.28

Table 1.1

CO_2 emissions from fuel combustion: reference approach and sectoral approach[a]

	Reference approach	Sectoral approach	Difference
	(kt CO_2)		(%)
Malta Base year	1 588	1 938	-18.04
Malta 2017	1 517	1 604	-5.41
Monaco Base year	95	97	-1.44
Monaco 2017	72	73	-0.50
Netherlands Base year	152 951	154 524	-1.02
Netherlands 2017	156 032	156 168	-0.09
New Zealand Base year	21 015	22 056	-4.72
New Zealand 2017	31 258	30 557	2.30
Norway Base year	21 599	25 809	-16.31
Norway 2017	35 915	34 509	4.07
Poland Base yearb	480 515	438 930	9.47
Poland 2017	313 014	311 277	0.56
Portugal Base year	40 166	40 143	0.06
Portugal 2017	49 961	49 034	1.89
Romania Base yearb	182 861	174 075	5.05
Romania 2017	69 197	63 733	8.57
Russian Federation Base year	2 362 968	2 264 027	4.37
Russian Federation 2017	1 468 244	1 430 078	2.67
Slovakia Base year	52 455	53 146	-1.30
Slovakia 2017	27 830	27 222	2.23
Slovenia Base yearb	15 281	15 410	-0.84
Slovenia 2017	13 355	13 276	0.60
Spain Base year	216 595	206 663	4.81
Spain 2017	248 431	250 183	-0.70
Sweden Base year	47 980	50 983	-5.89
Sweden 2017	34 070	34 914	-2.42
Switzerland Base year	41 198	40 873	0.79
Switzerland 2017	36 228	35 943	0.79
Turkey Base year	135 417	129 662	4.44
Turkey 2017	370 613	366 740	1.06
Ukraine Base year	608 895	588 769	3.42
Ukraine 2017	166 168	172 606	-3.73
United Kingdom of Great Britain and Northern Ireland (KP) Base year	546 739	566 126	-3.42
United Kingdom of Great Britain and Northern Ireland (KP) 2017	359 707	366 982	-1.98
United Kingdom of Great Britain and Northern Ireland (Convention) Base year	547 518	566 833	-3.41
United Kingdom of Great Britain and Northern Ireland (Convention) 2017	360 476	367 696	-1.96
United States of America Base year	4 793 351	4 866 257	-1.50
United States of America 2017	4 961 437	5 045 973	-1.68

[a] Indirect CO_2 emissions are excluded from the totals in this table.

[b] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Table 1.2

Stationary combustion: liquid fuels - CO_2 (2017)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors							Other		
			Methods and EF used[c]		CO_2 IEF				Methods and EF used[d]		CO_2 IEF	Methods and EF used[e]		CO_2 IEF					Methods and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	7.34	GCV	T2	CS, PS	67	70	58	70	T2	CS	69	T2	CS	69	69	62	70	T1	CS	NO
Austria	10.92	NCV	T1, T2	CS, D	75	75	75	NO	T1, T2, T3	CS, D	75	D, T1, T2, T3	CS, D	75	75	75	74	T1, T2	CS, D	NO
Belarus	18.15	NCV	T1	D	65	65	NO	NO	T1	D	65	T1	D	82	135	71	74	T1	D	69
Belgium	12.27	NCV	CS, T1, T3	D, PS	68	62	68	NO	CS, T1, T3	D, PS	74	CS, T1, T3	D	74	73	74	74	T1	D	NO
Bulgaria	4.96	NCV	T1, T2	CS, D	69	92	59	67	T1, T2	CS, D	83	T1, T2	CS, D	72	73	63	74			NO
Canada	10.86	GCV	T2	CS	62	77	65	57	T2, T3	CS	71	T2, T3	CS	68	66	68	70	T3	CS	NO
Croatia	13.15	NCV	T1	D	69	77	69	NO	T1	D	86	T1	D	72	72	70	74			NO
Cyprus	49.14	NCV	CS, T1	CS, D	77	77	NO	NO	CS, T1	CS, D	92	T1	D	71	70	70	73	T1	D	74
Czechia	1.51	NCV	T1, T2	CS, D	58	66	55	74	T1, T2	CS, D	72	T1, T2	CS, D	73	72	66	74	T1	D	NO
Denmark (KP)	9.94	NCV	T1, T2, T3	CS, D, PS	60	77	58	74	CR, M, T1, T2, T3	CS, D, PS	82	CR, M, T1, T2, T3	CS, D	73	73	73	74	CR, M, T2	CS	NO
Denmark (Convention)	12.02	NCV	CS, T1, T2, T3	CS, D, PS	62	77	58	73	CR, M, T1, T2, T3	CS, D, PS	82	CR, M, T1, T2, T3	CS, D	74	73	73	74	CR, M, T1, T2	CS, D	NO
Estonia	3.03	NCV	T1, T2, T3	CS, D, PS	75	75	NO	IE, NO	T1, T2, T3	CS, D, PS	72	T1, T2	CS, D	72	69	68	73	T2	CS	NO
European Union (KP)	9.89				68	77	65	72			75			73	73	72	74			74
European Union (Convention)	9.86				68	77	65	72			75			73	73	72	74			74
Finland	16.69	NCV	T3	CS, D, PS	59	75	54	NO	T3	CS, D, PS	68	T1, T2, T3	CS, D	73	74	73	73	T2	CS	70
France (KP)	11.73		T2, T3	CS, PS	64	76	57	NO	T2, T3	CS, PS	75	T1, T2	CS, D	74	74	73	74			NO
France (Convention)	12.09		T2, T3	CS, PS	65	76	57	NO	T2, T3	CS, PS	75	T1, T2	CS, D	74	74	73	74			NO
Germany	10.40	NCV	CS	CS	65	77	64	79	CS	CS, D	75	CS, T1, T2, T3	CS, D	74	73	74	74	CS, D, M	CS, D, M	74
Greece	18.24	NCV	T1, T2	D, PS	72	77	69	NO	T1, T2	CS, D, PS	84	T1, T2	CS, D	72	68	73	71	T1	D	NO
Hungary	5.55	NCV	T1, T2, T3	CS, D, PS	63	76	62	NO	T1, T2, T3	CS, D, PS	78	T1, T2	CS, D	71	71	64	73	T1	D	NO
Iceland	14.91	NCV	T1	D	74	74	NO	NO	T1	D	74	T1, T2	D	75	69	70	75			NO
Ireland	10.29	NCV	T1, T3	CS, D, PS	77	76	77	73	T1, T2, T3	CS, D, PS	77	T1, T2	CS, D	72	73	71	73			IE, NO
Italy	9.94	NCV	T3	CS	72	76	72	NO	T2	CS	78	T2	CS	71	67	69	74	T2	CS	NO
Japan	16.44	GCV	CS, T2	CS	67	69	65	70	CS, T2	CS	66	T2	CS	67	69	65	70			NO
Kazakhstan	5.83	NCV	T1	D	72	77	70	73	T1	D	75	T1	D	64	69	63	65	T1	D	74
Latvia	7.65	NCV	T1, T2	CS, D	75	76	NO	75	T1, T2, T3	CS, D, PS	72	T1, T2	CS, D	73	72	70	74	T1	D	NO
Liechtenstein	21.63	NCV	T2	CS	NA, NO		NA, NO	NO	T1, T2	CS, D	74	T1, T2	CS, D	144	147	147	73			NO
Lithuania	9.39	NCV	T1, T2, T3	CS, D, PS	67	73	66	73	T1, T2, T3	CS, D, PS	73	T2	CS	71	70	69	72	T2	CS	
Luxembourg	10.46	NCV	T2	CS	74	74	NO	NO	T1, T2	CS, D, PS	74	T1, T2	CS, D	74	73	74	74	T1, T2	CS, D	NO
Malta	19.55	NCV	T2	CS	79	79	NO	NO	T1	D	73	T1	D	71	73	64	74	T1, T3	CS, D	NO
Monaco	18.21	NCV	T1, T2	CS, D	77	77	NO	NO	T2	CS	75	T1, T2	CS, D	75	IE	75	NO			NO
Netherlands	9.75	NCV	CS, T2	CS, D	67	61	68	NO	T2	CS, D	66	T1, T2	CS, D	72	73	71	72	T2	CS	NO
New Zealand	4.93	GCV	T2	CS	62	69	62	70	T2	CS	68	T2	CS	68	67	61	69			NO
Norway	13.36	NCV	T1, T2, T3	CS, PS	60	62	48	76	T1, T2, T3	CS, PS	64	T1, T2	CS, PS	72	72	72	73	T1, T2	CS, D	74
Poland	3.79	NCV	T1, T2	CS, D	72	76	72	74	T1, T2	CS, D	69	T1, T2	CS, D	72	72	64	74			IE
Portugal	10.72	NCV	T1, T2, T3	CR, D, PS	61	77	55	NO	T1, T2, T3	CR, D, PS	74	T1	D	69	68	64	74	T1	D	NO
Romania	7.63	NCV	T1, T2	CS, D	67	78	61	72	T1, T2	CS, D	76	T1, T2	CS, D	71	69	64	79	T1, T2	CS, D	80
Russian Federation	8.70	NCV			74	75	73	74	T1, T2, T3	CS, D	74	T1, T2	CS, D	66	76	63	74	T1, T2	CS, D	73
Slovakia	4.28	NCV	T2, T3	CS, PS	72	76	72	67	T2	CS	90	T1, T2	CS, D	73	67	63	74	T1, T2	CS, D	63
Slovenia	6.91	NCV	T1, T2	CS, D, PS	70	70	NO	NO	T1, T2, T3	CS, D, PS	77	T1, T2	CS, D	72	72	71	74	T1	D	NO
Spain	14.65	NCV	T1, T2	CS, D, OTH, PS	66	78	56	74	T1, T2	CS, D, M, OTH, PS	86	T1, T2, T3	CS, D, M, OTH	72	72	70	73	T1	D, M	IE, NO
Sweden	16.42	NCV	T2	CS	75	74	75	IE, NO	T1, T2	CS	71	T1, T2	CS	72	72	73	73			NO
Switzerland	22.87	NCV	T2, T3	CS	57	74	56		T2, T3	CS	73	T1, T2, T3	CS, D	74	74	74	73	T2, T3	CS	NA
Turkey	6.51	NCV	T3	CS, D	74	74	73	NO	T1, T2	CS, D	93	T1, T2	CS, D	70	67	64	72			
Ukraine	0.82	NCV	T1, T2, T3	CS, D	76	77	74	68	T1, T2	CS, D	70	T1, T2	CS, D	66	72	63	65	T1	D	NA
United Kingdom of Great Britain and Northern Ireland (KP)	9.12	NCV	T1, T2	CS, D	70	76	69	72	T1, T2, T3	CS, D	72	T1, T2, T3	CS, D	73	76	72	75	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	9.22	NCV	T1, T2	CS, D	70	77	69	72	T1, T2, T3	CS, D	72	T1, T2, T3	CS, D	73	76	72	75	T1	CS	IE, NO
United States of America	8.33	GCV	T2	CS	82	82	82	82	T2	CS	70	T2, T3	CS, D	65	67	64	70	CS, T2	CS	27

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and construction, 1.A.4 Other sectors and 1.A.5. Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.3

Stationary combustion: solid fuels - CO_2 (2017)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Methods and EF used[d]		CO_2 IEF	Methods and EF used[e]		CO_2 IEF				Methods and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	30.38	GCV	T2	CS, PS	91	91	NO	79	T2	CS	83	T2	CS	90	90	95	NO	T1	CS	NO
Austria	3.36	NCV	T1, T2	CS, D	92	92	NO	IE, NO	T1, T2, T3	CS, D	93	D, T1, T2, T3	CS, D	94	NO	94	94	T1, T2	CS, D	NO
Belarus	2.31	NCV	T1	D	98	98	NO	NO	T1	D	100	T1	D	98	97	98	97	T1	D	98
Belgium	6.45	NCV	CS, T1, T3	D, PS	224	259	NO	40	CS, T1, T3	D, PS	98	CS, T1, T3	D	95	95	95	95	T1	D	NO
Bulgaria	41.41	NCV	T1, T2	CS, D	103	103	NO	100	T1, T2	CS, D	93	T1, T2	CS, D	92	98	92	97			NO
Canada	8.62	GCV	T2	CS	92	92	NO	95	T2, T3	CS	71	T2, T3	CS	94	NO	87	95	T3	CS	NO
Croatia	6.19	NCV	T1	D	93	93	NO	NO	T1	D	98	T1	D	99	99	99	NO			NO
Cyprus	0.13	NCV	CS, T1	CS, D	NO	NO	NO	NO	CS, T1	CS, D	94	T1	D	NO	NO	NO	NO	T1	D	NO
Czechia	43.27	NCV	T1, T2	CS, D	97	98	NO	93	T1, T2	CS, D	93	T1, T2	CS, D	94	97	94	97	T1	D	NO
Denmark (KP)	12.97	NCV	T1, T2, T3	CS, D, PS	94	94	NO	NO	CR, M, T1, T2, T3	CS, D, PS	95	CR, M, T1, T2, T3	CS, D	95	NO	NO	95	CR, M, T2	CS	
Denmark (Convention)	12.54	NCV	CS, T1, T2, T3	CS, D, PS	94	94	NO	NO	CR, M, T1, T2, T3	CS, D, PS	95	CR, M, T1, T2, T3	CS, D	95	NO	NO	95	CR, M, T1, T2	CS, D	NO
Estonia	65.88	NCV	T1, T2, T3	CS, D, PS	70	103	NO	19	T1, T2, T3	CS, D, PS	98	T1, T2	CS, D	95	102	94	96	T2	CS	NO
European Union (KP)	20.57				102	103	67	92			115			95	95	95	95			99
European Union (Convention)	20.64				102	103	67	92			115			95	95	95	95			99
Finland	16.37	NCV	T3	CS, D, PS	105	105	NO	100	T3	CS, D, PS	87	T1, T2, T3	CS, D	91	NO	88	92	T2	CS	NO
France (KP)	7.53		T2, T3	CS, PS	119	110	NO	204	T2, T3	CS, PS	121	T1, T2	CS, D	95	95	95	NO			NO
France (Convention)	7.78		T2, T3	CS, PS	119	110	NO	204	T2, T3	CS, PS	118	T1, T2	CS, D	95	95	95	NO			NO
Germany	32.01	NCV	CS	CS	106	105	41	143	CS	CS, D	135	CS, T1, T2, T3	CS, D	99	99	99	98	CS, D, M	CS, D, M	99
Greece	26.11	NCV	T1, T2	D, PS	121	121	NO	NO	T1, T2	CS, D, PS	95	T1, T2	CS, D	99	IE, NO	99	99	T1	D	NO
Hungary	13.23	NCV	T1, T2, T3	CS, D, PS	117	121	NO	48	T1, T2, T3	CS, D, PS	82	T1, T2	CS, D	104	103	104	108	T1	D	NO
Iceland	–	NCV	T1	D	NO	NO	NO	NO	T1	D	NA, NO	T1, T2	D	NO	NO	NO	NO			NO
Ireland	7.24	NCV	T1, T3	CS, D, PS	93	93	NO	NO	T1, T2, T3	CS, D, PS	95	T1, T2	CS, D	97	NO	97	NO			IE, NO
Italy	9.26	NCV	T3	CS	100	94	NO	167	T2	CS	72	T2	CS	NO	NO	NO	NO	T2	CS	NO
Japan	34.94	GCV	CS, T2	CS	89	89	90	81	CS, T2	CS	94	T2	CS	93	93	NO	110			NO
Kazakhstan	43.09	NCV	T1	D	96	96	96	96	T1	D	91	T1	D	96	96	96	96	T1	D	97
Latvia	1.51	NCV	T1, T2	CS, D	101	101	NO	NO	T1, T2, T3	CS, D, PS	101	T1, T2	CS, D	101	101	101	101	T1	D	NO
Liechtenstein	–	NCV	T2	CS	NA, NO		NA, NO	NO	T1, T2	CS, D	NA, NO	T1, T2	CS, D	NO		NO	NO			NO
Lithuania	3.22	NCV	T1, T2, T3	CS, D, PS	95	95	NO	NO	T1, T2, T3	CS, D, PS	97	T2	CS	95	95	95	95	T2	CS	
Luxembourg	1.69	NCV	T2	CS	NO	NO	NO	NO	T1, T2	CS, D, PS	95	T1, T2	CS, D	98	NO	98	NO	T1, T2	CS, D	NO
Malta	–	NCV	T2	CS	NO	NO	NO	NO	T1	D	NO	T1	D	NO	NO	NO	NO	T1, T3	CS, D	NO
Monaco	–	NCV	T1, T2	CS, D	NO	NO	NO	NO	T2	CS	NO	T1, T2	CS, D	NO	NO	NO	NO			NO
Netherlands	18.34	NCV	CS, T2	CS, D	103	104	NO	88	T2	CS, D	58	T1, T2	CS, D	105	101	112	NO	T2	CS	NO
New Zealand	3.85	GCV	T2	CS	92	92	NO	NO	T2	CS	92	T2	CS	92	93	92	92			NO
Norway	1.26	NCV	T1, T2, T3	CS, PS	92	92	NO		T1, T2, T3	CS, PS	126	T1, T2	CS, PS	NO	NO	NO	NO	T1, T2	CS, D	
Poland	48.41	NCV	T1, T2	CS, D	100	101	95	48	T1, T2	CS, D	105	T1, T2	CS, D	94	95	94	95			IE
Portugal	16.43	NCV	T1, T2, T3	CR, D, PS	89	89	NO	NO	T1, T2, T3	CR, D, PS	98	T1	D	NO	NO	NO	NO	T1	D	NO
Romania	13.27	NCV	T1, T2	CS, D	89	89	NO	90	T1, T2	CS, D	94	T1, T2	CS, D	89	NO	89	89	T1, T2	CS, D	NO
Russian Federation	13.04	NCV			94	95	NA	54	T1, T2, T3	CS, D	62	T1, T2	CS, D	95	95	95	96	T1, T2	CS, D	96
Slovakia	21.53	NCV	T2, T3	CS, PS	114	99	NO	199	T2	CS	118	T1, T2	CS, D	97	96	98	100	T1, T2	CS, D	101
Slovenia	27.44	NCV	T1, T2	CS, D, PS	102	102	NO	NO	T1, T2, T3	CS, D, PS	101	T1, T2	CS, D	96	NO	96	NO	T1	D	NO
Spain	14.70	NCV	T1, T2	CS, D, OTH, PS	98	99	NO	43	T1, T2	CS, D, M, OTH, PS	134	T1, T2, T3	CS, D, M, OTH	103	103	103	NO	T1	D, M	IE, NO
Sweden	9.48	NCV	T2	CS	177	206	NO	87	T1, T2	CS	112	T1, T2	CS	NO	NO	NO	NO			NO
Switzerland	0.92	NCV	T2, T3	CS	NO	NO	NO	NO	T2, T3	CS	95	T1, T2, T3	CS, D	93	NO	93	NO	T2, T3	CS	NA
Turkey	27.73	NCV	T3	CS, D	103	102	NO	170	T1, T2	CS, D	98	T1, T2	CS, D	97	96	98	NO			
Ukraine	22.65	NCV	T1, T2, T3	CS, D	91	92	NA, NO	58	T1, T2	CS, D	80	T1, T2	CS, D	94	92	95	97	T1	D	NA
United Kingdom of Great Britain and Northern Ireland (KP)	7.34	NCV	T1, T2	CS, D	89	89	NO	110	T1, T2, T3	CS, D	159	T1, T2, T3	CS, D	94	95	94	NO	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	7.33	NCV	T1, T2	CS, D	89	89	NO	110	T1, T2, T3	CS, D	159	T1, T2, T3	CS, D	94	95	94	NO	T1	CS	IE, NO
United States of America	19.81	GCV	T2	CS	91	91	91	91	T2	CS	91	T2, T3	CS, D	91	91	NA, NO	NA, NO	CS, T2	CS	90

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and construction, 1.A.4 Other sectors and 1.A.5 Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.4

Stationary combustion: gaseous fuels - CO_2 (2017)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Methods and EF used[d]		CO_2 IEF	Methods and EF used[e]		CO_2 IEF				Methods and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	12.97	GCV	T2	CS, PS	51	51	50	51	T2	CS	51	T2	CS	51	51	51	51	T1	CS	NO
Austria	20.34	NCV	T1, T2	CS, D	55	55	55	55	T1, T2, T3	CS, D	55	D, T1, T2, T3	CS, D	55	55	55	55	T1, T2	CS, D	NO
Belarus	34.59	NCV	T1	D	56	56	NO	NO	T1	D	56	T1	D	56	56	56	56	T1	D	56
Belgium	27.65	NCV	CS, T1, T3	D, PS	56	56	56	NO	CS, T1, T3	D, PS	56	CS, T1, T3	D	56	56	56	56	T1	D	NO
Bulgaria	6.76	NCV	T1, T2	CS, D	55	55	55	55	T1, T2	CS, D	55	T1, T2	CS, D	55	55	55	55			NO
Canada	28.45	GCV	T2	CS	51	49	48	51	T2, T3	CS	49	T2, T3	CS	49	49	49	49	T3	CS	NO
Croatia	19.13	NCV	T1	D	56	55	56	56	T1	D	56	T1	D	56	56	56	56			NO
Cyprus	-	NCV	CS, T1	CS, D	NO	NO	NO	NO	CS, T1	CS, D	NO	T1	D	NO	NO	NO	NO	T1	D	NO
Czechia	12.49	NCV	T1, T2	CS, D	55	55	55	55	T1, T2	CS, D	55	T1, T2	CS, D	55	55	55	55	T1	D	NO
Denmark (KP)	14.09	NCV	T1, T2, T3	CS, D, PS	57	57	NO	58	CR, M, T1, T2, T3	CS, D, PS	57	CR, M, T1, T2, T3	CS, D	57	57	57	57	CR, M, T2	CS	
Denmark (Convention)	13.63	NCV	CS, T1, T2, T3	CS, D, PS	57	57	NO	58	CR, M, T1, T2, T3	CS, D, PS	57	CR, M, T1, T2, T3	CS, D	57	57	57	57	CR, M, T1, T2	CS, D	NO
Estonia	4.21	NCV	T1, T2, T3	CS, D, PS	55	55	NO	IE, NO	T1, T2, T3	CS, D, PS	55	T1, T2	CS, D	55	55	55	55	T2	CS	NO
European Union (KP)	20.53				57	56	56	61			56			56	56	56	56			56
European Union (Convention)	20.56				57	56	56	61			56			56	56	56	56			56
Finland	6.58	NCV	T3	CS, D, PS	55	55	55	NO	T3	CS, D, PS	55	T1, T2, T3	CS, D	55	55	55	55	T2	CS	55
France (KP)	18.39		T2, T3	CS, PS	56	56	59	NE, NO	T2, T3	CS, PS	56	T1, T2	CS, D	56	56	56	56			NO
France (Convention)	18.14		T2, T3	CS, PS	56	56	59	NE, NO	T2, T3	CS, PS	56	T1, T2	CS, D	56	56	56	56			NO
Germany	18.99	NCV	CS	CS	56	56	56	59	CS	CS, D	56	CS, T1, T2, T3	CS, D	56	56	56	56	CS, D, M	CS, D, M	56
Greece	9.43	NCV	T1, T2	D, PS	56	56	IE, NO	60	T1, T2	CS, D, PS	56	T1, T2	CS, D	56	56	56	IE, NO	T1	D	NO
Hungary	29.08	NCV	T1, T2, T3	CS, D, PS	56	56	56	56	T1, T2, T3	CS, D, PS	56	T1, T2	CS, D	56	56	56	56	T1	D	NO
Iceland	-	NCV	T1	D	NO	NO	NO	NO	T1	D	NO	T1, T2	D	NO	NO	NO	NO			NO
Ireland	16.34	NCV	T1, T3	CS, D, PS	55	56	7	56	T1, T2, T3	CS, D, PS	56	T1, T2	CS, D	56	56	56	NO			IE, NO
Italy	33.62	NCV	T3	CS	58	58	58	58	T2	CS	58	T2	CS	58	58	58	58	T2	CS	NO
Japan	18.74	GCV	CS, T2	CS	51	51	51	51	CS, T2	CS	51	T2	CS	52	51	52	51			NO
Kazakhstan	17.66	NCV	T1	D	56	56	56	56	T1	D	56	T1	D	56	56	56	56	T1	D	56
Latvia	20.22	NCV	T1, T2	CS, D	56	56	NO	56	T1, T2, T3	CS, D, PS	56	T1, T2	CS, D	56	56	56	56	T1	D	NO
Liechtenstein	27.44	NCV	T2	CS	56	56	NA, NO	NO	T1, T2	CS, D	56	T1, T2	CS, D	112	112	112	NO			NO
Lithuania	10.17	NCV	T1, T2, T3	CS, D, PS	56	56	56	56	T1, T2, T3	CS, D, PS	56	T2	CS	56	56	56	56	T2	CS	
Luxembourg	16.19	NCV	T2	CS	57	57	NO	NO	T1, T2	CS, D, PS	57	T1, T2	CS, D	57	57	57	57	T1, T2	CS, D	NO
Malta	25.67	NCV	T2	CS	55	55	NO	NO	T1	D	NO	T1	D	NO	NO	NO	NO	T1, T3	CS, D	NO
Monaco	14.38	NCV	T1, T2	CS, D	56	56	NO	NO	T2	CS	IE, NO	T1, T2	CS, D	56	IE	56	NO			NO
Netherlands	34.98	NCV	CS, T2	CS, D	58	57	57	75	T2	CS, D	57	T1, T2	CS, D	57	57	57	57	T2	CS	NO
New Zealand	9.48	GCV	T2	CS	54	54	53	54	T2	CS	54	T2	CS	54	54	54	54			NO
Norway	24.95	NCV	T1, T2, T3	CS, PS	58	60	NO	58	T1, T2, T3	CS, PS	58	T1, T2	CS, PS	56	56	56	56	T1, T2	CS, D	
Poland	6.85	NCV	T1, T2	CS, D	55	55	55	55	T1, T2	CS, D	55	T1, T2	CS, D	55	55	55	55			IE
Portugal	16.99	NCV	T1, T2, T3	CR, D, PS	56	56	56	NO	T1, T2, T3	CR, D, PS	56	T1	D	56	56	56	56	T1	D	NO
Romania	18.91	NCV	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	56	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	NO
Russian Federation	31.40	NCV			54	54	54	54	T1, T2, T3	CS, D	54	T1, T2	CS, D	54	54	54	54	T1, T2	CS, D	54
Slovakia	18.69	NCV	T2, T3	CS, PS	56	56	56	56	T2	CS	56	T1, T2	CS, D	56	56	56	56	T1, T2	CS, D	56
Slovenia	9.66	NCV	T1, T2	CS, D, PS	55	55	NO	55	T1, T2, T3	CS, D, PS	55	T1, T2	CS, D	55	55	55	NO	T1	D	NO
Spain	17.54	NCV	T1, T2	CS, D, OTH, PS	56	56	56	55	T1, T2	CS, D, M, OTH, PS	56	T1, T2, T3	CS, D, M, OTH	56	56	56	56	T1	D, M	IE, NO
Sweden	2.70	NCV	T2	CS	51	57	42	IE, NO	T1, T2	CS	53	T1, T2	CS	57	57	57	57			NO
Switzerland	14.72	NCV	T2, T3	CS	56	56	IE, NO		T2, T3	CS	56	T1, T2, T3	CS, D	56	56	56	56	T2, T3	CS	NA
Turkey	19.34	NCV	T3	CS, D	56	56	56	NO	T1, T2	CS, D	56	T1, T2	CS, D	56	56	56	56			
Ukraine	18.98	NCV	T1, T2, T3	CS, D	56	56	56	59	T1, T2	CS, D	56	T1, T2	CS, D	56	56	56	56	T1	D	NA
United Kingdom of Great Britain and Northern Ireland (KP)	33.49	NCV	T1, T2	CS, D	58	57	56	63	T1, T2, T3	CS, D	57	T1, T2, T3	CS, D	57	57	57	57	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	33.44	NCV	T1, T2	CS, D	58	57	56	63	T1, T2, T3	CS, D	57	T1, T2, T3	CS, D	57	57	57	57	T1	CS	IE, NO
United States of America	21.94	GCV	T2	CS	50	50	50	50	T2	CS	50	T2, T3	CS, D	50	50	50	50	CS, T2	CS	21

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and construction, 1.A.4 Other sectors and 1.A.5 Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.5

Stationary combustion: other fossil fuels - CO_2 (2017)

	Share of national total[a]	IEF in CRF based on GCV or NCV[b]	Energy industries						Manufacturing industries and construction			Other sectors						Other		
			Methods and EF used[c]		CO_2 IEF				Methods and EF used[d]		CO_2 IEF	Methods and EF used[e]		CO_2 IEF				Methods and EF used[f]		CO_2 IEF
			Methods	EF	Total	Public electricity and heat production	Petroleum refining	Manufacture of solid fuels and other energy industries	Methods	EF	Total	Methods	EF	Total	Commercial / Institutional	Residential	Agriculture / Forestry / Fishing	Methods	EF	Stationary
	%				(t/TJ)						(t/TJ)			(t/TJ)						(t/TJ)
Australia	–	GCV	T2	CS, PS	NO	NO	NO	NO	T2	CS	NO	T2	CS	NA, NO	NO	NO	NA, NO	T1	CS	NO
Austria	2.86	NCV	T1, T2	CS, D	57	57	NO	NO	T1, T2, T3	CS, D	71	D, T1, T2, T3	CS, D	71	69	75	75	T1, T2	CS, D	NO
Belarus	–	NCV	T1	D	NO	NO	NO	NO	T1	D	IE, NE, NO	T1	D	NO	NO	NO	NO	T1	D	NO
Belgium	2.38	NCV	CS, T1, T3	D, PS	106	106	NO	NO	CS, T1, T3	D, PS	79	CS, T1, T3	D	65	65	NO	NO	T1	D	NO
Bulgaria	0.20	NCV	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	72	T1, T2	CS, D	NO	NO	NO	NO			NO
Canada	0.08	GCV	T2	CS	NO	NO	NO	NO	T2, T3	CS	78	T2, T3	CS	99	99	NO	NO	T3	CS	NO
Croatia	0.28	NCV	T1	D	NO	NO	NO	NO	T1	D	143	T1	D	NO	NO	NO	NO			NO
Cyprus	1.00	NCV	CS, T1	CS, D	NO	NO	NO	NO	CS, T1	CS, D	99	T1	D	NO	NO	NO	NO	T1	D	NO
Czechia	0.51	NCV	T1, T2	CS, D	92	92	NO	NO	T1, T2	CS, D	68	T1, T2	CS, D	NO	NO	NO	NO	T1	D	NO
Denmark (KP)	3.62	NCV	T1, T2, T3	CS, D, PS	93	93	NO	NO	CR, M, T1, T2, T3	CS, D, PS	86	CR, M, T1, T2, T3	CS, D	94	94	NO	NO	CR, M, T2	CS	
Denmark (Convention)	3.54	NCV	CS, T1, T2, T3	CS, D, PS	93	93	NO	NO	CR, M, T1, T2, T3	CS, D, PS	86	CR, M, T1, T2, T3	CS, D	94	94	NO	NO	CR, M, T1, T2	CS, D	NO
Estonia	1.71	NCV	T1, T2, T3	CS, D, PS	63	63	NO	NO	T1, T2, T3	CS, D, PS	80	T1, T2	CS, D	NO	NO	NO	NO	T2	CS	NO
European Union (KP)	1.65				83	83	55	143			75			96	96	75	75			IE, NO
European Union (Convention)	1.65				83	83	55	143			75			96	96	75	75			IE, NO
Finland	1.79	NCV	T3	CS, D, PS	73	73	NO	NO	T3	CS, D, PS	83	T1, T2, T3	CS, D	NO	NO	NO	NO	T2	CS	NO
France (KP)	2.10		T2, T3	CS, PS	111	111	NO	NO	T2, T3	CS, PS	67	T1, T2	CS, D	NO	NO	NO	NO			NO
France (Convention)	2.07		T2, T3	CS, PS	111	111	NO	NO	T2, T3	CS, PS	67	T1, T2	CS, D	NO	NO	NO	NO			NO
Germany	2.46	NCV	CS	CS	85	85	NO	NO	CS	CS, D	76	CS, T1, T2, T3	CS, D	NO	NO	NO	NO	CS, D, M	CS, D, M	NO
Greece	0.09	NCV	T1, T2	D, PS	NO	NO	NO	NO	T1, T2	CS, D, PS	89	T1, T2	CS, D	IE, NO	IE, NO	IE, NO	IE, NO	T1	D	NO
Hungary	1.01	NCV	T1, T2, T3	CS, D, PS	90	90	NO	NO	T1, T2, T3	CS, D, PS	86	T1, T2	CS, D	187	187	NO	NO	T1	D	NO
Iceland	–	NCV	T1	D	NO	NO	NO	NO	T1	D	NO	T1, T2	D	NO	NO	NO	NO			NO
Ireland	0.72	NCV	T1, T3	CS, D, PS	80	80	NO	NO	T1, T2, T3	CS, D, PS	84	T1, T2	CS, D	NO	NO	NO	NO			IE, NO
Italy	1.51	NCV	T3	CS	94	94	NO	NO	T2	CS	82	T2	CS	95	95	NO	NO	T2	CS	NO
Japan	1.35	GCV	CS, T2	CS	46	IE, NO	47	46	CS, T2	CS	43	T2	CS	28	28	NO	NO			NO
Kazakhstan	–	NCV	T1	D	IE, NA	IE, NA	IE, NA	IE, NA	T1	D	IE, NA	T1	D	IE, NA	IE, NA	IE, NA	IE, NA	T1	D	IE, NA
Latvia	0.88	NCV	T1, T2	CS, D	NO	NO	NO	NO	T1, T2, T3	CS, D, PS	85	T1, T2	CS, D	73	73	NO	NO	T1	D	NO
Liechtenstein	0.03	NCV	T2	CS	NA, NO		NA, NO	NO	T1, T2	CS, D	NA, NO	T1, T2	CS, D	69		NO	69			NO
Lithuania	0.87	NCV	T1, T2, T3	CS, D, PS	116	116	NO	NO	T1, T2, T3	CS, D, PS	123	T2	CS	NO	NO	NO	NO	T2	CS	
Luxembourg	1.66	NCV	T2	CS	90	90	NO	NO	T1, T2	CS, D, PS	79	T1, T2	CS, D	73	NO	NO	73	T1, T2	CS, D	NO
Malta	–	NCV	T2	CS	NO	NO	NO	NO	T1	D	NO	T1	D	NO	NO	NO	NO	T1, T3	CS, D	NO
Monaco	24.74	NCV	T1, T2	CS, D	69	69	NO	NO	T2	CS	NO	T1, T2	CS, D	NO	NO	NO	NO			NO
Netherlands	1.53	NCV	CS, T2	CS, D	83	83	NO	NO	T2	CS, D	NO	T1, T2	CS, D	NO	NO	NO	NO	T2	CS	NO
New Zealand	–	GCV	T2	CS	NO	NO	NO	NO	T2	CS	NO	T2	CS	NO	NO	NO	NO			NO
Norway	2.30	NCV	T1, T2, T3	CS, PS	50	50	NO	NO	T1, T2, T3	CS, PS	79	T1, T2	CS, PS	132	132		NO	T1, T2	CS, D	NO
Poland	1.08	NCV	T1, T2	CS, D	97	97	143	143	T1, T2	CS, D	128	T1, T2	CS, D	106	106	IE, NO	NO			IE
Portugal	1.13	NCV	T1, T2, T3	CR, D, PS	119	119	NO	NO	T1, T2, T3	CR, D, PS	53	T1	D	NO	NO	NO	NO	T1	D	NO
Romania	0.58	NCV	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	84	T1, T2	CS, D	90	90	NO	NO	T1, T2	CS, D	NO
Russian Federation	1.77	NCV			143	143	143	NA, NO	T1, T2, T3	CS, D	143	T1, T2	CS, D	143	143	143	143	T1, T2	CS, D	143
Slovakia	0.83	NCV	T2, T3	CS, PS	57	57	NO	NO	T2	CS	92	T1, T2	CS, D	NO	NO	NO	NO	T1, T2	CS, D	NO
Slovenia	0.70	NCV	T1, T2	CS, D, PS	73	73	NO	NO	T1, T2, T3	CS, D, PS	64	T1, T2	CS, D	NO	NO	NO	NO	T1	D	NO
Spain	0.70	NCV	T1, T2	CS, D, OTH, PS	56	56	55	NO	T1, T2	CS, D, M, OTH, PS	52	T1, T2, T3	CS, D, M, OTH	NO	NO	NO	NO	T1	D, M	NO
Sweden	5.29	NCV	T2	CS	90	90	NO	NO	T1, T2	CS	60	T1, T2	CS	NO	NO	NO	NO			NO
Switzerland	6.01	NCV	T2, T3	CS	89	89	NO		T2, T3	CS	68	T1, T2, T3	CS, D	NO			NO	T2, T3	CS	NA
Turkey	0.35	NCV	T3	CS, D	143	143	NO		T1, T2	CS, D	139	T1, T2	CS, D	NO	NO		NO			
Ukraine	0.59	NCV	T1, T2, T3	CS, D	73	73	NA, NO	73	T1, T2	CS, D	73	T1, T2	CS, D	73	73	73	73	T1	D	NA
United Kingdom of Great Britain and Northern Ireland (KP)	1.19	NCV	T1, T2	CS, D	64	64	NO	NO	T1, T2, T3	CS, D	49	T1, T2, T3	CS, D	NO	NO	NO	NO	T1	CS	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	1.19	NCV	T1, T2	CS, D	64	64	NO	NO	T1, T2, T3	CS, D	49	T1, T2, T3	CS, D	NO	NO		NO	T1	CS	IE, NO
United States of America	0.17	GCV	T2	CS	7.2	7.2	NO	NO	T2	CS	NA, NO	T2, T3	CS, D	NO	NO	NO	NO	CS, T2	CS	45

Note: This table includes data from categories 1.A.1 Energy industries, 1.A.2 Manufacturing industries and construction, 1.A.4 Other sectors and 1.A.5 Other.

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.1 Energy industries.

[d] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.2 Manufacturing industries and construction.

[e] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.4 Other sectors.

[f] Information on methods and emission factors in this table is as reported by Parties in table Summary 3 of the CRF. It may not reflect the actual method or type of emission factor used for all subcategories within the category 1.A.5 Other.

Table 1.6

Road transportation - CO_2, N_2O (2017)

	CO_2 emissions						N_2O emissions					
	Share of national total[a]	Methods and EF used		CO_2 IEF			Share of national total[a]	Methods and EF used		N_2O IEF		
		Methods	EF	IEF in CRF based on GCV or NCV[b]	Gasoline	Diesel oil		Methods	EF	IEF in CRF based on GCV or NCV[b]	Gasoline	Diesel oil
	(%)				(t/TJ)		(%)				(kg/TJ)	
IPCC default EF[c]				**NCV**	**69.3 (67.5 to 73.0)**	**74.1 (72.6 to 74.8)**				**NCV**	**8.0 (0.96 to 24)**	**3.9 (1.3 to 12)**
Australia	14.83	T2	CS, D	GCV	67	70	0.19	T1, T3	CS, D	GCV	4.0	1.7
Austria	28.25	T1, T2	CS, D	NCV	77	74	0.24	T3	CS	NCV	0.58	2.4
Belarus	1.19	T1	D	NCV	69	74	0.02	T1	D	NCV	8.0	3.9
Belgium	21.71	M, T1, T3	OTH	NCV	72	74	0.23	M, T3	CS, OTH	NCV	0.55	2.9
Bulgaria	14.41	T2	CR	NCV	72	75	0.13	T2	CR	NCV	1.8	2.1
Canada	19.67	T3	CS	GCV	69	70	0.34	T3	CS	GCV	3.8	3.9
Croatia	25.35	T1	D	NCV	69	74	0.22	T1, T3	CR, D	NCV	1.6	2.3
Cyprus	23.20	T2	M	NCV	72	74	0.15	T2	M	NCV	1.1	2.0
Czechia	13.98	T2	M	NCV	70	73	0.14	T3	M	NCV	0.94	2.9
Denmark (KP)	25.08	CR, M, T1, T2	CS, D	NCV	73	74	0.27	CR, M, T1, T3	CR, D	NCV	0.80	3.4
Denmark (Convention)	24.54	CR, M, T2	CS	NCV	73	74	0.27	CR, M, T3	CR	NCV	0.83	3.4
Estonia	11.14	T1, T2	CS, D	NCV	73	73	0.10	T1, T3	CS, D	NCV	1.1	2.7
European Union (KP)	20.48	NA	NA		73	74	0.21	NA	NA		0.99	2.9
European Union (Convention)	20.48	NA	NA		73	74	0.21	NA	NA		0.96	2.9
Finland	19.31	T2	CS	NCV	72	73	0.14	T3	CR	NCV	0.84	2.0
France (KP)	27.13	T3	M		72	76	0.33	T3	M		1.2	3.2
France (Convention)	26.97	T3	M		72	76	0.32	T3	M		1.2	3.2
Germany	17.66	CS, M, T2, T3	CS, D	NCV	75	74	0.18	CS, M, T2, T3	CS, M	NCV	0.56	3.3
Greece	15.23	T1, T2, T3	CS, D	NCV	73	73	0.15	M, T1	D, M	NCV	2.5	2.2
Hungary	19.90	T1, T2	CS, D	NCV	71	74	0.20	T1, T3	D, M	NCV	1.4	2.7
Iceland	19.64	T1	D	NCV	69	74	0.81	T1	D	NCV	16	3.9
Ireland	18.72	T2, T3	CS, M	NCV	70	73	0.18	T3	M	NCV	0.94	2.7
Italy	21.37	T1, T2	CS, D	NCV	73	74	0.19	T3	M	NCV	1.1	2.5
Japan	14.23	T2	CS	GCV	68	69	0.11	T3	CS, D	GCV	1.1	3.1
Kazakhstan	5.65	T1	D	NCV	69	74	0.08	T1	D	NCV	3.2	3.9
Latvia	27.28	T1, T2	CS, D, OTH	NCV	71	75	0.25	T1, T2	CR, OTH	NCV	1.0	2.4
Liechtenstein	30.91	T2	CS	NCV	74	73	0.18	T2	CS, D	NCV	0.39	2.3
Lithuania	26.67	T1, T2	CS, D	NCV	70	73	0.14	T1, T3	CR, D	NCV	2.1	1.2
Luxembourg	54.49	T1, T2	CS, D	NCV	73	74	0.48	T3	M	NCV	0.42	2.4
Malta	25.92	T1, T3	M	NCV	72	74	0.22	T1, T3	M	NCV	1.5	2.4
Monaco	24.49	T2	CS	NCV	73	73	0.43	T2	CS, D	NCV	4.0	3.9
Netherlands	15.32	T2	CS	NCV	73	72	0.13	T2	CS	NCV	0.96	2.7
New Zealand	17.73	T2	CS	GCV	67	69	0.12	T3	CS	GCV	1.8	1.4
Norway	16.44	T2	CS	NCV	71	74	0.15	T2	CS	NCV	0.66	2.1
Poland	14.78	T2	D	NCV	72	74	0.16	T3	D	NCV	1.9	2.8
Portugal	22.86	T2	OTH	NCV	72	74	0.21	OTH, T3	OTH	NCV	2.0	2.2
Romania	15.00	T1, T3	D, OTH	NCV	71	82	0.16	T1, T3	D, OTH	NCV	1.7	2.9
Russian Federation	7.30	NA	NA	NCV	73	74	0.05	NA	NA	NCV	1.8	1.8
Slovakia	16.51	T2	CS, D	NCV	70	74	0.18	T3	D	NCV	1.0	3.0
Slovenia	31.14	M	M	NCV	69	74	0.36	M	M	NCV	0.24	3.4
Spain	23.97	T1	D, M	NCV	74	73	0.26	T3	M	NCV	0.91	3.0
Sweden	29.14	T2	CS		72	72	0.26	M, T1, T2	CS, D		0.42	3.3
Switzerland	30.66	T2	CS	NCV	74	73	0.20	T3	CS	NCV	0.61	2.5
Turkey	14.65	T1, T2	CS, D	NCV	69	72	0.23	T1	D	NCV	8.0	3.9
Ukraine	7.49	T1, T2	CS, D	NCV	72	74	0.13	T1	D	NCV	5.6	3.9
United Kingdom of Great Britain and Northern Ireland (KP)	23.95	OTH, T1, T3	CS, OTH	NCV	70	74	0.23	T3	CR, CS	NCV	0.62	3.2
United Kingdom of Great Britain and Northern Ireland (Convention)	23.92	T1, T3	CS, OTH	NCV	70	74	0.23	T3	CR	NCV	0.62	3.2
United States of America	23.34	T1, T2	CS	GCV	68	70	0.19	M, T1, T2	CS, D, M	GCV	2.4	0.22

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The following Parties reported energy data on a gross calorific value (GCV) basis: Australia, Canada, Japan, New Zealand, United States of America. Hence, reported IEFs are about 5 per cent lower for liquid and solid fuels and biomass, and about 10 per cent lower for gaseous fuels than would have been the case if the data were given on a net calorific value (NCV) basis.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 3 Mobile Combustion. CO_2 table 3.2.1; N_2O table 3.2.2.

Table 1.7

Domestic aviation and navigation - CO_2 (2017)

	Methods and EF used		Domestic aviation			Domestic navigation		
			Share of national total[a]	CO_2 IEF		Share of national total[a]	CO_2 IEF	
	Methods	EF		Jet kerosene	Aviation gasoline		Residual fuel oil	Gas/diesel oil
			(%)	(t/TJ)		(%)	(t/TJ)	
IPCC default EF[b]				71.5 (69.8 to 74.4)	70 (67.5 to 73.0)		77.4 (75.5 to 78.8)	74.1 (72.6 to 74.8)
Australia	T2	CS	1.58	70	67	0.33	74	70
Austria	T1, T2, T3	CS, D	0.05	73	75	0.01	NO	74
Belarus	T1	D	0.02	72	NO	0.65	NO	74
Belgium	T1, T3	CS, D	0.01	73	71	0.38	IE	78
Bulgaria	T1, T2	D	0.10	72	69	0.01	NO	74
Canada	T2, T3	CS	0.97	76	63	0.61	74	70
Croatia	T1	D	0.13	72	70	0.56	NO	74
Cyprus	T1	D	0.01	72	NO	0.02	NO	74
Czechia	T1	D	0.01	72	70	0.01	NO	74
Denmark (KP)	CR, M, T1, T2	CS, D	0.29	72	73	1.39	78	74
Denmark (Convention)	CR, M, T2	CS	0.38	72	72	1.51	78	71
Estonia	T2	CS, D	0.02	NO	71	0.16	NO	73
European Union (KP)	NA	NA	0.37	72	70	0.49	78	75
European Union (Convention)	NA	NA	0.37	72	70	0.48	78	75
Finland	T1, T2	CS	0.35	73	71	0.78	78	73
France (KP)	T1, T3	CS, M	1.06	72	71	0.28	78	75
France (Convention)	T1, T3	CS, M	1.06	72	71	0.32	78	75
Germany	CS, T1, T2	CS, D, M	0.23	73	70	0.19	81	74
Greece	T1, T2, T3	CS, D	0.42	71	69	1.93	78	77
Hungary	T1	D	0.01	71	70	0.02	NO	74
Iceland	T1	D	0.48	71	70	0.66	NO	74
Ireland	T2, T3	CS	0.03	71	71	0.38	NO	73
Italy	T1, T2	CS	0.52	72	70	0.92	77	74
Japan	T2	CS	0.81	68	68	0.81	IE	69
Kazakhstan	T1	D	0.28	71	69	0.00	NO	74
Latvia	T1, T2	CS, D	0.04	73	70	0.13	NO	75
Liechtenstein	T1	CS	0.01	73	NO	–	NO	NO
Lithuania	T1	CS	0.01	72	71	0.08	NO	73
Luxembourg	T1, T2	CS, D	0.01	NO	70	0.01	NO	74
Malta	T1, T3	CS, D, M	0.02	72	70	3.20	NO	74
Monaco	T1	CS, D	0.60	72	NO	1.58	NO	76
Netherlands	T1, T2	CS, D	0.02	72	72	0.51	NO	72
New Zealand	T2	CS	1.22	68	66	0.40	73	NO
Norway	T1, T2	CS, D, PS	2.09	73	71	4.59	NO	74
Poland	T1	D	0.03	72	70	0.01	NO	74
Portugal	T1, T2, T3	D	0.71	71	70	0.38	77	74
Romania	T1, T2	CS, D, OTH	0.13	72	70	0.12	NO	80
Russian Federation	T1b	D	0.56	72	IE	0.06	77	74
Slovakia	T1, T3	D	0.01	73	70	0.01	NO	74
Slovenia	T1	D	0.01	72	70	–	NO	IE
Spain	T1, T3	D	0.82	73	71	0.89	77	74
Sweden	T1, T2	CS, D	1.03	72	70	0.58	78	74
Switzerland	T3	CS	0.25	73	IE	0.24	NO	73
Turkey	T2	CS, D	0.72	71	NO	0.18	77	72
Ukraine	T1, T2, T3	CS, D, OTH	0.05	72	70	0.03	77	74
United Kingdom of Great Britain and Northern Ireland (KP)	T2, T3	CS	0.38	72	69	1.15	77	75
United Kingdom of Great Britain and Northern Ireland (Convention)	T2, T3	CS	0.40	72	69	1.15	77	75
United States of America	T1, T2	CS	2.48	68	66	0.56	71	69

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 3 Mobile Combustion. Table 3.6.4 for Jet kerosense, Aviation gasoline; table 3.5.2 for Residual oil Gas/diesel oil.

Table 1.8

Domestic and international aviation - activity data (2017)

	Domestic aviation						International aviation						Total jet kerosene and aviation gasoline		
	Jet kerosene			Aviation gasoline			Jet kerosene			Aviation gasoline					
	CRF	IEA[a, b, d]	Difference	CRF	IEA[a, c, d]	Difference	CRF	IEA[a, b, d]	Difference	CRF	IEA[a, c, d]	Difference	CRF	IEA[a, b, c, d]	Difference
	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	123 268	127 550	3.47	2 332	2 179	-6.57	195 462	187 455	-4.10	NO	0	–	321 062	317 184	-1.21
Austria	482	1 138	136.20	98	105	6.84	30 873	30 659	-0.69	NO	0	–	31 453	31 903	1.43
Belarus	239	946	295.57	NO	0	–	5 722	5 418	-5.32	NO	0	–	5 961	6 364	6.75
Belgium	122	77	-36.5	36	26	-27.33	67 173	66 207	-1.44	1.1	0	–	67 333	66 311	-1.52
Bulgaria	842	842	0.00	20	20	0.00	9 963	9 963	0.00	NO	0	–	10 826	10 826	0.00
Canada	89 035	225 453	153.22	2 345	1 837	-21.69	168 786	26 671	-84.20	64	0	–	260 230	253 961	-2.41
Croatia	422	413	-2.18	18	22	23.4	6 190	6 054	-2.18	4.5	0	–	6 634	6 489	-2.18
Cyprus	11	0	–	NO	0	–	13 963	12 865	-7.86	NO	0	–	13 974	12 865	-7.94
Czechia	9.0	2 064	22 903.33	131	132	0.48	15 016	14 749	-1.78	NO	0	–	15 156	16 945	11.80
Denmark (KP)	1 873		–	31		–	40 359		–	NO		–	42 262		–
Denmark (Convention)	2 561	1 217	-52.49	36	31	-14.49	40 368	40 529	0.40	NO	0	–	42 965	41 777	-2.77
Estonia	NO	50	–	50	0	–	2 498	2 498	0.00	NO	0	–	2 548	2 548	0.00
European Union (KP)	221 129		–	2 833		–	2 192 842		–	79		–	2 416 882		–
European Union (Convention)	218 177	251 495	15.27	2 783	2 317	-16.74	2 176 540	2 122 020	-2.50	85	489	475.97	2 397 584	2 376 321	-0.89
Finland	2 631	2 623	-0.32	22	44	102.57	28 653	28 294	-1.25	NO	0	–	31 306	30 961	-1.10
France (KP)	68 173		–	773		–	240 906		–	NO		–	309 852		–
France (Convention)	69 123	32 938	-52.35	773	748	-3.17	243 840	269 008	10.32	NO	0	–	313 736	302 694	-3.52
Germany	27 683	27 907	0.81	403	440	9.18	397 457	400 717	0.82	NO	0	–	425 543	429 064	0.83
Greece	5 555	8 074	45.36	99	97	-1.78	48 083	41 299	-14.11	NO	5.9	–	53 736	49 476	-7.93
Hungary	14	0	–	37	0	–	9 722	9 288	-4.46	2.6	0	–	9 775	9 288	-4.99
Iceland	305	298	-2.49	16	16	-0.69	16 038	15 638	-2.49	NO	0	–	16 359	15 952	-2.49
Ireland	225	129	-42.56	18	18	-1.30	42 529	41 538	-2.33	NO	0	–	42 772	41 685	-2.54
Italy	30 952	32 630	5.42	110	44	-59.90	156 171	143 154	-8.34	NO	0	–	187 232	175 828	-6.09
Japan	152 376	146 127	-4.10	64	64	-0.96	308 669	296 009	-4.10	NO	0	–	461 109	442 200	-4.10
Kazakhstan	11 230	43	-99.62	2 641	2 508	-5.03	6 652	20 382	206.39	NA	0	–	20 523	22 933	11.74
Latvia	56	55	-1.18	6.0	6.0	0.48	5 858	5 830	-0.48	NO	0.13	–	5 920	5 891	-0.48
Liechtenstein	0.35		–	NO		–	12		–	NO		–	12		–
Lithuania	2.0	4.3	114.99	19	18	-7.36	4 432	4 407	-0.55	NO	0	–	4 453	4 429	-0.53
Luxembourg	NO	0	–	8.3	9.8	17.81	24 041	23 982	-0.24	0.92	0	–	24 050	23 992	-0.24
Malta	5.4	22	301.69	0.56	1.4	142.57	5 985	5 836	-2.50	0.98	0	–	5 992	5 859	-2.22
Monaco	7.3		–	NO		–	36		–	NO		–	43		–
Netherlands	408	387	-5.24	42	44	5.54	168 031	166 109	-1.14	NO	0	–	168 481	166 540	-1.15
New Zealand	14 090	13 439	-4.62	405	401	-0.95	53 782	51 665	-3.94	NO	0	–	68 277	65 505	-4.06
Norway	14 960	14 921	-0.26	129	132	1.95	22 835	22 532	-1.33	NO	0	–	37 925	37 585	-0.90
Poland	1 710	1 006	-41.17	147	147	-0.02	34 908	35 613	2.02	NO	0	–	36 764	36 766	0.00
Portugal	7 001	7 001	-0.01	16	53	223.79	53 609	53 612	0.01	37	0	–	60 664	60 666	0.00
Romania	2 026	1 808	-10.79	38	38	0.07	14 065	12 548	-10.79	NO	0	–	16 129	14 394	-10.76
Russian Federation	167 644		–	IE		–	137 699		–	NO		–	305 342		–
Slovakia	45	0	–	2.0	0	–	2 261	1 677	-25.82	1.8	0	–	2 310	1 677	-27.39
Slovenia	7.9	0	–	16	16	1.05	1 031	1 090	5.78	NO	0	–	1 055	1 106	4.91
Spain	38 330	88 107	129.86	140	176	25.28	232 104	187 007	-19.43	27	0	–	270 601	275 290	1.73
Sweden	7 565	7 611	0.61	57	44	-22.41	38 508	37 281	-3.19	NO	0	–	46 130	44 936	-2.59
Switzerland	1 641	1 935	17.92	IE	132	–	72 824	73 530	0.97	IE	0	–	74 465	75 597	1.52
Turkey	53 259	51 342	-3.60	NO	0	–	154 053	148 522	-3.59	NO	0	–	207 312	199 864	-3.59
Ukraine	1 330	0	–	1 073	0	–	17 163	0	–	NO	0	–	19 567	0	–
United Kingdom of Great Britain and Northern Ireland (KP)	24 673		–	478		–	482 416		–	3.2		–	507 570		–
United Kingdom of Great Britain and Northern Ireland (Convention)	26 006	35 392	36.09	478	36	-92.41		470 205	–		482	–	26 484	506 116	1811.04
United States of America	2 330 105	2 422 527	3.97	22 076	20 764	-5.94	1 163 988	1 038 228	-10.80	NA	0	–	3 516 169	3 481 519	-0.99

[a] Data provided by IEA on 25 June 2019. Data for Russian Federation were not available at the time of publication of this report.

[b] UNFCCC has included the quantities reported in IEA for 'kerosene type jet fuel' and 'gasoline type jet fuel'.

[c] UNFCCC has included the quantities reported in IEA for 'aviation gasoline' and 'motor gasoline'.

[d] Geographical coverage of IEA data:

IEA data for Denmark do not include Faroe Islands and Greenland.

IEA data for France includes data for Monaco, but excludes data for the following overseas territories: Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and Saint Pierre Miquelon.

No IEA data for Liechtenstein are available. These data are not included in the data of Switzerland.

IEA data for the Netherlands are only for the European part.

Table 1.9

Domestic and international navigation - activity data (2017)

	Domestic Navigation						International Navigation						Total					
	Residual fuel oil			Gas / diesel oil			Residual fuel oil			Gas / diesel oil			Residual fuel oil			Gas / diesel oil		
	CRF	IEA[a, b]	Difference	CRF	IEA[a, b]	Difference	CRF	IEA[a, b]	Difference	CRF	IEA[a, b]	Difference	CRF	IEA[a, b]	Difference	CRF	IEA[a, b]	Difference
	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)	(TJ)		(%)
Australia	2 268	2 253	-0.67	7 207	9 769	35.55	21 548	21 398	-0.70	2 166	2 013	-7.06	23 816	23 650	-0.70	9 373	11 782	25.71
Austria	NO	0	–	39	67	71.06	NO	0	–	812	885	8.99	NO	0	–	851	952	11.86
Belarus	NO	0	–	8 303	43	-99.49	NO	0	–	NO	0	–	NO	0	–	8 303	43	-99.49
Belgium	IE	52	–	5 597	6 045	8.01	261 693	268 604	2.64	44 576	44 849	0.61	261 693	268 656	2.66	50 172	50 894	1.44
Bulgaria	NO	0	–	99	0	–	943	943	0.00	2 392	2 426	1.46	943	943	0.00	2 490	2 426	-2.56
Canada	31 000	29 989	-3.26	28 544	27 264	-4.48	12 261	11 980	-2.30	3 862	3 706	-4.03	43 261	41 969	-2.99	32 406	30 970	-4.43
Croatia	NO	0	–	1 892	1 887	-0.26	104	104	-0.47	162	162	-0.26	104	104	-0.47	2 054	2 049	-0.26
Cyprus	NO	0	–	22	0	–	6 226	6 165	-0.99	4 356	4 315	-0.93	6 226	6 165	-0.99	4 378	4 315	-1.43
Czechia	NO	0	–	172	170	-0.83	NO	0	–	NO	0	–	NO	0	–	172	170	-0.83
Denmark (KP)	1 911		–	6 948		–	3 740		–	15 821		–	5 650		–	22 768		–
Denmark (Convention)	2 053	0	–	8 144	6 199	-23.88	3 959	5 560	40.46	17 109	16 599	-2.98	6 012	5 560	-7.51	25 253	22 798	-9.72
Estonia	NO	0	–	465	279	-40.03	8 311	8 280	-0.37	4 738	4 771	0.70	8 311	8 280	-0.37	5 203	5 050	-2.94
European Union (KP)	70 520		–	183 608		–	1 452 040		–	420 818		–	1 522 560		–	604 426		–
European Union (Convention)	69 478	54 631	-21.37	182 477	141 263	-22.59	1 450 982	1 402 952	-3.31	419 804	432 662	3.06	1 520 460	1 457 584	-4.14	602 281	573 925	-4.71
Finland	431	440	2.07	3 536	3 493	-1.22	11 404	11 520	1.02	2 630	2 982	13.38	11 835	11 960	1.05	6 166	6 475	5.01
France (KP)	659		–	4 738		–	63 548		–	8 303		–	64 207		–	13 041		–
France (Convention)	2 265	1 720	-24.05	6 068	5 282	-12.94	64 810	63 840	-1.50	8 984	4 686	-47.84	67 074	65 560	-2.26	15 052	9 968	-33.77
Germany	7.0	0	–	23 245	10 139	-56.38	58 781	58 280	-0.85	23 165	36 721	58.52	58 788	58 280	-0.86	46 410	46 860	0.97
Greece	13 331	13 130	-1.51	10 386	10 739	3.39	74 982	74 572	-0.55	13 971	14 474	3.60	88 314	87 701	-0.69	24 358	25 213	3.51
Hungary	NO	0	–	172	213	23.84	NE	0	–	NE	0	–	NE, NO	0	–	172	213	23.84
Iceland	NO	0	–	425	422	-0.93	1 258	1 246	-0.99	1 290	1 278	-0.93	1 258	1 246	-0.99	1 715	1 699	-0.93
Ireland	NO	0	–	3 176	3 110	-2.10	568	520	-8.37	5 955	5 666	-4.85	568	520	-8.37	9 131	8 776	-3.89
Italy	22 488	16 266	-27.67	25 048	20 107	-19.72	85 057	83 014	-2.40	7 149	12 013	68.05	107 545	99 280	-7.69	32 196	32 120	-0.24
Japan	IE	89 669	–	5 588	41 335	639.65	IE	169 676	–	1 209	7 183	494.16	IE	259 346	–	6 797	48 518	613.77
Kazakhstan	NO	0	–	109	256	135.33	NO	0	–	87	0	–	NO	0	–	196	256	30.51
Latvia	NO	0	–	187	188	0.39	5 116	5 040	-1.49	5 779	5 794	0.25	5 116	5 040	-1.49	5 966	5 981	0.26
Liechtenstein	NO		–	NO		–	NO		–	NO		–	NO		–	NO		–
Lithuania	NO	0	–	232	230	-0.85	4 160	4 220	1.44	3 133	3 114	-0.60	4 160	4 220	1.44	3 365	3 344	-0.62
Luxembourg	NO	0	–	14	0	–	NO	0	–	2.1	0	–	NO	0	–	16	0	–
Malta	NO	0	–	928	539	-41.95	76 268	74 064	-2.89	13 782	13 395	-2.81	76 268	74 064	-2.89	14 710	13 934	-5.28
Monaco	NO		–	15		–	NO		–	152		–	NO		–	166		–
Netherlands	NO	0	–	12 700	12 567	-1.05	392 994	383 409	-2.44	88 952	88 743	-0.23	392 994	383 409	-2.44	101 652	101 310	-0.34
New Zealand	4 368	1 491	-65.87	NO	2 556	–	10 657	10 437	-2.07	1 753	1 619	-7.66	15 025	11 928	-20.61	1 753	4 175	138.15
Norway	NO	0	–	30 682	25 901	-15.58	1 036	1 040	0.35	5 800	5 197	-10.39	1 036	1 040	0.35	36 482	31 098	-14.76
Poland	NO	0	–	291	195	-33.21	2 117	2 118	0.04	9 066	8 982	-0.93	2 117	2 118	0.04	9 357	9 176	-1.93
Portugal	2 503	2 504	0.06	1 007	945	-6.16	26 889	26 887	-0.01	5 550	5 549	-0.01	29 392	29 392	0.00	6 556	6 494	-0.95
Romania	NO	0	–	1 617	1 698	4.96	NO	0	–	1 117	1 173	4.96	NO	0	–	2 735	2 870	4.96
Russian Federation	6 428		–	11 287		–	356 458		–	96 447		–	362 886		–	107 734		–
Slovakia	NO	0	–	63	0	–	NO	0	–	249	0	–	NO	0	–	313	0	–
Slovenia	NO	0	–	IE	0	–	6 456	6 292	-2.53	NO	0	–	6 456	6 292	-2.53	IE, NO	0	–
Spain	20 615	20 360	-1.23	19 425	19 340	-0.43	225 626	222 840	-1.23	54 000	54 145	0.27	246 240	243 200	-1.23	73 425	73 485	0.08
Sweden	159	160	0.73	2 128	1 491	-29.95	69 352	65 640	-5.35	31 323	30 800	-1.67	69 510	65 800	-5.34	33 451	32 291	-3.47
Switzerland	NO	0	–	1 017	511	-49.71	NO	0	–	299	170	-43.03	NO	0	–	1 316	682	-48.19
Turkey	1 441	1 440	-0.05	11 395	11 289	-0.93	34 371	31 760	-7.60	3 115	3067	-1.54	35 812	33 200	-7.29	14 510	14 356	-1.06
Ukraine	195	360	84.95	883	1 022	15.80	155	0	–	703	0	–	350	360	2.94	1 586	1 022	-35.55
United Kingdom of Great Britain and Northern Ireland (KP)	8 417		–	59 055		–	66 447		–	72 547		–	74 864		–	131 602		–
United Kingdom of Great Britain and Northern Ireland (Convention)	8 460	0	–	59 055	36 340	-38.47		31 040	–		70 418	–	8 460	31 040	266.91	59 055	106 757	80.78
United States of America	231 335	32 447	-85.97	287 377	125 432	-56.35	469 842	628 489	33.77	127 978	342 163	167.36	701 176	660 936	-5.74	415 356	467 595	12.58

[a] Data provided by IEA on 4 May 2019. Data for Russian Federation were not available at the time of publication of this report.

[b] Geographical coverage of IEA data:

IEA data for Denmark does not include Faroe Islands and Greenland.

IEA data for France includes data for Monaco, but excludes data for the following overseas territories: Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and Saint Pierre Miquelon.

No IEA data for Liechtenstein are available. These data are not included in the data of Switzerland.

IEA data for the Netherlands are only for the European part.

Table 1.10

Fugitive emissions from fuels: coal mining and handling - CH_4 (2017)

	Share of national total[a]	Methods and EF used		Activity data					CH_4 IEF			
				CRF			IEA[b]		Underground mines		Surface mines	
		Methods	EF	Underground mines	Surface mines	Total	Total	Difference	Mining activities	Post-mining activities	Mining activities	Post-mining activities
	(%)			(Mt)				(%)	(kg/t)			
IPCC default EF[c]									12.06 (6.70-16.75)	1.68 (0.60-2.68)	0.8 (0.20-1.34)	0.07 (0-0.13)
Australia	4.25	T2, T3	CS, PS	116	508	624	499	-19.95	5.6	0.37	0.47	IE, NA
Austria	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Belarus	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Belgium	0.04	D	D	NO	NO	NO	0	–	NO	NO	NO	NO
Bulgaria	1.37	OTH, T1	D, OTH	0.13	34	34	34	0.00	12	1.7	0.80	0.067
Canada	0.16	CS	CS	NA	77 065	77 065	61	-99.92	NO	IE, NO	0.001	IE, NO
Croatia	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Cyprus	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Czechia	2.24	T1, T2	CS, D	5.4	39	45	45	0.03	8.8	1.7	1.3	0.067
Denmark (KP)	–	NA	NA	NO	NO	NO		–	NO	NO	NO	NO
Denmark (Convention)	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Estonia	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
European Union (KP)	0.72			81	382	464		–	8.1	1.6	0.48	0.028
European Union (Convention)	0.72			81	382	464	463	-0.08	8.1	1.6	0.48	0.028
Finland	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
France (KP)	0.00	T2, T3	CS, PS	NO	NO	NO		–	NO	NO	NO	NO
France (Convention)	0.00	T2, T3	CS, PS	NO	NO	NO	0	–	NO	NO	NO	NO
Germany	0.27	T2, T3	CS	3.7	171	175	175	0.10	25	0.58	0.011	IE, NA
Greece	0.86	T1	D	NO	38	38	38	0.00	NO	NO	0.87	IE, NO
Hungary	0.08	T1, T2	CS, D	0.002	8.0	8.0	8.0	-0.03	5.4	0.53	IE, NO	IE, NO
Iceland	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Ireland	0.03	T1	D	NO	NO	NO	0	–	NO	NO	NO	NO
Italy	0.00	T2	D	NO	NO	NO	0	–	NO	NO	NO	NO
Japan	0.04	T1, T2, T3	CS, D	0.61	0.72	1.3	1.3	0.00	3.1	1.7	0.80	0.067
Kazakhstan	6.28	T1	CS, D	11	91	102	113	10.99	16	2.7	6.9	0.67
Latvia	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Liechtenstein	–	NA	NA	NO	NO	NO		–	NO	NO	NO	NO
Lithuania	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Luxembourg	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Malta	–	NA	NA				0	–				
Monaco	–	NA	NA	NO	NO	NO		–	NO	NO	NO	NO
Netherlands	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
New Zealand	0.16	T1, T2	CS, D	0.16	2.8	2.9	2.9	0.00	17	1.6	0.80	0.067
Norway	0.14	T2	CS	0.12	0.13	0.25	0.13	-48.51	7.2	IE, NO	0.54	IE, NO
Poland	4.08	T1, T2	D	65	61	127	127	0.00	7.5	1.7	0.80	0.067
Portugal	0.02	NO	NO	NO	NO	NO	0	–	NO	NO	NO	NO
Romania	5.23	T1, T2	D	0.76	25	26	26	0.00	12	1.7	0.80	0.067
Russian Federation	3.00	T1, T2	CS, D	105	304	409		–	12	2.0	3.7	0.13
Slovakia	0.63	T2	CS	1.8	NO	1.8	1.8	0.00	5.1	0.60	NO	NO
Slovenia	1.32	T2, T3	CS, D, PS	3.4	NO	3.4	3.4	0.00	2.0	0.67	NO	NO
Spain	0.02	CS, T2	CS	0.72	2.1	2.8	3.0	6.64	2.3	0.70	NA	NA
Sweden	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Switzerland	–	NA	NA	NO	NO	NO	0	–	NO	NO	NO	NO
Turkey	0.70	T1	D	5.2	69	74	74	0.00	12	1.7	0.80	0.067
Ukraine	3.98	T1, T2, T3	CS, D, M	47	C		24	–	11	1.2	C	C
United Kingdom of Great Britain and Northern Ireland (KP)	0.10	T2, T3	CS	0.020	3.8	3.8		–	13	1.2	0.34	IE, NO
United Kingdom of Great Britain and Northern Ireland (Convention)	0.10	T2, T3	CS	NO	NO	NO	3.0	–	NO	NO	NO	IE, NO
United States of America	0.96	T2, T3	CS	248	454	702	702	0.00	9.2	0.86	0.64	0.14

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Data provided by IEA on 4 May 2019. Data for Russian Federation were not available at the time of publication of this report.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions, pages 4.12 to 4.19. (Tier 1).

Table 1.11a

Fugitive emissions from fuels: oil and natural gas - CH_4, CO_2 (2017)

	CH_4			CO_2		
	Share of national total[a]	Methods and EF used		Share of national total[a]	Methods and EF used	
	(%)	Methods	EF	(%)	Methods	EF
Australia	2.17	T1, T2	CS, D, PS	2.51	T1, T2, T3	CS, D, PS
Austria	0.35	T1, T2	CS, D	0.17	T1, T2	CS, D
Belarus	0.84	CS, D, T1	CS, D	0.00	D, T1	CS, D
Belgium	0.45	CS, D, T1	CS, D	0.09	T1, T3	D, PS
Bulgaria	0.36	T1	D	1.31	T1	D
Canada	5.41	CS	CS	2.17	CS	CS
Croatia	0.80	T1	D	1.18	CS, T1	CS, D
Cyprus	0.00	T1	D	0.00	T1	D
Czechia	0.47	T1, T2	CS, D	0.00	T1, T2	CS, D
Denmark (KP)	0.21	T2, T3	CS, D, OTH, PS	0.50	T2, T3	CS, D, PS
Denmark (Convention)	0.20	T2, T3	CS, D, OTH, PS	0.49	T2, T3	CS, D, PS
Estonia	0.08	T1	D	0.00	T1	D
European Union (KP)	0.65	NA	NA	0.47	NA	NA
European Union (Convention)	0.65	NA	NA	0.47		
Finland	0.05	CS, T1, T2	CS, D, PS	0.26	CS	CS
France (KP)	0.24	T1, T2, T3	CS, D, OTH, PS	0.62	T1, T2, T3	CS, D, PS
France (Convention)	0.24	T1, T2, T3	CS, D, OTH, PS	0.62	T1, T2, T3	CS, D, PS
Germany	0.55	T2, T3	CS	0.19	CS, T2, T3	CS
Greece	0.13	T1	D	0.01	T1	D
Hungary	1.17	T1	CS	0.20	T1, T3	CS
Iceland	0.01	T1	D	0.00	T1	D
Ireland	0.12	CS, T1, T2, T3	CS, D, PS	0.01	CS, T1, T3	CS, D, PS
Italy	1.10	T1, T2	CS, D	0.49	T1, T2	CS, D
Japan	0.02	CS, T1	CS, D	0.02	CS, T1	CS, D
Kazakhstan	1.45	T1	CS, D	0.00	T1	D
Latvia	1.35	T3	CS	0.00	T3	CS
Liechtenstein	0.61	T3	CS	0.00	NA	NA
Lithuania	1.47	T1, T2	CS, D	0.02	T1, T2	CS, D
Luxembourg	0.31	T1	D	0.00	T1	D
Malta	0.00	NA	NA	0.00	NA	NA
Monaco	0.64	T3	CS	0.00	T3	CS
Netherlands	0.28	T1, T1b, T2, T3	CS, D, PS	0.54	CS, T1, T2, T3	CS, D, PS
New Zealand	0.54	T1, T3	T1, T3	0.69	T1, T2, T3	CS, D, PS
Norway	1.49	T2	CS, PS	4.50	T2	CS, PS
Poland	0.64	T1	CS, D	0.02	T1	CS, D
Portugal	0.08	CR, OTH	CR, OTH	1.62	D	D
Romania	3.18	T1	D	0.46	T1, T2	CS, D
Russian Federation	7.74	D, T1b, T2	CS, D	1.37	T1b, T2	CS, D
Slovakia	3.32	T1	CS	0.00	T1	CS
Slovenia	0.23	T1	D	0.00	T1	D
Spain	0.21	CS, T1, T2	CS, D	1.13	CS, T1, T2	CS, D, PS
Sweden	0.11	T1, T2, T3	CS, D, PS	1.51	T2, T3	CS, PS
Switzerland	0.41	T1, T2	CS, D	0.07	T2	CS
Turkey	0.54	T1	D	0.03	T1	D
Ukraine	8.71	T1, T2	CS, D	0.65	T1, T2	CS, D
United Kingdom of Great Britain and Northern Ireland (KP)	1.04	T2, T3	CS, PS	0.89	T2, T3	CS, PS
United Kingdom of Great Britain and Northern Ireland (Convention)	1.04	T2, T3	CS, PS	0.89	T2, T3	CS, PS
United States of America	3.26	CS	CS	0.77	CS	CS

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

Table 1.11b

Fugitive emissions from fuels: oil and natural gas - oil - CH_4, CO_2 (2017)

	Oil															
	Exploration				Production				Transport				Refining (R) / Storage (S)			
	CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data	
	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description
IPCC default EF[b]			10^3 m^3	total oil production					(5.4)(PL) (25)(TT)							
Australia	0.33	3 200	t	Quantity of Oil Flared	1.3	NA, NO	PJ	Crude Oil and ORF Produced	54	NA, NO	PJ	Crude oil transport domestic	1.3	159	PJ	Crude Oil refined and stored
Austria	IE	IE, NO	Mt	Mt crude oil	IE	IE, NO	Mt	Mt crude oil	5.4	0.49	Mt	1000 m3 crude oil	31 663	NA, NO	Mt	Mt crude oil Input
Belarus	NO	NO	NE	number of wells drilled	29 891	5 566	NE	PJ of oil produced	111	10	NE	PJ oil loaded in tankers	1 400	NA	NE	PJ oil refined
Belgium	NO	NO	PJ		NO	NO	PJ		150	14	PJ		57	NA, NO	PJ	
Bulgaria	194	9 102	103m3	Indigenous production	2 200	280	103m3	Indigenous production	25	2.3	103m3	Indigenous production	23	36 580	103m3	Refinery intake
Canada	IE	IE, NO	NA	NA	1 044	3 066	10^3 m^3	Total crude production	0.073	0.11	10^3 m^3	Total crude production	29	6.8	TJ	Refinery energy consumption
Croatia	194	9 102	1001 m3	total oil production	2 546	41 225	1001 m3	total oil production	5.4	0.49	1001 m3	total oil transported by pipelines	22	NA, NO	1001 m3	oil refined
Cyprus	NO	NO	no		NO	NO	no		NO	NO			NO	NO	no	Crude Oil refined (10^3 m3)
Czechia	NE	NE	PJ	(e.g. number of wells drilled)	4 746	7 576	PJ	(e.g. PJ of oil produced)	146	13	PJ	(e.g. PJ oil loaded in tankers)	585	NE, NO	PJ	(e.g. PJ oil refined)
Denmark (KP)	NO	NO	m3	Oil explored	0.59	0.043	10^3 m3	Oil produced	0.019	NA, NO	Mg	Oil loaded	0.12	0.000	Mg	Oil refined
Denmark (Convention)	NO	NO	dnm:m3 grl:NO fro:NO		0.59	0.043	dnm:10^3 m3 grl:NO fro:NO		0	NA, NO	dnm:Mg grl:NO fro:NO		0.12	0.000	dnm:Mg grl:NO fro:NO	
Estonia	NO	NO	NA	Exploration	NO	NO	NA	Production	NO	NO	NA	Transport	NO	NO	NA	Refining/Storage
European Union (KP)																
European Union (Convention)																
Finland	NO	NO	NO		NO	NO	NO		NO	NO	NO		25	NO	kt	kt oil refined
France (KP)	5 373	252 097	PJ	Oil produced	54 578	7 201	PJ	Oil produced	63	5.8	PJ	Oil loaded	6.1	1 003 432	PJ	Oil refined
France (Convention)	NE	NE	PJ	Oil produced	54 578	7 201	PJ	Oil produced	63	5.8	PJ	Oil loaded	6.1	1 003 432	PJ	Oil refined
Germany	64	0.48	number	Number of wells drilled	0.014	0.11	t	oil produced	0.006	NA, NO	t	oil transported	0.086	3.3	t	oil refined
Greece	NE	NE, NO			0.69	0.050	kt		27	NE, NO	kt		26	IE, NO	kt	
Hungary	IE	IE, NO	NA		1 808	130	1000 m3	conventional oil production (thousand m3)	9.7	51	1000 m3	Oil transported by pipeline (thousand m3)	22	NA, NO	1000 m3	Oil refined (thousand m3)
Iceland	NO	NO			NO	NO			NO	NO			NO	NO		
Ireland	NO	NO	PJ		NO	NO	PJ		NO	NO	PJ		110	NO	PJ	
Italy	NO	NO	NA	Wells drilled	1 872	321	Gg	Oil produced	6.2	0.56	Gg	Oil transported	9.5	20 834	Gg	Oil refined
Japan	IE	IE, NO			1 223 117	88 336	10^6 m^3	Oil produced	77 261	5 313	10^6 m^3	Oil & condensate produced	2 629	NE, NO	10^6 m^3	Oil refined
Kazakhstan	NE	NE	NE		2169.578	157	t		7.7	0.70	t		NA	NA	t	
Latvia	NO	NO	kt	Exploration	NO	NO	kt	Production	NO	NO	kt	Transport	NO	NO	kt	Refining/Storage
Liechtenstein	NO	NO	no	number of wells drilled	NO	NO	no	oil produced	NO	NO	no	oil loaded in tankers	NO	NO	no	oil refined
Lithuania	194	9 100	thous.m3	Wells drilled, number	1.5	0.11	thous.m3	Oil produced, thous.m3	5.4	0.49	thous.m3	Oil transported, thous.m3	2.6	NO	thous.m3	Oil refining, PJ
Luxembourg	NO	NO	NA	number of wells drilled	NO	NO	NA	oil produced	NO	NO	NA	oil loaded in tankers	NO	NO	NA	oil refined
Malta	NO	NO	NO	number of wells drilled	NO	NO	NO	oil produced	NO	NO	NO	oil loaded in tankers	NO	NO	NO	oil refined
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	IE	IE, NO			IE	IE, NO	PJ		5.8	0.53	Mg		126	405 986	PJ	
New Zealand	0.000	0.43	number of wells drilled		0.001	0.000	m3		0.030	0.003	m3		0.022	NA, NO	m3	
Norway	IE	IE, NO	Number of wells	Exploration wells	IE	IE, NO	10^3 m^3	Oil produced	1 170	25 270	PJ	Oil loaded in tankers	5 493	2 054 784	PJ	Oil refined
Poland	NA	NA	NA	NA	77 257	5 580	PJ	Production	6.3	0.57	Gg	oil ltransported by pipeline	1 121	NA	PJ	oil refined
Portugal	NO	NO	NO		NO	NO	NO		5 400 000	490	Mt		5.2	14 535 566 534	Mt	
Romania	5 509	258 473	PJ	oil produced	62 475	7 588	PJ	oil produced	149	14	PJ	oil refined	613	IE, NO	PJ	oil refined
Russian Federation	194	9 102	10^3m3	Oil produced	1 801	130	10^3 m3	Oil and Condensate produced	5.4	0.50	10^3 m3	Oil transpoted by pipeline	22	NE, NO	10^3 m3	Oil refined
Slovakia	NO	NO	NO		3 600	260	kt	Production	5.4	0.49	kt	Transfer	41	NE	kt	Refining/Storage
Slovenia	NO	NO	1000 m3	NA	NO	NO	1000 m3	Conventional oil produced	NA	430	1000 m3	Consumption of LPG	NO	NA, NO	1000 m3	Oil refined
Spain	NA	NA, NO	Tg	Crude oil produced	676	58	Tg	Crude oil produced	555	50	Tg	Transport of crude oil	1 293	51 847 235	Tg	Oil refined
Sweden	C	C, NA	TJ	Consumption of feedstock	NO	NO		Oil production	745	NE	PJ	Transported amount of oil	C	C, NA	Mt	Consumption of crude oil
Switzerland	NO	NO			NO	NO			152	NA, NO	PJ	Crude oil imported (pipeline)	259	NA, NO	PJ	Crude oil used
Turkey	NO	NO	NO		3 600	260	10^3 m^3	oil production	4.5	70	10^3 m^3	oil transported by pipeline	41	NA, NO	10^3 m^3	(petroleum refining)
Ukraine	747	80 400	10^3 m^3	Oil Produced	30 001	2 150	10^3 m^3	oil produced	5.4	0.49	10^3 m^3	Crude oil transported by pipeline	880	NA, NE	PJ	Oil refined
United Kingdom of Great Britain and Northern Ireland (KP)	25	3 200	t	Exploration drilling: fuel use	1 551	62 943	PJ	Oil produced	0.012	NO	t	Oil loading	2.2	NO	PJ	Refinery throughput
United Kingdom of Great Britain and Northern Ireland (Convention)	25	3 200	t	Exploration drilling: fuel use	1 551	62 943	PJ	Oil produced	0.012	NO	t	Oil loading	2.2	NO	PJ	Refinery throughput
United States of America	4 198	485 244	10^6 Bbl(oil US)	Annual Domestic Production	426 387	5 257 036	10^6 Bbl(oil US)	Annual Domestic Production	1 263	180	10^6 Bbl(oil US)	Refinery Feed	4 679	615 657	10^6 Bbl(oil US)	Refinery Feed

[a] The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions. Table 4.2.4. Tier 1 Emission Factors in developed coutries. Values converted from Gg to kg.

Table 1.11c

Fugitive emissions from fuels: oil and natural gas - natural gas - CH_4, CO_2 (2017)

	Natural Gas																			
	Production				Processing				Transmission and Storage				Distribution				Other			
	CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data	
	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description	kg/unit		Unit	Description
IPCC default EF[b]	**(380 to 2300)**	**(140 to 820)**	**10^6 m^3**	**Gas produced**	**(150 to 1030)**	**(12 to 320)**	**10^6 m^3**	**Gas produced**	**(66-480)(T) (25)(S)**	**(0.88)(T) (0.11)(S)**	**10^6 m^3**	**marketable gas**	**1 100**	**51**	**10^6 m^3**	**utility sales**				
Australia	29	1.4	PJ	Natural gas produced	0.38	0.053	t	NA	1 030	20	km	Length of Pipeline	275 283	15 699	PJ	Utility sales	IE	IE, NO	NA	IE
Austria	3 178	40 758	Mm3	Mm3 natural gas	NA	38 462	Mm3	Mm3 natural gas	579	25	km	km pipeline length	50	2.1	km	km distribution network length	NO	NO	Mm3	Mm3 natural gas stored
Belarus	126 818	4 154	NE	PJ gas produced	IE	IE, NO	NE		25	0.99	10^6 m^3	PJ gas consumed	1 100	51	10^6 m^3	PJ gas consumed	8 994	NO	NE	PJ gas consumed
Belgium	NO	NO	PJ		NO	NO	PJ		9 832	NA, NO	PJ		24 437	786	PJ		NO	NO	PJ	
Bulgaria	1 340	48	106m3	Indigenous production	590	166	106m3	Indigenous production	273	0.15	106m3	Transmission and storage	1 100	51	106m3	Inland consumption	NO	NO	NO	
Canada	455	13	10^6 m^3	Natural gas production	57	40	10^6 m^3	Natural gas production	566	414	km	Transmission pipeline length	145	7.4	km	Distribution pipeline length	894	172	number	Number of gas wells + spills
Croatia	1 341	157 743	1000000 m3	gas produced	592	3 166	1000000 m3	gas produced	480	4.1	1000000 m3	marketable gas	1 100	51	1000000 m3	utility sales	NO	NO	NO	
Cyprus	NO	NO	no		NO	NO	no		NO	NO	no		NO	NO	no		NO	NO	no	
Czechia	38 649	15	PJ	(e.g. PJ gas produced)	NA	NA, NO	PJ		5 370	21	PJ	(e.g. PJ gas consumed)	119 047	474	PJ	(e.g. PJ gas consumed)	IE	IE, NO	PJ	(e.g. PJ gas consumed)
Denmark (KP)	380	14	10^6 m3	Gas produced	NA	NA	10^6 m3	Gas produced	5.7	0.17	10^6 m3	Gas transmission	57	1.4	10^6 m3	Gas distributed	NO	NO	m3	Incl. In transmission
Denmark (Convention)	380	14	dnm:10^6 m3 grl:NO fro:NO		NA, NO	NA, NO	dnm:10^6 m3 grl:NO fro:NO		5.7	0.17	dnm:10^6 m3 grl:NO fro:NO		57	1.4	dnm:10^6 m3 grl:NO fro:WasNull		NO	NO	dnm:m3 grl:NO fro:NO	
Estonia	NO	NO	NA	Production	NO	NO	NA	Processing	2 218	30	PJ	Amount of the transmission of Natural Gas	36 960	1 714	PJ	Amount of natural gas distributed	NO	NO	NA	Other
European Union (KP)																				
European Union (Convention)																				
Finland	NO	NO	NO		NA	NO	NA		3 318	NE, NO	PJ	PJ gas consumed	89 962	NE, NO	PJ	PJ gas distributed	NO	NO	NO	
France (KP)	IE	IE, NO	PJ	NO	304	5 361 447	PJ	Gas processed	12 969	137	PJ	Gas consumed	12 868	136	PJ	Gas consumed	NO	NO	PJ	NO
France (Convention)	IE	IE, NO	PJ	NO	304	5 361 447	PJ	Gas processed	12 969	137	PJ	Gas consumed	12 868	136	PJ	Gas consumed	NO	NO	PJ	NO
Germany	0.075	0.098	1000 m³	gas produced	0.016	140	1000 m³	gas produced	2 154	8.9	km	lenght of transmission pipelines	176	1.2	km	lenght of distribution pipelines	21	0.17	TJ	gas consumed
Greece	1 930	214	mil_m3		IE	IE, NO	mil_m3		298	0.99	mil m3		1 100	51	mil m3		IE	IE, NO		
Hungary	1 340	48	million m3	Gas production (million m3)	913	248	million m3	Sweet gas plants-raw gas feed (million m3)	298	0.99	million m3	Marketable gas (million m3)	1 100	51	million m3	Utility sales (million m3)	NO	NO	NO	
Iceland	NO	NO			NO	NO			NO	NO			NO	NO			NO	NO		
Ireland	3 174	NO	PJ		IE	NO	PJ		1 768	24	PJ		29 468	1 366	PJ		NO	NO	PJ	
Italy	906	82	Mm3	Gas produced	406	320	Mm3	Gas produced	397	8.0	Mm3	Gas transported	4 152	83	Mm3	Gas distributed	NO	NO	NA	other
Japan	2 207	78	10^6 m^3	Gas produced	755	235	10^6 m^3	Gas produced	194	NA, NO	10^6 m^3	Gas sold	10	NA, NO	10^6 m^3	City gas sold	IE	NA, NO		
Kazakhstan	1 340	48	blm m3		NE	NE	NE		298	0.99	bln m3		1 100	51.002	bln m3		3.7	NA	t	
Latvia	NO	NO	m3	Production	NO	NO	m3	Processing	0.63	0.002	m3	Transmission and storage	0.65	0.002	m3	Distribution	0.65	0.002	m3	Other
Liechtenstein	NO	NO	no	gas produced	NO	NO	no	gas produced	164	1.3	km	gas consumed	45	0.35	TJ	gas consumed	NO	NO	TJ	gas produced
Lithuania	NO	NO	NO		NO	NO	NO		950 519	722	kt	Natural gas leakages	950 519	722	kt	Natural gas leakages	950 519	722	kt	Natural gas leakages
Luxembourg	NO	NO	NA	gas produced	NO	NO	NA	NO	13	0.024	TJ	gas consumed	30	1.4	TJ	gas consumed	NO	NO	NA	NO
Malta	NO	NO	NO	gas produced	NO	NO	NO	gas processed	NO	NO	NO	gas consumed	NO	NO	NO	gas consumed	NO	NO	NO	gas consumed
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0.74	0.012	m	CH4	NO	NO	NO	NO
Netherlands	IE	IE, NO	mln m3		IE	IE, NO			1 486	28	PJ		44 861	1 380	10^3 km		NO	NO	PJ	
New Zealand	984	35	1E6 m3		NE	NE, NO	NA		534 319	53 008	TJ		14 002	2 158	TJ		NO	NA, NO	NA	
Norway	IE	11 038	10^6 m^3	Gas produced	IE	IE, NO	PJ	Gas processed	IE	IE, NO	PJ	Gas export	44 507	IE, NO	PJ	Gas consumption	NE	NE	PJ	Gas processed
Poland	71 635	2 554	PJ	Production	32 080	43 832	PJ		14 950	27	PJ	gas consumed	34 260	1 588	PJ	gas consumed	779	3.4	PJ	NA
Portugal	NO	NO	NO		NO	NO	NO		11	0.21	toe NG Transmitted		1 139	22	toe NG Distributed		NO	NO	NO	
Romania	1 340	48	106m3	gas produced	590	166	106m3	gas produced and processed	243	0.79	106m3	gas produced	1 100	51	106m3	gas supplied	204 133	NO	PJ	gas consumed
Russian Federation	213	3.9	10^6 m3	Natural Gas produced	IE	IE, NO	10^6 m3	Natural Gas produced	6 025	7.5	10^6 m3	Marketable gas	1 100	51	10^6 m3	Gas consumed	NO	NO	NA	
Slovakia	2 300	82	mil m3	Production/Processing	1 030	320	mil m3		480	0.88	mil m3	Transfer	1 100	51	mil m3	Distribution	25	0.11	mil m3	Storage
Slovenia	1.3	0.048	1000 m3	Gas production	NO	NO	1000 m3	NA	0.38	0.001	1000 m3	Marketable gas	1.1	0.051	1000 m3	Utility sale	NO	NO	1000 m3	NA
Spain	2 050	73	Mm3	Mm3 gas produced	150	12	Mm3	Mm3 gas produced	1 676	34	PJ	PJ gas (NCV)	22 043	451	PJ	PJ of gaseous fuels (natural gas,	NO	NO	NO	NO
Sweden	NO	NO		Gas produced	NO	NO		Gas produced	NA	NA	km	Length of transmission pipelines	NA	NA	km	Length of distribution pipelines	NO	NO		
Switzerland	NO	NO	PJ	Amount of natural gas produced	NO	NO			17 867 000	645 000	PJ	Losses of natural gas in transit pipeline	17 867 000	645 000	PJ	Losses of natural gas in distribution network	NO	NO	PJ	Losses of natural gas due to major accidents
Turkey	2 300	82	10^6 m^3	Natural gas production	1 030	320	10^6 m^3	Natural gas production	466	0.86	10^6 m^3	Natural gas transmission by pipeline	1 052	49	10^6 m^3	Natural gas distribution	NO	NO	NO	
Ukraine	12 190	97	10^6 m^3	Natural Gas Produced	790	250	10^6 m^3	Natural Gas Processed	264 973	3 052	Mt	gas transmitted	13 394 084	154 253	10^9 m^3	The volume of natural gas	223 663	858	PJ	Residential and Non-
United Kingdom of Great Britain and Northern Ireland (KP)	IE	IE, NO	PJ	Gas produced	1 393	51 547	PJ	Gas produced	8.5	0.40	GWh	Natural gas supply	287	13	GWh	Natural gas supply	NO	NO	NA	
United Kingdom of Great Britain and Northern Ireland (Convention)	IE	IE, NO	PJ	Gas produced	1 393	51 547	PJ	Gas produced	8.5	0.40	GWh	Natural gas supply	287	13	GWh	Natural gas supply	NO	NO	NA	
United States of America	158 902 226	104 254 932	10^9 ft^3	Annual Production	17 171 591	822 673 044	10^9 ft^30	Annual Production	47 758 172	19 659 021	10^9 ft^3	Consumption	17 505 544	515 420	10^9 ft^3	Consumption	95	4.2	abandoned wells	Abandoned Wells

[a] The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions. Table 4.2.4. Tier 1 Emission Factors in developed coutries. Values converted from Gg to kg.

Table 1.11d

Fugitive emissions from fuels: oil and natural gas - venting and flaring - CH_4, CO_2 (2017)

	Venting and flaring																							
	Oil								Gas								Combined							
	Venting				Flaring				Venting			Flaring					Venting				Flaring			
	CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data			CH_4 IEF[a]	CO_2 IEF[a]	Activity data		CH_4 IEF[a]	CO_2 IEF[a]	Activity data	
	kg/unit		unit	Description	kg/unit		unit	Description	kg/unit	unit	Description	kg/unit		unit	Description		kg/unit		unit	Description	kg/unit		unit	Description
IPCC default EF[b]																								
Australia	IE	IE, NO	NA	NA	35 001	2 902 811	kt	Quantity of Gas Flared	15 514	PJ	Natural gas, crude oil and ORF produced	82	48 859	kt	Natural gas, crude oil and ORF produced		NO	NO	NA	NA	NO	NO	NA	NA
Austria	IE	IE, NO	NA		IE	IE, NO	NA		IE	NA		IE	IE, NO	NA			IE	IE, NO	NA		IE	IE, NO	NA	
Belarus	NA	NA, NO	NA	PJ oil produced	NA	NA, NO	NA	PJ gas consumption	NA	NA	PJ gas produced	NA	NA, NO	NA	PJ gas consumption		NA	NA, NO	NA	Venting	0.004	0.65	NA	Flaring
Belgium	NO	NO	PJ		NO	NO	PJ		16	PJ		NO	NO	PJ			NO	NO	PJ		IE	NA	PJ	
Bulgaria	8 700	1 800	103m3	Indigenous production	351	18 338 141	103m3	Indigenous production	182	106m3	Indigenous production	2.8	4 200	106m3	Indigenous production		NO	NO	NO		NO	NO	NO	
Canada	3 282	35 889	10^3 m^3	Total crude production	10 372	3 101 879	10^6 m^3	Associated gas flared	1 492	10^6 m^3	Natural gas production	11 956	1 975 200	10^6 m^3	Non-associated gas		74	1.7	number	Number of wells drilled	196	33 193	number	Number of wells drilled
Croatia	25	2.3	1000 m3	oil	IE	IE, NO	1000 m3		IE	1000000 m3	gas	IE	IE, NO	1000000 m3			NO	NO	NO		NO	NO	NO	
Cyprus	0.002	0.023		Fuel transported (m3)	NO	NO			NO			NO	NO				NO	NO			NO	NO		
Czechia	235 390	48 701	PJ	(e.g. PJ oil produced)	568	919 913	PJ	(e.g. PJ gas consumption)	NO	PJ	(e.g. PJ gas produced)	NO	NO	PJ	(e.g. PJ gas consumption)		NO	NO	PJ		NO	NO	PJ	
Denmark (KP)	NO	NO	GJ	(e.g. PJ oil produced)	0.018	58	GJ	Refinery gas consumption	16	GJ	Venting in gas terminals	0.030	57	GJ	Gas consumption		NO	NO	GJ	Amount vented	0.25	58	GJ	Gas consumption
Denmark (Convention)	NO	NO	dnm:GJ grl:NO fro:NO		0.018	58	dnm:GJ grl:NO fro:NO		16	dnm:GJ grl:NO fro:WasNull		0.030	57	dnm:GJ grl:NO fro:NO			NO	NO	dnm:GJ grl:NO fro:NO		0.25	58	dnm:GJ grl:NO fro:NO	
Estonia	NO	NO	NA	Oil	NO	NO	NA	Oil	NO	NA	Gas	NO	NO	NA	Gas		NO	NO	NA	Combined	NO	NO	NA	Combined
European Union (KP)																								
European Union (Convention)																								
Finland	NO	NO	NO		0.99	54 713	TJ	used fuels, TJ	NO	NO		IE	IE, NO	NO			NO	NO	NO		NO	NO	NO	
France (KP)	19 942	2 631	PJ	Oil produced	2 102	9 554 336	PJ	Gas Flared	IE	Gg	Gas produced	6 343	2 292 586	Gg	Consumption		NO	NO	PJ	Oil and Gas produced	NO	NO	PJ	Consumption
France (Convention)	19 942	2 631	PJ	Oil produced	2 102	9 554 336	PJ	Gas Flared	IE	Gg	Gas produced	6 343	2 292 586	Gg	Consumption		NO	NO	PJ	Oil and Gas produced	NO	NO	PJ	Consumption
Germany	IE	IE, NO		oil gas vented	1.2	3 882	kt	oil refined	IE		natural gas vented	IE	1 777	1000 m³	gas flared		IE	IE, NO	m3	oil gas and natural gas combined vented	IE	IE, NO		oil and gas combined flared
Greece	844	111	kt		29	48 045	kt		182	mil m3		2.8	4 200	mil m3			NO	NO			NO	NO		
Hungary	720	95	1000 m3	Conventional oil production	345	66 434	1000 m3	Conventional oil production	2 969	million m3	Sour gas plants-raw gas	2.6	3 967	million m3	Gas production (million		IE	IE, NO	NO		IE	IE, NO	NA	
Iceland	NO	NO			NO	NO			NO			NO	NO				NO	NO			NO	NO		
Ireland	NO	NO	PJ		NO	NO	PJ		IE	PJ		1 000	55 737 684	PJ	Natural gas flaring		NO	NO	PJ		NO	NO	PJ	
Italy	179	2 061	Gg	Oil produced	276	38 926	Gg	Oil produced	NA	Mm3	Gas produced	36	4 200	Mm3	Gas produced		NO	NO	NA	Combined	NO	NO	NA	Combined
Japan	720 000	95 000	10^6 m^3	Oil produced	25 000	41 000 000	10^6 m^3	Oil produced	IE	10^6 m^3	Gas produced in relevant facilities	2.0	3 000	10^6 m^3	Gas produced		IE	IE, NO			271	5 700	wells	Number of wells tested
Kazakhstan	NA	NA	NA		IE	IE	NA		NA	NA		IE	IE	NA			NA	NA	NA		1.4	2 150	t	
Latvia	NO	NO	kt	Oil	NO	NO	kt	Oil	0.64	m3	Gas	NO	NO	kt	Gas		NO	NO	kt	Combined	NO	NO	kt	Combined
Liechtenstein	NO	NO	no	oil produced	NO	NO	no	gas consumed	NO	no	gas produced	NO	NO	no	gas consumed		NO	NO	no	gas produced	NO	NO	no	Gas/Oil Produced
Lithuania	720	95	thous.m3	Oil produced, thous.m3	25	41 000	thous.m3	Oil produced, thous.m3	NO	NO		NO	NO	NO			NO	NO	NO		NO	NO	NO	
Luxembourg	NO	NO	NA	oil produced	NO	NO	NA	gas consumed	NO	NA	gas produced	NO	NO	NA	gas consumed		NO	NO	NA	combined oil and gas production	NO	NO	NA	combined oil and gas consumption
Malta	NO	NO	NO	oil produced	NO	NO	NO	gas consumed	NO	NO	gas produced	NO	NO	NO	gas consumed		NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	IE	IE, NO	10^6 m^3		IE	IE, NO	10^6 m^3		IE	PJ		IE	IE, NO	PJ			IE	IE	PJ		IE	IE	PJ	
New Zealand	IE	IE	NA		IE	IE, NO	NA		NA	NA		IE	IE, NO	NA			14 125	NA, NO	TJ		424	52 917	TJ	
Norway	IE	IE, NO	PJ	(See Venting combined)	9	74 823 275	PJ	Oil flared	IE	PJ	(See Venting combined)	94 133	64 382 686	PJ	Gas flared		2 323	9 142	PJ	Oil and gas produced	IE	IE, NO	PJ	(See Flaring of Oil/Gas in i/ii)
Poland	830	165	Gg	oil produced	47 619	29	Gg	oil produced	IE	NA	NA	1 200	15 833	10^6m3	gas production		NO	NA, NO	NA	NA	NO	NA, NO	NA	NA
Portugal	NO	NO	NO		1 399	2 466 586	kt		NO	NO		NO	NO	NO			NO	NO	NO		NO	NO	NO	
Romania	247 060	51 116	PJ	oil produced	596	965 522	PJ	gas consumed	182	106m3	gas produced	0.76	1 200	106m3	gas consumed		NA	NA, NO		gas and oil produced	NA	NA, NO		gas and oil combined
Russian Federation	720	95	10^3 m3	Oil and Condensate produced	12 000	2 000 000	10^6 m3	Associated gas flaring	IE	10^6 m3	Marketable Gas	0.11	195	10^6 m3	Natural Gas production		NO	NO	NA		NO	NO	NA	
Slovakia	720	95	kt	Venting oil	25	41 000	kt	Flaring oil	320	mil m3	Venting gas	2.0	3 000	mil m3	Flaring gas		NO	NO	NA		NO	NO	NA	
Slovenia	NA	NA, NO	1000 m3	Conventional oil produced	NO	NO	1000 m3	Conventional oil produced	0.25	1000 m3	Marketable gas	0.001	1.2	1000 m3	Gas production		NO	NO	1000 m3	NA	NO	NO	1000 m3	NA
Spain	815 402	107 589	Tg	Tg gas venting	431	3 502 115	Tg	Tg gas consumption	756 479 373	PJ	gas produced	451	84 607	Mm3	Mm3 gas consumption		NO	NO	NO	NO	NO	NO	NO	NO
Sweden	IE	IE		Venting of oil products	C	C	TJ	Venting of oil products	0.64	m3	Venting of gas products	1.0	51 027	TJ	Venting of gas products		IE	IE		Venting of combined products	NA	NA		Venting of combined products
Switzerland	NO	NO					PJ	Crude oil imported	NO			NO	NO	NO	Amount of natural gas produced		NO	NO			NO	NO		
Turkey	720	95	10^3 m^3	(Oil production	219	50 102	10^3 m^3	Oil production	46 994	10^6 m^3	Natural gas production	2.0	3 000	10^6 m^3	Natural gas production		NO	NO	NO		NO	NO	NO	
Ukraine	855	113	10^3 m^3	oil produced	29	48 500	10^3 m^3	oil produced	IE	NA	gas transmission	2.3	3 550	10^6 m^3	Natural Gas Produced		IE	IE, NA	NA		IE	IE, NA	NA	
United Kingdom of Great Britain and Northern Ireland (KP)	NA	NA	NA		10	2 518	t	Amount of gas flared	NA	NA		11	2 100	t	Amount of gas flared		IE	IE, NO	NA		IE	IE, NO	NA	
United Kingdom of Great Britain and Northern Ireland (Convention)	NA	NA	NA		10	2 518	t	Amount of gas flared	NA	NA		11	2 100	t	Amount of gas flared		IE	IE, NO	NA		IE	IE, NO	NA	
United States of America	IE	IE, NA	NA	Production	IE	IE, NA	NA	Production	IE	NA	Production	IE	IE, NA	NA	Production		IE	IE, NA	NA	Production	IE	IE, NA	10^9 ft^3	Gas Flared

[a] The units of the implied emission factors (IEF) vary from Party to Party depending on the unit of the activity data used. The unit of the IEF is kg/unit of activity data.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 4 Fugitive Emissions. Table 4.2.4. Tier 1 Emission Factors in developed coutries. Values converted from Gg to kg.

Table 1.12

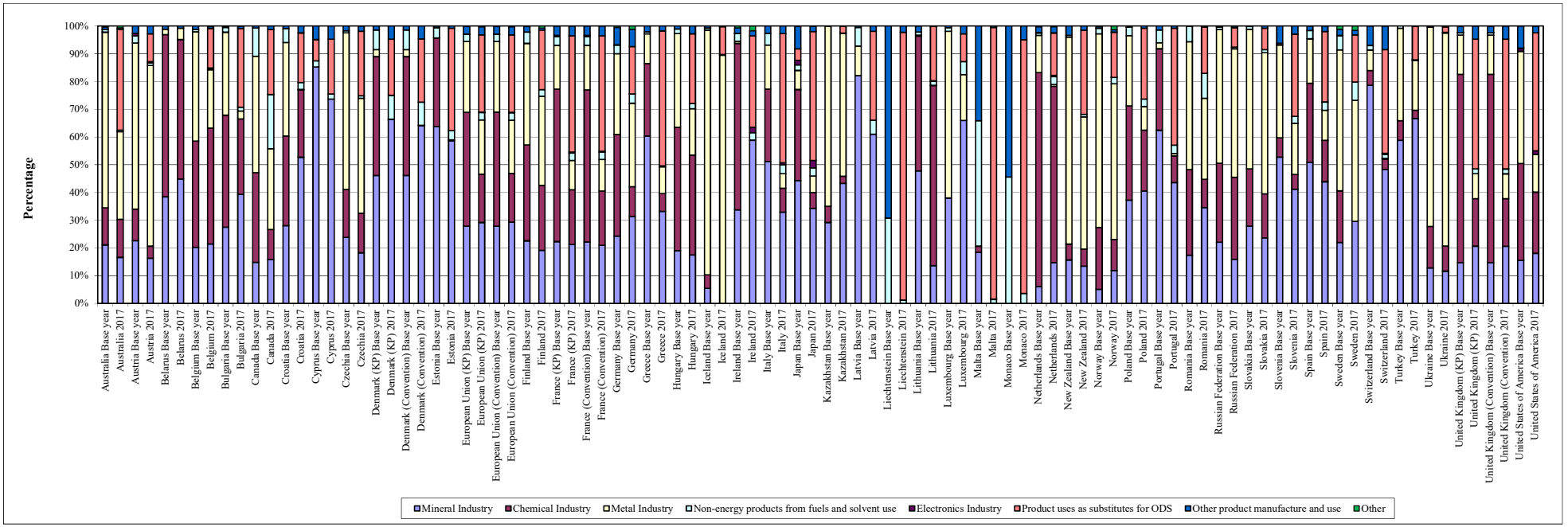
CO_2 transport and storage (2017)

	Transport of CO_2		Injection and storage		Other	
	CO_2 IEF	Activity data	CO_2 IEF	Activity data	CO_2 IEF	Activity data
	kg/kt	(kt)	kg/kt	(kt)	kg/kt	(kt)
IPCC default EF[a]	(0.00014 to 0.014 Gg/year/km)	10^3 m^3	n.a.	10^3 m^3	n.a.	10^3 m^3
Australia	NO	NO	NO	NO	NO	NO
Austria	NO	NO	NO	NO	NO	NO
Belarus	NO	NO	NO	NO	NO	NO
Belgium	NO	NO	NO	NO	NO	NO
Bulgaria	NO	NO	NO	NO	NO	NO
Canada	74	3 653	IE, NO	NO	NA	NA
Croatia	NO	NO	NO	NO	NO	NO
Cyprus	NO	NO	NO	NO	NO	NO
Czechia	NO	NO	NO	NO	NO	NO
Denmark (KP)	NO	NO	NO	NO	NO	NO
Denmark (Convention)	NO	NO	NO	NO	NO	NO
Estonia	NO	NO	NO	NO	NO	NO
European Union (KP)	NA, NO	NA, NO	IE, NA, NO	NA, NO	NO	NO
European Union (Convention)	NA, NO	NA, NO	IE, NA, NO	NA, NO	NO	NO
Finland	NA	NA	NA	NA	NO	NO
France (KP)	NO	NO	IE	NA	NO	NO
France (Convention)	NO	NO	IE	NA	NO	NO
Germany	NO	NO	NO	NO	NO	NO
Greece	NO	NO	NO	NO	NO	NO
Hungary	NO	NO	NO	NO	NO	NO
Iceland	NO	NO				
Ireland	NO	NO	NO	NO	NO	NO
Italy	NO	NO	NO	NO	NO	NO
Japan	NA, NO	111	NA, NE	221	NO	NO
Kazakhstan	NA	NA	NA	NA	NA	NA
Latvia	NO	NO	NO	NO	NO	NO
Liechtenstein	NO	NA, NO	NO	NO	NO	NO
Lithuania	NO	NO	NO	NO	NO	NO
Luxembourg	NO	NO	NO	NO	NO	NO
Malta						
Monaco	NO	NO	NO	NO	NO	NO
Netherlands	NO	NO	NO	NO	NO	NO
New Zealand	NO	NO	NO	NO	NO	NO
Norway	NE, NO	680	449	23 697		
Poland	NO	NO	NO	NO	NO	NO
Portugal	NO	NO	NO	NO	NO	NO
Romania	NO	NO	NO	NO	NO	NO
Russian Federation	NO	NO	NO	NO	NO	NO
Slovakia	NO	NO	NO	NO	NO	NO
Slovenia	NO	NO	NO	NO	NO	NO
Spain	NO	NO	NO	NO	NO	NO
Sweden						
Switzerland	NO	NO	NO	NO	NO	NO
Turkey	NA, NO	NA, NO	NE, NO	NE, NO	NO	NO
Ukraine	NO	NO	NO	NO	NO	NO
United Kingdom of Great Britain and Northern Ireland (KP)	NO	NO	NO	NO		
United Kingdom of Great Britain and Northern Ireland (Convention)	NO	NO	NO	NO		
United States of America	IE	IE	IE	IE	IE	IE

[a] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 5 Carbon Dioxide Transport, Injection and Geological Storage. Table 5.2. Tier 1 Emission Factors for pipeline transport of CO_2 from a CO_2 capture site to the final storage site.

Figure 2.1

Contribution of subsectors to total GHG emissions in the Industrial Processes and Product Use sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 2.1

Mineral industry - CO_2 (2017)

	Methods and EF used		Cement production				Lime production		Glass production	
			Share of national total[a]	Activity data		CO_2 IEF	Share of national total[a]	CO_2 IEF	Share of national total[a]	CO_2 IEF
	Methods	EF		Description[b]	Value					
			(%)		(kt)	(t/t)	(%)	(t/t)	(%)	(t/t)
IPCC default EF[c]								0.59-0.86		0.2
Australia	T2	CS	0.54	Clinker Production	5 579	0.54	0.19	0.68	–	IE, NO
Austria	T1, T3	D, PS	2.08	Cement clinker	3 313	0.52	0.71	0.75	0.05	0.076
Belarus	T1, T2	CS, D	2.37	Used clincer production data	4 244	0.52	0.36	0.75	0.10	0.14
Belgium	T3	CS, PS	2.00	Clinker Production	4 238	0.54	1.38	0.79	0.14	0.10
Bulgaria	T1, T2	CS, D, PS	2.02		2 327	0.53	0.36	0.78	0.14	0.15
Canada	T1, T2	CS, D	0.94	clinker production	12 412	0.54	0.19	0.75	0.01	0.42
Croatia	T2, T3	D, PS	5.14	clinker production	2 411	0.53	0.35	0.60	0.13	0.43
Cyprus	CS, T1	CS, D	10.27	Clinker production	1 717	0.54	0.04	0.73	–	NO
Czechia	T1, T3	D, PS	1.34	clinker production	3 236	0.53	0.52	0.76	0.12	0.13
Denmark (KP)	CS, T2, T3	CS, D, PS	2.49	Production of Clinker	2 170	0.55	0.11	0.79	0.02	0.046
Denmark (Convention)	CS, T2, T3	CS, D, PS	2.41	Production of Clinker	2 170	0.55	0.10	0.79	0.02	0.046
Estonia	T1, T2, T3	D, PS	1.47	Clinker production	518	0.59	0.27	0.71	0.05	0.12
European Union (KP)			1.77		143 516	0.53	0.44	0.73	0.10	NE
European Union (Convention)			1.77		143 516	0.53	0.44	0.73	0.10	NE
Finland	T1, T3	CS, D, PS	1.09	Produced clinker	1 181	0.51	0.72	0.80	0.00	0.41
France (KP)	T1, T2, T3	CS, D, PS	1.40	Clinker consumption	11 312	0.57	0.41	0.64	0.12	0.16
France (Convention)	T1, T2, T3	CS, D, PS	1.38	Clinker consumption	11 312	0.57	0.41	0.64	0.11	0.16
Germany	T1, T2	CS, D	1.48	produced clinker	25 298	0.53	0.53	0.75	0.10	0.12
Greece	CS, T1	CS, D, PS	3.86	clinker production	7 088	0.52	0.18	0.77	0.02	0.18
Hungary	T2, T3	CS, D, PS	1.23	Clinker production (kt)	C	C	0.27	C	0.08	0.13
Iceland	T3	PS	–	clinker production	NO	NO	–	NO	–	NO
Ireland	T3	PS	3.03	clinker production	3 345	0.55	0.33	0.75	–	NO
Italy	T2	CS, PS	1.80	Clinker production	14 822	0.52	0.43	0.73	0.13	0.10
Japan	CS, T2	CS	2.05	Production of clinker	51 351	0.51	0.43	0.43	0.02	0.000
Kazakhstan	D, T1, T2	D	1.00		6 786	0.52	0.23	0.77	0.01	0.10
Latvia	T1, T2, T3	D, PS	3.86	(produced clinker)	854	0.51	–	NA, NO	0.01	C
Liechtenstein			–	Production	NO	NO	–	NO	–	NO
Lithuania	T1, T2	CS, D, PS	2.21	Clinker production	839	0.54	0.10	0.77	0.03	0.14
Luxembourg	CS, T2	CS, PS	3.64	clinker production	761	0.49	–	NO	0.62	0.15
Malta	T1	D	–	(not occuring)	NO	NO	–	NO	–	NO
Monaco			–	NO	NO	NO	–	NO	–	NO
Netherlands	CS, T1, T3	CS, D, PS	0.15		588	0.51	0.12	0.44	0.04	0.053
New Zealand	CS, T1	CS, D	0.55	Clinker produced	C	C	0.17	0.74	–	NA
Norway	T1, T3	CS, D, PS	1.45	Production quantity	1 461	0.52	0.41	0.76	0.01	0.46
Poland	T1, T2	CS, D	1.69	Clinker production	12 997	0.54	0.36	0.74	0.11	0.16
Portugal	T1, T3	OTH	3.58		4 854	0.52	0.50	0.41	0.22	0.089
Romania	CS, OTH, T2, T3	CS, D, PS	2.91	clinker production	6 323	0.52	0.71	0.72	0.05	0.13
Russian Federation	T1, T2	CS, D	0.95	Clinker production	38 839	0.53	0.40	0.77	0.08	0.15
Slovakia	T2, T3	PS	3.16	Cement clinker	2 699	0.51	1.17	0.79	0.04	0.42
Slovenia	T2, T3	CS, D	2.35	Clinker produced	797	0.51	0.33	0.75	0.06	0.13
Spain	T1, T2, T3	CS, D, PS	2.78	Clinker production	17 936	0.53	0.42	0.67	0.14	0.10
Sweden	T3	CS, D, PS	2.82	Production of clinker	2 768	0.54	0.88	0.75	0.03	NE
Switzerland	CR, T2, T3	CS, D, OTH, PS	3.72	clinker production	3 279	0.54	0.09	C	0.02	0.047
Turkey	T1, T2	CS,D	7.08	Clinker Production	70 813	0.53	0.51	0.70	0.13	0.16
Ukraine	T1, T2, T3	CS,D	1.11	clinker production	9 450	0.37	0.67	0.77	0.08	0.18
United Kingdom of Great Britain and Northern Ireland (KP)	T3	CS	0.93	Clinker production	7 824	0.56	0.22	0.45	0.08	0.18
United Kingdom of Great Britain and Northern Ireland (Convention)	T3	CS	0.93	Clinker production	7 824	0.56	0.22	0.45	0.08	0.18
United States of America	T1, T2, T3	D	0.62	Clinker Production	77 500	0.52	0.20	0.75	0.02	0.42

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] The CRF requests Parties to specify the activity data used (e.g. cement or clinker) for estimating the emissions from cement production. The descriptions included in this column are as reported in the CRF by Parties.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 2 Mineral Industry Emissions. Lime production table 2.4; glass production section 2.4.1.2.

Table 2.2

Chemical industry - CO_2 and N_2O (2017)

	CO_2					N_2O						
	Methods and EF used		Ammonia production			Methods and EF used		Nitric acid production			Adipic acid production	
	Methods	EF	Share of national total[a]	Activity data (production)	CO_2 IEF	Methods	EF	Share of national total[a]	Activity data (production)	N_2O IEF	Share of national total[a]	N_2O IEF
			(%)	(kt)	(t/t)			(%)	(kt)	(t/t)	(%)	(t/t)
IPCC default EF[b]					1.666 to 3.273					0.002 to 0.009		0.3
Australia	T2, T3	CS, D	0.41	2 416	1.1	T3	CS	0.27	1 630	0.003	–	NO
Austria	T1, T2, T3	D, PS	0.57	508	1.2	T3	PS	0.05	501	0.000	–	NO
Belarus	T1, T2	CS, D	2.26	1 076	2.0	T1, T2	D	0.39	248	0.005	–	NO
Belgium	T3	D, PS	1.12	1 117	1.1	T3	PS	0.32	2 135	0.001	–	NO
Bulgaria	T2	CS, PS	1.77	C	C	T3	PS	0.15	C	C	–	NO
Canada	T2	CS, OTH	0.36	4 211	1.3	T1, T2, T3	CS, D, PS	0.13	846	0.004	–	NO
Croatia	T3	PS	2.27	469	2.0	T3	PS	0.39	322	0.001	–	NO
Cyprus			–	NO	NO			–	NO	NO	–	NO
Czechia	T1	CS, D, PS	0.57	227	3.3	CS, T3	CS, PS	0.10	544	0.001	–	NO
Denmark (KP)	T2	PS	–	NO	NO			–	NO	NO	–	NO
Denmark (Convention)	T2	PS	–	NO	NO			–	NO	NO	–	NO
Estonia			–	NO	NO			–	NO	NO	–	NO
European Union (KP)			0.59	NE	NE			0.08	NE	NE	0.02	NE
European Union (Convention)			0.59	NE	NE			0.08	NE	NE	0.02	NE
Finland	CS, T2, T3	CS, PS	–	NO	NO	T3	PS	0.42	667	0.001	–	NO
France (KP)	T1, T2, T3	CS, D, PS	0.26	911	1.3	T2, T3	CS, D, PS	0.09	2 014	0.001	0.17	C
France (Convention)	T1, T2, T3	CS, D, PS	0.25	911	1.3	T2, T3	CS, D, PS	0.09	2 014	0.001	0.17	C
Germany	T1, T2, T3	CS, D, PS	0.47	3 027	1.8	T3	PS	0.05	2 711	0.001	0.02	C
Greece	T1, T1a	CS	0.28	162	1.6	CS	CS	0.02	190	0.000	–	NO
Hungary	T3	D, PS	1.91	23 015	0.056	T3	PS	0.07	865	0.000	–	NO
Iceland			–	NO	NO			–	NO	NO	–	NO
Ireland			–	NO	NO			–	NO	NO	–	NO
Italy	T2	CR, PS	0.15	587	1.8	T2	D, PS	0.01	437	0.000	0.02	0.003
Japan	CS, T1, T2, T3	CS, D	0.13	879	2.0	CS, T1, T2, T3	CS, PS	0.03	355	0.003	0.01	C
Kazakhstan	T1, T2	CS, D	0.13	218	2.1	T1	D	0.06	303	0.002	–	NO
Latvia			–	NO	NO			–	NO	NO	–	NO
Liechtenstein			–	NO	NO			–	NO	NO	–	NO
Lithuania	T3	CS	10.47	1 126	2.1	T3	PS	1.11	1 251	0.001	–	NO
Luxembourg			–	NO	NO			–	NO	NO	–	NO
Malta	T1	D	–	NO	NO			–	NO	NO	–	NO
Monaco			–	NO	NO			–	NO	NO	–	NO
Netherlands	CS, T1, T3	CS, D	2.03	C	C	T1, T2	CS, PS	0.15	C	C	–	NO
New Zealand	T1, T2	CS, D	0.02	148	1.4			–	NO	NO	–	NO
Norway	T2	CS, D, PS	0.49	244	1.5	CS, T2, T3	PS	0.40	1 734	0.000	–	NO
Poland	T1, T2	CS, D	0.97	2 783	1.4	T1, T2	CS	0.11	2 404	0.001	–	NA, NO
Portugal	NO	NO	–	C	NO	D	PS	0.05	C	C	–	NO
Romania	D, T1, T3	D, PS	0.88	511	2.3	T2, T3	D, PS	0.22	638	0.001	–	NO
Russian Federation	T1, T3	CS, D	1.44	17 100	2.2	T1	D	0.25	9 053	0.002	–	
Slovakia	T2, T3	CS, PS	1.46	459	1.9	T3	D, PS	0.24	646	0.001	–	NO
Slovenia	D, T2	CS, D	–	NO	NO			–	NO	NO	–	NO
Spain	T1, T3	D, PS	0.10	489	1.2	T1, T3	D, PS	0.04	723	0.001	–	NO
Sweden	T1, T3	PS	–	NO	NO	T2, T3	PS	0.08	267	0.001	–	NO
Switzerland	T2	PS	–	C	C	T3	PS	0.02	C	C	–	NO
Turkey	T1, T2	CS, D	0.10	C	C	T1	D	0.24	C	C	–	NO
Ukraine	T1, T3	CS, D	0.50	1 191	2.1	T2, T3	CS, D	0.45	1 069	0.005	–	NO
United Kingdom of Great Britain and Northern Ireland (KP)	CS, T1, T3	CS, D	0.37	1 129	1.6	T1, T3	CS, D	0.01	1 219	0.000	–	NO
United Kingdom of Great Britain and Northern Ireland (Convention)	CS, T1, T3	CS, D	0.37	1 129	1.6	T1, T3	CS, D	0.01	1 219	0.000	–	NO
United States of America	CS, T1	CS, D, OTH	0.20	14 070	1.3	CS, T1	CS, D	0.14	7 775	0.004	0.11	C

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 3 Chemical Industry Emissions. Ammonia table 3.1; nitric acid table 3.3; adipic acid table 3.4.

Table 2.3

Metal industry - CO_2 (2017)

	Methods and EF used		Iron and steel[a]					Aluminium production		
				Steel		Pig iron				
	Methods	EF	Share of national total[b]	Activity Data (production)	CO_2 IEF	Activity Data (production)	CO_2 IEF	Share of national total[b]	Activity Data (production)	CO_2 IEF
			(%)	(kt)	t/t	(kt)	t/t	(%)	(kt)	t/t
IPCC default EF[c]					1.46 (BOF) 0.08 (EAF) 1.72 (OHF)		1.35			1.6 (Prebake) 1.7 (Soderberg)
Australia	T2, T3	CS	–	C	NA, NO	NO	NO	0.40	1 520	1.4
Austria	T1, T3	CS, D, PS	13.57	7 412	1.5	6 326	IE, NO	0.01	C	C
Belarus	D, T1	D	0.21	IE	IE, NA	NO	NO	–	NO	NO
Belgium	CS, T3	PS	3.53	8 044	0.49	4 934	IE, NA	–	NO	NO
Bulgaria	T1, T2	CS, D, PS	0.06	673	0.052	NO	NO	–	C	NA
Canada	T2, T3	CS, PS	1.31	13 287	0.065	6 308	1.3	0.74	3 211	1.6
Croatia	OTH, T3	PS	0.01	3.9	0.070	NO	NO	–	NO	NO
Cyprus			–	NO	NO	NO	NO	–	NO	NO
Czechia	CS, T1, T2	CS, D, PS	4.99	4 623	IE, NA	3 706	IE, NA	–	NO	NO
Denmark (KP)	T1	D	–	NO	NO	NO	NO	–	NO	NO
Denmark (Convention)	T1	D	–	NO	NO	NO	NO	–	NO	NO
Estonia	T3	PS	–	NO	NO	NO	NO	–	NO	NO
European Union (KP)			1.45	NE	NE	NE	NE	0.11	NE	NE
European Union (Convention)			1.46	NE	NE	NE	NE	0.08	NE	NE
Finland	CS, T2, T3	CS	3.40	3 953	0.48	NO	IE, NO	–	NO	NO
France (KP)	T1, T2, T3	CS, D, PS	0.57	15 599	0.082	10 667	0.045	0.14	432	1.6
France (Convention)	T1, T2, T3	CS, D, PS	0.57	15 599	0.082	10 667	0.045	0.14	432	1.6
Germany	T1, T2, T3	CS, D	1.99	C	C	C	IE, NO	0.08	550	1.4
Greece	CS, T1	CS, D, PS	0.08	1 359	0.059	NO	NO	0.30	182	1.6
Hungary	T3	PS	1.88	1 900	0.12	1 313	1.6	–	NO	NO
Iceland	T3	PS	–	NO	NA, NO	NO	NO	27.86	882	1.5
Ireland			–	NO	NO	NO	NO	–	NO	NO
Italy	T2	CR, CS, PS	0.33	24 068	0.039	5 071	0.090	–	NO	NO
Japan	T2	OTH	0.44	46	3.7	12 516	0.44	–	NA	IE, NA
Kazakhstan	T1, T2	CS, D	2.36	4 657	0.14	3 766	1.8	0.14	255	1.9
Latvia			–	NO	NO	NO	NO	–	NO	NO
Liechtenstein			–	NO	NO	NO	NO	–	NO	NO
Lithuania	T2	D	0.01	NO	NO	NO	NO	–	NO	NO
Luxembourg	CS, T1, T2	CS, PS	1.05	2 172	0.049	NO	NO	–	NO	NO
Malta			–	NO	NO	NO	NO	–	NO	NO
Monaco			–	NO	NO	NO	NO	–	NO	NO
Netherlands	T1a, T2	CS, D	0.01	6 990	0.002	NA	IE, NO	0.02	29	1.5
New Zealand	T2, T3	CS	2.17	C	C	NA	NA, NO	0.68	337	1.6
Norway	T2, T3	CS, PS	0.05	604	0.045	NO	NO	3.68	1 250	1.6
Poland	T1, T2, T3	CS, D	0.44	IE	IE	5 199	0.095	–	NO	NA, NO
Portugal	T1, T3	D, PS	0.06	1 978	0.022	NO	NO	–	NO	NO
Romania	D, T3	CS, D, PS	3.05	3 523	0.98	1 828	IE, NO	0.29	206	1.6
Russian Federation	T1, T2, T3	CS, D, PS	4.41	73 095	0.11	52 127	1.4	0.28	C	
Slovakia	T1, T2, T3	D, PS	9.99	4 713	0.92	2.0	IE, NO	0.63	173	1.6
Slovenia	T1, T2	CS, D, PS	0.34	677	0.086	NO	NA, NO	0.79	84	1.6
Spain	T1, T2, T3	CS, D, PS	0.42	14 487	0.050	C	C	0.17	C	C
Sweden	D, T2, T3	PS	4.24	1 854	C, NA	3 111	0.58	0.39	126	1.6
Switzerland	CR, T3	CS, PS	0.02	1 270	0.009	NO	NO	–	NO	NO
Turkey	T1, T2, T3	CS, D	2.20	37 758	0.25	4 187	IE, NO	0.02	76	1.4
Ukraine	T1, T3	CS, D	11.61	21 049	0.13	20 117	1.6	–	NO	NO
United Kingdom of Great Britain and Northern Ireland (KP)	T1, T2	CS	0.53	7 494	0.016	5 997	0.18	0.02	47	1.5
United Kingdom of Great Britain and Northern Ireland (Convention)	T1, T2	CS	0.53	7 494	0.016	5 997	0.18	0.02	47	1.5
United States of America	T1, T2	CS, D, OTH	0.65	55 825	0.12	22 395	0.31	0.02	741	1.6

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] In addition to data reported here, CO_2 emission estimates from direct reduced iron (2.C.1.c) were reported by Russian Federation and United States of America; CO_2 emission estimates from sinter (2.C.1.d) were reported by Belgium, European Union (KP), European Union (Convention), France (KP), France (Convention), Hungary, Kazakhstan, Poland, Russian Federation, Spain, Turkey, United Kingdom (KP), United Kingdom (Convention) and United States of America; CO_2 emission estimates from pellet (2.C.1.e) were reported by European Union (KP), European Union (Convention), Kazakhstan, Russian Federation, Sweden, Turkey and United States of America.

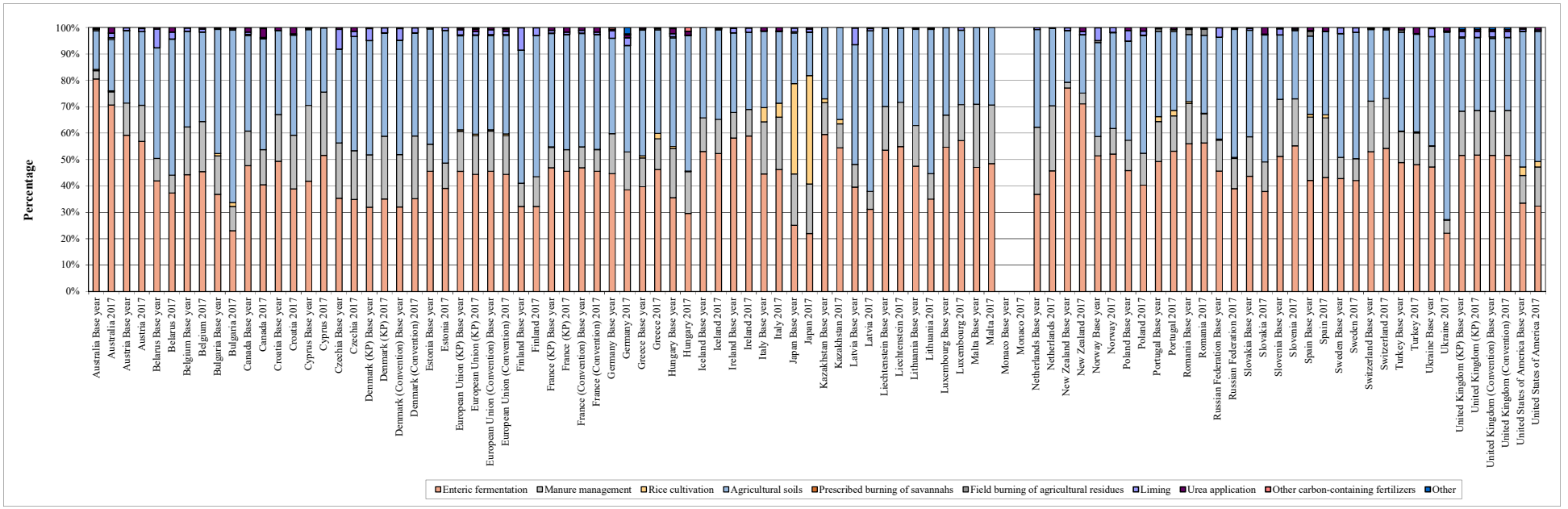
[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 4 Metal Industry Emissions. Iron and steel table 4.1; Aluminium table 4.10.

Table 2.4
HFCs, PFCs, SF_6 and NF_3 (2017)

	Metal industry						Electronic industry						Product uses as substitutes for ODS				Other product manufacture and use			
	HFCs		PFCs		SF_6		PFCs		SF_6		NF_3		HFCs		PFCs		HFCs		PFCs	
	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF	Methods	EF
IPCC default EF																				
Australia													M	CS, D						
Austria					T2	D	T3	PS	T3	PS	T3	PS	T2	D						
Belarus																				
Belgium							T2, T3	D, PS	T2, T3	D, PS	T2, T3	D, PS	T2	CS, D, PS	T2	CS, D, PS			NO	NO
Bulgaria							NO	NO	NO	NO	NO	NO	T2	D	T2	D	NO	NO	NO	NO
Canada			T1, T2, T3	CS, D, OTH	T3	D	T2	D	T2	D	T2	CS, D	T2	CS, D	T2	D			T2	D
Croatia													T2	D						
Cyprus													CS, T2	CS, D						
Czechia							T2	D	T2	D	T2	D	D, T1, T2	CS, D	D, T2	CS, D				
Denmark (KP)							T2	D					T2	D						
Denmark (Convention)							T2	D					T1, T2	D						
Estonia													T2	CS						
European Union (KP)																				
European Union (Convention)																				
Finland													T2	D	T2	D				
France (KP)			T2, T3	CS, PS			T2	CS	T2	CS	T2	CS	T1, T2	CS, D, PS			T2	OTH	T2	CS, D
France (Convention)			T2, T3	CS, PS			T2	CS	T2	CS	T2	CS	T1, T2	CS, D, PS			T2	OTH	T2	CS, D
Germany		D	T1, T3	CS	CS, T1	CS, D			CS	PS			CS, T2	CS, D	T2	CS, D	CS	CS		
Greece			T3	PS									CS, IE, T2	D, IE	IE, T2	D, IE				
Hungary													T1, T2	CS, D	T2	D			NO	NO
Iceland			T2	D									T1a, T2	D	T2	D				
Ireland							T2	CS	T2	CS	T2		T1, T2, T3	CS						
Italy	T2	PS					T2	CS	T2	CS	T2	CS	T2	CS						
Japan	CS	CS			T2	OTH	T2	CS, D	T2	CS, D	T2	CS, D	CS	CS, D	CS	CS			CS	CS
Kazakhstan			D	D									D	D						
Latvia													T1a, T2	CS, D, OTH						
Liechtenstein							CS	CS	CS	CS			CS	CS	CS	CS				
Lithuania									T3	PS	T2	PS	T1a, T1b, T2	CS, D, PS						
Luxembourg													T1, T2	CS, M, PS			T3	PS		
Malta													CS, T1, T2	CS, D					CS	CS
Monaco													CS, T2	CS, D, OTH						
Netherlands			T2	CS			T2	CS					T2	CS						
New Zealand			T2	D									T1a, T2	CS, D	CS, T2	CS			T1	D
Norway									T2	CS			T2	D	T1, T2	CS, D				
Poland					T1	D			NO	NO	NO	NO	T1a, T1b, T2	D	T2	D				
Portugal													T2	D	T2	D				
Romania			T2	D, PS									T2	D						
Russian Federation							T2	D	T2	D	T2	D	T1, T2	CS, D	T1	D				
Slovakia																				
Slovenia			T3	CS, D									T1, T2	CS, D	NO	NO				
Spain			T2	D									T1a, T2	CS, D	T1a, T2	CS, D				
Sweden			T2	D	T2	D							T1, T2	CS, D, PS	T2	CS, D				
Switzerland							T2	D	T2	D	T2		T1a, T2	CS, D	T2	CS	T1a, T3	D, PS	T1a, T3	D, PS
Turkey																				
Ukraine													T1a, T2	CS, D						
United Kingdom of Great Britain and Northern Ireland (KP)	T2	PS	T2	PS	T2	PS					T2	D	CS, T1a, T2	CS, OTH					T2, T3	CS, D
United Kingdom of Great Britain and Northern Ireland (Convention)	T2	PS	T2	PS	T2	PS					T2	D	CS, T1a, T2	CS, OTH					T2, T3	CS, D
United States of America	M, T3	CS, M	T2	CS	M, T3	CS, M	M, T2	CS, M	M, T2	CS, M	M, T2	CS, M	M, T2	CS, M	M, T2	CS, M				

Figure 3.1

Contribution of subsectors to total GHG emissions in the Agriculture sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 3.1
Enteric fermentation - CH_4 (2017)

	Share of national total[a]	Methods and EF used		Cattle									Sheep				Swine			
				Activity data (population size)			Option A		Option B			Option C	Activity data (population size)			CH_4 IEF	Activity data (population size)			CH_4 IEF
							Dairy cattle	Non-dairy cattle	Mature dairy cattle	Other mature cattle	Growing cattle	Other								
		Methods	EF	CRF	FAO[b]	Difference	CH_4 IEF						CRF	FAO[b]	Difference		CRF	FAO[b]	Difference	
	(%)			(thousands of head)		(%)	(kg/head/yr)						(thousands of head)		(%)	(kg/head/yr)	(thousands of head)		(%)	(kg/head/yr)
IPCC default EF[c,d]							46-128	27-60								5-8				1.0-1.5
Australia	9.30	CS, T1, T2	CS, D	27 593	26 176	-5.14						56	75 687	72 125	-4.71	6.7	2 515	2 486	-1.17	1.6
Austria	5.05	T1, T2	CS, D	1 943	1 954	0.56	133	59					401	378	-5.75	8.0	2 820	2 793	-0.97	1.5
Belarus	9.56	T1, T2	CS, D	4 333	4 363	0.69	131	56					94	90	-4.72	8.0	3 154	3 156	0.06	1.5
Belgium	4.01	T1, T2	CS, D	2 519	2 386	-5.28	147	50					128	85	-33.45	8.0	6 425	6 108	-4.93	1.5
Bulgaria	2.46	T1, T2	CS, D	549	558	1.60			108	77	54		1 338	1 360	1.62	7.4	605	616	1.92	1.5
Canada	3.38	T1, T2	CS, D	12 035	11 535	-4.15	138	72					931	814	-12.62	8.0	14 245	14 250	0.04	1.5
Croatia	4.42	T1, T2	CS, D	470	451	-4.11			112	63	60		637	637	0.00	8.0	1 121	1 121	0.00	1.5
Cyprus	2.86	T1, T2	CS, D	67	67	0.43	124	57					321	312	-3.04	8.0	350	350	-0.04	1.5
Czechia	2.27	T1, T2	CS, D	1 421	1 421	0.00	148	55					217	217	0.00	8.0	1 491	1 491	0.00	1.5
Denmark (KP)	7.79	T1, T2	CS, D, OTH	1 545		–	159	41					204		–	6.7	12 308		–	1.1
Denmark (Convention)	7.59	T1, T2, T3	CS, D, OTH	1 547	1 547	0.01	159	41					301	243	-19.31	7.4	12 308	12 308	0.00	1.1
Estonia	2.58	D, T1, T2	CS, D, OTH	251	248	-1.06			152	60	38		90	86	-4.98	8.0	289	266	-8.02	1.1
European Union (KP)	4.51			89 485		–	130	53					101 448		–	8.0	144 068		–	1.2
European Union (Convention)	4.51			89 414	89 829	0.46	130	53					100 729	95 335	-5.36	8.0	144 024	147 542	2.44	1.2
Finland	3.78	CS, OTH, T1, T2	CS, D, OTH	893	893	0.00	154	54					156	156	0.00	8.4	1 108	1 136	2.46	1.0
France (KP)	7.47	T2, T3	CS	18 933		–	122	53					6 905		–	13	12 931		–	0.75
France (Convention)	7.40	T1, T2, T3	CS, D	19 011	19 462	2.38	122	53					6 907	6 953	0.66	13	13 003	12 494	-3.91	0.76
Germany	2.82	T1, T2, T3	CS, D	12 281	12 281	0.00	137	50					1 863	1 580	-15.21	6.4	22 921	27 578	20.32	1.2
Greece	3.80	T1, T2	CS, D	556	556	0.06	125	63					8 685	8 593	-1.05	9.5	694	744	7.17	1.5
Hungary	3.27	T1, T2	CS, D	862	852	-1.21	136	55					1 160	1 141	-1.67	8.0	2 848	2 907	2.09	1.5
Iceland	6.35	T1, T2	CS, D	72	81	12.88			106	73	44		719	459	-36.22	8.1	43	29	-33.60	1.5
Ireland	19.00	CS, T1, T2	CS, D	7 270	7 364	1.29	115	46					5 194	5 197	0.05	5.6	1 587	1 557	-1.87	1.3
Italy	3.33	T1, T2	CS, D	5 949	5 949	0.00	147	47					7 215	7 215	0.00	7.1	8 571	8 571	0.00	1.5
Japan	0.56	CS, T1	CS, D	3 843	3 822	-0.53	100	57					20	15	-25.21	8.0	9 190	9 346	1.70	1.4
Kazakhstan	5.28	T1, T2	CS, D	7 489	6 764	-9.68	102	51					18 489	16 050	-13.19	6.6	1 019	815	-20.00	1.0
Latvia	7.66	T1, T2	CS, D, OTH	406	412	1.61			141	80	30		112	107	-4.97	8.0	321	336	4.92	1.5
Liechtenstein	6.66	T2	CS	5.8	5.8	0.00			135	87	41		4.1	4.1	0.00	8.5	1.9	1.9	0.00	1.1
Lithuania	7.55	T1, T2	CS, D, OTH	704	695	-1.33	123	56					179	164	-8.56	10	638	664	4.07	1.3
Luxembourg	3.98	T1, T2	CS, D	202	202	0.00						79	7.1	8.5	19.21	8.2	86	97	12.90	1.5
Malta	1.47	T1, T2	CS, D	14	14	0.00						75	12	12	-0.02	6.9	34	34	0.00	1.5
Monaco	–			NO		–	NO	NO					NO		–	NO	NO		–	NO
Netherlands	4.47	T1, T2, T3	CS, D	4 023	4 030	0.17			135	78	35		893	799	-10.50	8.0	12 401	12 409	0.07	1.5
New Zealand	34.19	T1, T2	CS, D	10 131	10 146	0.14	83	59					27 471	27 527	0.20	12	268	274	2.35	1.1
Norway	4.42	T1, T2	CS, D	845	861	1.84			146	86	56		1 477	2 393	62.05	12	838	811	-3.16	1.5
Poland	3.09	T1, T2	CS, D	6 143	6 143	0.00						80	261	261	0.00	8.0	11 353	11 353	0.00	1.5
Portugal	5.18	T1, T2	CS, D	1 633	1 670	2.27	130	64					2 172	2 225	2.43	9.3	2 189	2 165	-1.08	1.2
Romania	9.53	T2	CS	1 992	2 050	2.88	124	64					9 982	9 876	-1.07	18	4 406	4 708	6.85	1.5
Russian Federation	2.31	CS, T1, T2, T3	CS, D	19 159	18 753	-2.12	122	64					24 382	22 744	-6.72	8.0	22 600	22 028	-2.53	1.2
Slovakia	2.23	T1, T2	CS, D	440	446	1.43	122	59					365	369	0.97	9.4	614	586	-4.65	1.5
Slovenia	5.34	T1, T2	CS, D	480	489	1.87						75	83	120	44.56	8.0	257	266	3.31	1.5
Spain	5.02	CS, T1, T2	CS, D	6 527	6 466	-0.94	108	74					15 963	15 963	0.00	7.6	29 328	29 971	2.19	0.84
Sweden	5.74	CS, T1	CS, D	1 501	1 449	-3.51	141	50					606	606	0.00	8.0	1 362	138	-89.85	1.5
Switzerland	6.97	T2, T3	CS, M	1 545	1 545	0.00			137	107	38		398	342	-14.02	8.7	1 445	1 445	0.00	1.1
Turkey	5.71	T1, T2	CS, D	15 944	14 080	-11.69	82	48					33 678	30 984	-8.00	5.1	1.4	1.3	-4.56	1.0
Ukraine	2.68	T1, T2	CS, D	3 804	3 682	-3.21			109	67	45		931	719	-22.76	8.7	6 639	6 669	0.45	1.5
United Kingdom of Great Britain and Northern Ireland (KP)	4.53	T1, T3	CS, D	9 837		–	123	55					35 577		–	4.5	4 969		–	1.5
United Kingdom of Great Britain and Northern Ireland (Convention)	4.52	T1, T3	CS, D	9 837	10 021	1.87	123	55					35 577	35 536	-0.12	4.5	4 969	4 972	0.07	1.5
United States of America	2.72	M, T1, T2	CS, D, M	100 453	94 085	-6.34						68	5 250	5 260	0.20	8.0	72 152	73 476	1.84	1.5

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of international statistics: FAOSTAT data, downloaded on 28 May 2019 from http://www.fao.org/faostat/en/#data/QA.

[c] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 10: Emissions from Livestock and Manure Management. Dairy and Other cattle table 10.11; Sheep and Swine table 10.10.

[d] For dairy and other cattle, 2006 IPCC default emission factors (in kg CH_4/head/year) are provided by regions as shown below (see footnote c for source reference).

	Western Europe	Eastern Europe	Oceania	Latin America	Asia	Africa and Middle East	Indian Subcontenent
Dairy cattle	117	99	90	72	68	46	58
Other cattle	57	58	60	56	47	31	27

Table 3.2

Manure management - CH_4 (2017)

	Share of national total[a]	Methods and EF used		Cattle						Sheep	Swine
				Option A		Option B			Option C		
				Dairy cattle	Non-dairy cattle	Mature dairy cattle	Other mature cattle	Growing cattle	Other		
	(%)	Methods	EF	CH_4 IEF (kg/head/yr)							
IPCC default EF[b]				1-112	0 to 26					0.10 to 0.37	0 to 45
Australia	0.47	CS, T2, T3	CS, D						1.6	0.002	23
Austria	0.67	T1, T2	CS, D	17	6.2					0.31	1.1
Belarus	0.86	T1, T2	CS, D	5.1	2.4					0.19	5.0
Belgium	1.09	T1, T2	CS, D	31	3.0					0.19	4.5
Bulgaria	0.20	T1, T2	CS, D			2.9	1.9	1.4		0.21	4.6
Canada	0.54	T1, T2	CS, D	38	3.7					0.28	4.8
Croatia	1.69	T2	CS			34	10	10		0.22	6.6
Cyprus	0.57	T1, T2	D	10	4.4					0.28	3.9
Czechia	0.57	T1, T2	CS, D	23	9.3					0.19	6.0
Denmark (KP)	3.78	CS, T2	CS, D	25	13					0.20	3.5
Denmark (Convention)	3.66	CS, T1, T2, T3	CS, D	25	13					0.20	3.5
Estonia	0.37	D, T1, T2	CS, D			14	1.9	3.2		0.19	4.5
European Union (KP)	0.97			20	5.5					0.32	5.2
European Union (Convention)	0.97			20	5.5					0.32	5.2
Finland	0.82	T2	CS	29	6.1					0.25	3.3
France (KP)	0.79	T2	CS	10	3.1					0.32	4.0
France (Convention)	0.79	T2	CS	10	3.1					0.32	4.0
Germany	0.69	T2	CS, D	21	7.5					0.28	4.1
Greece	0.66	T1, T2	CS, D	14	3.6					1.0	16
Hungary	1.01	T1, T2	CS, D	30	10					0.29	3.7
Iceland	1.15					30	2.6	10		0.63	6.0
Ireland	2.35	T1, T2	CS, D	10	4.3					0.49	6.6
Italy	0.89	T1, T2	CS, D	18	8.2					0.21	8.3
Japan	0.18	CS, T1	CS, D	60	2.2					0.28	0.51
Kazakhstan	0.21	T1, T2	CS, D	4.6	0.97					0.10	4.0
Latvia	0.90	T1, T2	CS, D			17	2.0	1.1		0.19	2.5
Liechtenstein	1.35	T2	D			27	15	6.9		1.3	4.6
Lithuania	1.15	T1, T2	CS, D	9.8	6.5					0.41	3.9
Luxembourg	0.60	T1, T2	CS, D						9.9	0.16	5.2
Malta	0.21	T1, T2	CS, D						7.4	0.28	0.45
Monaco	–			NO	NO					NO	NO
Netherlands	2.00	T1, T2	CS, D			38	6.8	8.1		0.19	5.5
New Zealand	1.82	T1, T2	CS, D	7.7	0.79					0.12	5.9
Norway	0.54	T1, T2	CS, D			23	13	4.4		0.19	2.2
Poland	0.40	T1, T2	CS, D						6.0	0.19	2.0
Portugal	1.05	T2	CS, D	25	2.4					0.34	7.7
Romania	1.31	T1, T2	CS, D	6.7	2.5					0.55	9.3
Russian Federation	0.28	CS, T1, T2	CS, D	5.3	4.2					0.19	5.7
Slovakia	0.28	T1, T2	CS, D	7.8	1.8					0.27	4.6
Slovenia	1.46	T1, T2	CS, D						17	0.24	3.9
Spain	2.10	CS, T1, T2	CS, D	37	5.7					0.28	7.2
Sweden	0.50	T1, T2	CS, D	9.1	3.6					0.19	1.4
Switzerland	1.58	T2, T3	CS, D, M			28	18	5.2		1.2	4.3
Turkey	0.64	T1	D	19	1.0					0.12	3.9
Ukraine	0.31	CS, T1, T2	CS, D			3.9	2.6	1.2		0.24	2.5
United Kingdom of Great Britain and Northern Ireland (KP)	0.89	T1, T2, T3	CS, D	37	7.9					0.12	5.2
United Kingdom of Great Britain and Northern Ireland (Convention)	0.89	T1, T2, T3	CS, D	37	7.9					0.12	5.2
United States of America	0.96	M, T1, T2	CS, D, M						15	0.54	11

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 10 Emissions from Livestock and Manure Management. Dairy, Other cattle and Swine table 10.14; Sheep table 10.15. Default emission factors are provided according to climate regions (cool, temperate, warm), as shown below.

Default IPCC emission factors according to climate regions[b]

	Dairy cattle			Other cattle			Swine		
	cool	temperate	warm	cool	temperate	warm	cool	temperate	warm
North America	48-58	63-98	105-112	1	2	2	10-23	13-39	22-45
Western Europe	21-29	34-75	83-92	6-8	10-21	24-26	6-12	9-27	19-33
Eastern Europe	11-15	20-37	42-46	6-8	9-19	21-23	3-5	4-12	10-17
Oceania	23-26	27-30	31	1	2	2	11-22	13-24	13-24
Latin America	1	1	2	1	1	1	1	1	2
Africa	1	1	1	0	1	1	0-1	1	1-2
Middle East	2	2	2-3	1	1	1	1-2	2-5	5-6
Asia	9-12	13-26	28-31	1	1	1	2	3-6	6-7
Indian Subcontinent	5	5	5-6	2	2	2	2-3	3-5	6

	Sheep		
	cool	temperate	warm
Developed countries	0.19	0.28	0.37
Developing countries	0.10	0.15	0.20

Table 3.3
Manure management - N_2O (2017)

	N excretion rates						Share of national total[a]	Methods and EF used		N_2O IEF				
	Option A		Option B			Option C								
	Dairy cattle	Non-dairy cattle	Mature dairy cattle	Other mature cattle	Growing cattle	Other				Dairy cattle	Non-dairy cattle	Sheep	Swine	Other livestock
	(kg N / head / year)						(%)	Methods	EF	(kg N_2O/head/yr)				
IPCC default EF[b]	0.35 to 0.70	0.31 to 0.79												
Australia						46	0.19	CS, T2, T3	D			NA	0.080	0.004
Austria	104	46					0.55	T2	CS	0.65	0.38	0.067	0.045	0.004
Belarus	77	37					0.86	T1	D	0.35	0.21	0.073	0.083	0.002
Belgium	120	54					0.59	T2	D	0.72	0.55	0.018	0.031	0.001
Bulgaria			98	65	53		0.78	T1, T2	D			0.039	0.011	0.017
Canada	121	49					0.57	T1	D	0.91	0.71	0.045	0.015	0.016
Croatia			90	50	50		0.61	T2	CS, D			0.011	0.011	0.004
Cyprus	96	42					0.75	T1	D	0.72	0.31	0.097	0.040	0.015
Czechia	137	67					0.64	T2	CS, D	1.3	0.91	0.24	0.12	0.013
Denmark (KP)	151	42					1.49	T2	D	1.0	0.37	0.029	0.062	0.009
Denmark (Convention)	151	42					1.45	T1, T2, T3	CS, D	1.0	0.37	0.046	0.062	0.009
Estonia			123	47	31		0.26	T1, T2	CS, D			0.085	0.015	0.005
European Union (KP)	113	51					0.52			0.56	0.29	0.013	0.054	0.004
European Union (Convention)	113	51					0.52			0.56	0.29	0.013	0.054	0.004
Finland	133	52					0.51	T2	D	0.79	0.41	0.077	0.032	0.008
France (KP)	114	60					0.54	T2	CS, D	0.41	0.18	0.023	0.005	0.001
France (Convention)	114	60					0.54	T2	CS, D	0.41	0.18	0.023	0.005	0.001
Germany	122	49					0.36	T2	CS, D	0.60	0.34	0.029	0.072	0.002
Greece	139	54					0.30	D	D	1.0	0.27	0.012	0.11	0.002
Hungary	123	52					0.74	T1, T2	CS, D	1.2	0.53	0.071	0.061	0.004
Iceland			95	60	29		0.43					0.043	NO	0.004
Ireland	103	55					0.90	T2	CS, D	0.12	0.14	0.010	0.026	0.002
Italy	116	51					0.54	T2	CS, D	0.74	0.34	0.013	0.094	0.005
Japan	77	50					0.30	CS, T1	CS, D	1.7	1.1	IE	0.42	0.004
Kazakhstan	61	42					0.68	T1, T2	CS, D	0.67	0.47	0.043	0.57	0.028
Latvia			114	62	20		0.76	T1, T2	D			0.085	0.053	0.005
Liechtenstein			116	80	35		0.68					0.081	0.005	0.011
Lithuania	107	43					0.92	T1, T2	D	0.50	0.27	0.046	0.013	0.004
Luxembourg						64	0.34	T2	CS			0.018	0.046	0.013
Malta						66	0.46	T1, T2	CS, D			0.23	0.033	0.005
Monaco	NO	NO					–			NO	NO	NO	NO	NO
Netherlands			144	82	40		0.40					0.006	0.024	0.22
New Zealand	121	76					0.15	T1	CS	NO	NO	NO	0.15	0.001
Norway			129	93	77		0.28	T2	CS, D			0.022	0.006	0.002
Poland						56	0.53	T1, T2	CS, D			0.044	0.083	0.001
Portugal	117	50					0.26	T2	CS, D	0.45	0.034	0.005	0.007	0.004
Romania	54	29					0.54	T2	D	0.21	0.12	0.014	0.044	0.002
Russian Federation	136	31					0.40	T1	CS, D	0.88	0.15	0.080	0.037	0.007
Slovakia	105	44					0.38	T1, T2	CS	0.72	0.25	0.093	0.10	0.002
Slovenia						59	0.26	T1, T2	CS, D			0.054	0.029	0.002
Spain	113	58					0.53	CS, T1, T2	D	0.42	0.082	0.013	0.037	0.002
Sweden	132	42					0.63	CS, T2	CS, D	0.76	0.26	0.027	0.068	0.009
Switzerland			112	85	33		0.86	CS, T3	CS, D			0.084	0.022	0.005
Turkey	82	37					0.80	T1	D	0.54	0.24	0.067	0.083	0.004
Ukraine			61	45	24		0.29	CS, T1, T2	CS, D			0.018	0.073	0.002
United Kingdom of Great Britain and Northern Ireland (KP)	110	45					0.59	T2	CS, D	0.51	0.58	0.002	0.17	0.008
United Kingdom of Great Britain and Northern Ireland (Convention)	110	45					0.59	T2	CS, D	0.51	0.58	0.002	0.17	0.008
United States of America						62	0.29	M, T1, T2	CS, D, M			0.20	0.091	0.003

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default N excretion rates: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 10 Emissions from Livestock and Manure Management, table 10.19, page 10.59. Default values are provided by regions as shown below. The unit of the IPCC defaults is kg N (1000 kg animal mass)$^{-1}$ day^{-1}.

IPCC defaults:

	North America	Western Europe	Eastern Europe	Oceania	Latin America	Africa	Middle East	Asia
Dairy cattle	0.44	0.48	0.35	0.44	0.48	0.60	0.70	0.47
Non-dairy cattle	0.31	0.33	0.35	0.50	0.36	0.63	0.79	0.34
Sheep	0.42	0.85	0.90	1.13	1.17	1.17	1.17	1.17
Swine	0.50	0.68	0.74	0.73	1.64	1.64	1.64	0.50
Poultry	0.83	0.83	0.82	0.82	0.82	0.82	0.82	0.82

Table 3.4
Agriculture soils - N_2O (2017)

	Methods and EF used		Direct N_2O emissions from managed soils								Indirect N_2O emissions from managed soils				
			Share of national total[a]	Inorganic N fertilizers		Organic N fertilizers	Urine and dung deposited by grazing animals	Crop residue	Loss/gain of soil organic matter	Cultivation of organic soils	Share of national total[a]	Atmospheric deposition		Nitrogen leaching and run-off	
				Activity data	N_2O IEF							Activity data	N_2O IEF	Activity data	N_2O IEF
	Methods	EF		Use of synthetic fertilizers		N_2O IEF									
			(%)	(kg N / year)	(kg N_2O-N / kg N)						(%)	(kg N / year)	(kg N_2O-N / kg N)	(kg N / year)	(kg N_2O-N / kg N)
IPCC default EF					0.01 (0.003-0.03)[b]					8 (2-24)[c], 16 (5-48)[d]			0.01 (0.002-0.05)[e]		0.0075 (0.0005-0.025)[e]
Australia	CS, T1, T2	CS, D	2.04	1 493 808 663	0.004	0.009	0.004	0.010	2.0	8.0	0.52	496 550 343	0.003	630 602 006	0.008
Austria	T1	D	2.06	120 163 290	0.010	0.010	0.017	0.010	0.010	8.2	0.41	32 699 676	0.010	52 210 001	0.008
Belarus	T1	D	11.55	406 800 000	0.010	0.010	0.020	0.010	NE	8.0	1.65	81 485 189	0.010	331 564 944	0.008
Belgium	T1	D	2.35	150 112 742	0.010	0.010	0.019	0.010	0.012	8.0	0.63	37 556 061	0.010	156 046 618	0.008
Bulgaria	T1, T2	D	5.53	351 120 000	0.010	0.010	0.013	0.010	0.010	8.0	1.45	35 325 459	0.010	205 632 701	0.008
Canada	T1, T2	CS, D	2.92	2 632 000 000	0.009	0.012	0.001	0.009	0.013	8.0	0.60	261 205 061	0.010	865 796 530	0.008
Croatia	T1	D	3.26	98 412 000	0.010	0.010	0.012	0.010	0.010	8.0	1.05	17 789 349	0.010	51 280 074	0.008
Cyprus	T1	CS, D	1.16	7 841 000	0.010	0.010	NO	0.010	NO	NO	0.19	3 548 406	0.010	NO	NO
Czechia	T1, T2	CS, D	2.16	285 739 000	0.010	0.010	0.018	0.010	0.010	NO	0.66	51 316 283	0.010	172 955 168	0.008
Denmark (KP)	CS, D, T1, T2	D	7.46	248 688 000	0.010	0.010	0.018	0.010	0.010	9.1	1.22	42 148 104	0.010	179 101 000	0.005
Denmark (Convention)	CS, D, T1, T2	CS, D	7.23	248 746 360	0.010	0.010	0.018	0.010	0.010	9.0	1.18	42 194 882	0.010	179 123 225	0.005
Estonia	D, T1	D	2.71	37 333 000	0.010	0.010	0.019	0.010	NO	8.0	0.62	8 029 697	0.010	25 876 299	0.008
European Union (KP)			3.10	11 483 751 123	0.010	0.009	0.015	0.010	0.007	6.8	0.69	1 969 273 266	0.010	5 968 828 276	0.007
European Union (Convention)			3.10	11 483 751 110	0.010	0.009	0.015	0.010	0.007	6.9	0.69	1 965 652 850	0.010	5 964 250 122	0.007
Finland	T1, T2	CS, D	5.56	138 948 000	0.010	0.010	0.017	0.010	0.010	9.8	0.70	9 624 517	0.010	98 335 504	0.008
France (KP)	T1, T2	CS, D	5.76	2 251 580 259	0.010	0.010	0.019	0.010	NO	8.0	1.38	295 679 929	0.010	1 434 461 795	0.008
France (Convention)	T1, T2	CS, D	5.70	2 255 755 975	0.010	0.010	0.019	0.010	NO	8.0	1.37	296 565 934	0.010	1 438 079 457	0.007
Germany	T1, T2	CS, D	2.33	1 658 837 000	0.010	0.010	0.019	0.010	NA	4.9	0.61	337 809 060	0.010	1 130 602 971	0.007
Greece	T1	D	2.37	186 146 993	0.010	0.010	0.010	0.010	NO	8.0	0.85	66 854 035	0.010	140 587 538	0.008
Hungary	T1	D	5.24	415 000 000	0.010	0.010	0.015	0.010	0.010	NO	0.44	38 811 530	0.010	27 436 176	0.008
Iceland	T1b, T3	CS, D	3.43	13 059 733	0.010	0.010	0.011	0.010	NE	0.96	0.69	3 620 416	0.010	4 578 154	0.008
Ireland	T1	CS, D	8.47	369 089 000	0.012	0.010	0.009	0.010	0.010	4.3	0.92	50 698 855	0.010	90 833 888	0.008
Italy	CS, T1	CS, D	1.57	522 840 000	0.010	0.010	0.011	0.010	NO	8.0	0.38	133 880 706	0.010	288 788 371	0.008
Japan	CS, T2	CS, D	0.28	394 443 424	0.007	0.006	0.008	0.010	0.004	1.3	0.14	128 986 547	0.010	350 895 409	0.008
Kazakhstan	T1, T2	CS, D	2.99	104 222 713	0.009	0.010	0.014	0.010	0.010	NO	0.40	147 351 822	0.010	2 021 050 465	0.001
Latvia	T1	D	13.38	77 400 000	0.010	0.010	0.019	0.010	NO	11	1.56	12 831 531	0.010	33 344 109	0.007
Liechtenstein	T1b	D	2.46	180 426	0.010	0.010	0.018	0.010	NO	8.0	0.96	101 088	0.026	171 583	0.007
Lithuania	T1	D	9.76	167 149 200	0.010	0.010	0.019	0.010	NO	8.0	2.03	21 698 333	0.010	89 081 533	0.008
Luxembourg	T1	CS, D	1.49	13 574 853	0.010	0.010	0.020	0.010	2.0	NO	0.47	3 893 203	0.010	8 440 324	0.008
Malta	T1, T2	D	0.66	585 487	0.010	0.010	NO	0.010	0.010	NO	0.23	371 772	0.010	909 911	0.008
Monaco			–	NO	NO	NO	NO	NO	NO	NO	–	NO	NO	NO	NO
Netherlands	T1, T1b, T2	CS, D	2.54	261 166 210	0.013	0.009	0.033	0.014	NO	4.4	0.33	50 027 985	0.012	104 377 158	0.008
New Zealand	T1, T2	CS, D	8.85	442 900 000	0.007	0.004	0.008	0.010	0.010	8.0	1.74	193 638 504	0.010	142 505 346	0.008
Norway	T1	CS, D	2.60	98 324 000	0.010	0.010	0.016	0.010	NO	13	0.47	18 302 184	0.011	43 680 414	0.007
Poland	T1	CS, D	2.74	1 150 600 000	0.010	0.010	0.019	0.010	NO	8.0	0.68	187 829 102	0.010	552 461 141	0.008
Portugal	T1, T2	CS, D	2.33	101 503 613	0.010	0.010	0.018	0.010	0	NO	0.59	22 640 400	0.012	82 848 298	0.008
Romania	T1	D	3.83	381 342 000	0.010	0.010	0.015	0.010	NO	8.0	1.16	77 789 990	0.011	265 172 533	0.008
Russian Federation	CS, T1, T2	CS, D	2.46	1 512 794 700	0.014	0.010	0.018	0.010	0.009	8.0	0.42	529 869 141	0.010	1 884 727 484	0.008
Slovakia	T1	CS, D	2.15	122 541 152	0.010	0.010	0.015	0.010	NO	NE	0.67	18 653 779	0.010	58 372 923	0.008
Slovenia	T1	D	1.89	27 084 000	0.010	0.010	0.017	0.010	10	8.0	0.61	8 383 914	0.010	19 377 164	0.008
Spain	CS, T1, T2	D	3.12	1 072 125 000	0.010	0.010	0.016	0.010	NA	NO	0.53	270 890 172	0.010	150 904 670	0.008
Sweden	CS, T1, T2	CS, D	6.00	198 460 000	0.010	0.010	0.017	0.010	0.010	13	0.53	20 111 261	0.010	53 054 612	0.008
Switzerland	T1, T3	CS, D	2.49	49 363 187	0.010	0.010	0.019	0.010	0.010	8.0	0.86	21 887 988	0.026	38 831 363	0.008
Turkey	T1	D	3.91	1 764 637 948	0.010	0.010	0.013	0.010	NO	8.0	0.49	499 878 731	0.010	61 071 848	0.008
Ukraine	CS, T1, T2	D	7.38	1 396 756 000	0.010	0.010	0.018	0.010	0.010	8.0	1.23	251 719 091	0.010	786 667 119	0.008
United Kingdom of Great Britain and Northern Ireland (KP)	T1, T1a, T2	CS, D	1.95	1 068 369 311	0.007	0.005	0.005	0.010	0.010	8.0	0.47	108 759 741	0.010	491 757 643	0.008
United Kingdom of Great Britain and Northern Ireland (Convention)	T1, T1a, T2	CS, D	1.95	1 068 369 311	0.007	0.005	0.005	0.010	0.010	8.0	0.47	108 759 741	0.010	491 757 643	0.008
United States of America	D, OTH	D, OTH	3.53	11 918 834 756	0.011	0.010	0.007	0.007	0.008	9.0	0.60	2 347 660 331	0.010	6 207 036 541	0.010

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.1, page 11.11. IEFs for N-fixing crops and crop residues are shown in the unit kg N_2O-N/kg N. The unit of the IPCC default emission factor is also kg N_2O-N/kg N.

[c] For cultivation of histosols (drained/managed organic soils), the two default values refer to temperate. The values in parenthesis indicate the range as presented in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.1, page 11.11.

[d] For cultivation of histosols (drained/managed organic soils), the two default values refer to temperate tropical. The values in parenthesis indicate the range as presented in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.1, page 11.11.

[e] Source of default emission factor: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, table 11.3, page 11.24.

Table 4.1a

Methods and emission factors used (2017)

	Forest Land						Cropland						Grassland					
	CO_2		CH_4		N_2O		CO_2		CH_4		N_2O		CO_2		CH_4		N_2O	
	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF
Australia	T2, T3	CS, M	T2, T3	CS	T2, T3	CS	T1, T3	D, M	T2	CS	T2	CS	T1, T2, T3	CS, D, M	T2, T3	CS	T2, T3	CS
Austria	T2, T3	CS	T1	D	T1, T2	CS, D	T2, T3	CS			T2	CS, D	T1, T2, T3	CS	T1	D		
Belarus	T1, T2	CS, D	T1	CS, D	T1	CS, D	T1	D										
Belgium	CS, T1, T3	CS			T1	D	CS, T1, T2	CS			T1	D	CS, T1, T2	CS			T1	D
Bulgaria	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D				
Canada	T3	CS	T2	CS	T2	CS	T1, T2, T3	CS, D	T2	CS	T2	CS			T1	D	T1	D
Croatia	T1, T2	CS, D	T1	D	T1	D	T1	CS, D	T1	D	T1	CS, D	T1	CS, D	T1	D	T1	D
Cyprus	T1	OTH	T1	OTH	T1	OTH	T1	OTH					T1	OTH				
Czechia	T2	CS, D	T2	CS, D	T2	CS, D	T1, T2	CS, D			T1, T2	CS, D	T1, T2	CS, D				
Denmark (KP)					T1	D					T1	D	T1, T2	CS, D	T1	D	T1	D
Denmark (Convention)					T1	D					T1	D	T1, T2	CS, D	T1	D	T1	D
Estonia	T1, T2	CS, D, OTH	T1, T2	D	T1, T2	D	T1, T2	CS, D, OTH			T1	D	T1, T2	CS, D, OTH	T2	D	T2	D
European Union (KP)																		
European Union (Convention)																		
Finland	T2, T3	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2, T3	CS, D			T1	CS, D	T1, T2, T3	CS, D	T2	D	T1, T2	D
France (KP)	T1, T2	CS, D	T1, T2	CR, D	T1, T2	CR, D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D
France (Convention)	T1, T2	CS, D	T1, T2	CR, D	T1, T2	CR, D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D
Germany	CS, T2	CS	T2	CS, D	CS, T2	CS, D	T2	CS	T2	CS	T2	CS, D	T2	CS	T2	CS	T2	CS, D
Greece	OTH, T1, T2	CS, D, OTH	T1	D	T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D	T1	D	T1	D
Hungary	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	T2	D	T1, T2	D	T1, T2	CS, D	T1	D	T1	D
Iceland	T1, T2, T3	CS, D	T1	D	T1, T2	CS, D	D, T1, T2, T3	CS, D	T1	D			T1, T2, T3	CS, D	T1, T2	CS, D	T2	CS, D
Ireland	CS, T1, T2, T3	CS	D, T1	CS, D	D, T1	CS, D	CS, D	D					D, T1, T2, T3	CS, D	D, T1	D	D, T1	D
Italy	T1, T2, T3	CS, D	T2	CS, D	T2	CS, D	T1, T2	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	CS	T1	CS
Japan	T1, T2, T3	CS, D	T1	D	T1, T2	CS, D	T1, T2, T3	CS, D	T1	CS, D	CS, T1	CS, D	T1, T2, T3	CS, D	T1	CS, D	CS, T1	CS, D
Kazakhstan	T2	CS	T2	D	T2	D	T2	CS					T1, T2	CS, D	T1	D	T1	D
Latvia	T1, T2	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	D	T1	D
Liechtenstein	T2	CS					T2	CS			T2	CS	T2	CS			T2	CS
Lithuania	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1	D	T1, T2	D	T1, T2	CS, D	T1	D	T1	D
Luxembourg	T1, T2	CS, D					T1	CS, D			T1	D	T1	CS, D			T1	D
Malta							T1	D, OTH					T1	D, OTH				
Monaco																		
Netherlands	T1	CS, D	T1	CS, D	T1	CS, D							CS, T2	D	CS	D	CS	D
New Zealand	T1, T2, T3	CS, D	T1, T2	CS, D	T1, T2	CS, D	T1, T2, T3	CS, D			T1, T2	CS, D	T1, T2, T3	CS, D	T1, T2	CS, D	T1, T2	CS, D
Norway	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D	T1	D	T1	D
Poland	T2	CS	D, T2	CS, D	D, T2	CS, D	T1, T2	D			T1	D	D, T1, T2	CS, D	D, T1	CS, D	D, T1	CS, D
Portugal	CS, T2	CS, D	D	D	D	D			D	D	D	D			D	D	D	D
Romania	T1, T2, T3	CS, D	T1	D	T1	D	T1	D			T1	D	T1, T2	CS, D			T1	D
Russian Federation	CS, T2	CS, D	T1, T2	CS, D	T1, T2	CS, D	CS, T1	CS, D	T1	D			CS, T1, T3	CS	T1	D	T1	D
Slovakia	T1, T2	CS, D	T2	CS, D	T2	CS, D	T1, T2	CS, D			T2	CS, D	T1, T2	CS, D			T2	CS, D
Slovenia	CS, D, T1, T2, T3	CS, D	D, T1	D	D, T1	D	CS, D, T1, T2	CS, D					D, T1, T2	CS, D			D, T1	D
Spain	CS, T1, T2	CS, D	CS	D	CS, T1	D	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D	CS, T1	D	CS, T1	D
Sweden	T2, T3	CS	T1	CS, D	T1	CS, D	T2, T3	CS	T1	CS	T1	D	T2, T3	CS	T1	CS	T1	D
Switzerland	T2, T3	CS, M	T1	D	T1	D	T2, T3	CS, M			T1	D	T2, T3	CS, M	T1	D	T1	D
Turkey	T2	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1	D
Ukraine	CS, T1, T2	CS, D	CS, T1	D	CS, T1	D	CS, T1, T3	CS, D	CS, T1	D	CS, T1	D	CS, T1, T3	CS, D	T1	D	T1	D
United Kingdom of Great Britain and Northern Ireland (KP)	CS, D, T3	CS	D	CS	D, T1	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D
United Kingdom of Great Britain and Northern Ireland (Convention)	CS, D, T3	CS	D	CS	D, T1	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D	CS, D, T1, T3	CS, D	D	CS	D	CS, D
United States of America	T2, T3	CS, D	T2	D	T1, T2	D	OTH, T2	CS, OTH					OTH, T2	CS, OTH	OTH	OTH	OTH	OTH

Table 4.1b

Methods and emission factors used (2017)

	Wetlands						Settlements						Other Land						Harvested Wood Products	
	CO_2		CH_4		N_2O		CO_2		CH_4		N_2O		CO_2		CH_4		N_2O		CO_2	
	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF	Method	EF
Australia	T2, T3	CS, M	T3	CS	T3	CS	T2 ,T3	CS, M	CS	CS	CS, T2	CS							T2, T3	D, M
Austria	T2, T3	CS					T2, T3	CS			T2, T3	CS	T2, T3	CS					T2	CS, D
Belarus	T2	CS																		
Belgium	CS, T1	CS			T1	D	CS, T1	CS			T1	D							T2	D
Bulgaria	T1	D			T1	D	T1, T2	CS, D			T1	D	T2	CS			T1	D	T2	D
Canada	T2, T3	CS	T2	CS	T2	CS, D	T2, T3	CS	T2	CS	T2	CS							T3	CS
Croatia	T1	D			T1	D	T1, T2	CS, D			T1	D							T2	D
Cyprus	T1	OTH					T1	OTH												
Czechia	T1, T2	CS, D					T2	CS											T1, T2	D
Denmark (KP)			T1	D	T1	D					T1	D								
Denmark (Convention)			T1	D	T1	D					T1	D								
Estonia	T2	CS, D, OTH	T2	CS	T2	CS	T2	CS, D, OTH			T1	D	T2	CS, D, OTH			T1	D	T2, T3	CS, D
European Union (KP)																				
European Union (Convention)																				
Finland	T1, T2, T3	CS, D	T1, T2	CS, D	T2	CS	T2, T3	CS			T1	D							T2	CS, D
France (KP)	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D					T3	CS
France (Convention)	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D	T1, T2	D	T1, T2	D	T1, T2	CS, D					T3	CS
Germany	T2	CS	T2	CS	T2	CS, D	T2	CS	T2	CS	T2	CS, D							CS, T2	D
Greece	T1	D			T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1	D	T2	D
Hungary	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1	D	T2	CS, D			T1	D	T2	D
Iceland	RA, T1, T2	CS, D	RA, T1, T2	CS, D	T2	CS, D	T1, T2, T3	CS			CS	D			T2	CS, D	T2	CS, D	D	D
Ireland	D, T1, T2, T3	CS, D	D, T2	CS, D	D, T2	CS, D	D, T1, T3	CS, D, OTH			T1, T2	D	T1, T3	CS			T1	D	T2	D
Italy	T1	D					T1	D			T1	D							T2	CS
Japan	T2	CS, D					T2	CS, D					T2	CS, D			T1	CS, D	T2, T3	CS, D
Kazakhstan	T1	CS					T1, T2	CS												
Latvia	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D							T2	CS
Liechtenstein	T2	CS			T2	CS					T2	CS					T2	CS	T2	CS
Lithuania	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1, T2	CS, D	T2	CS			T1, T2	CS, D	T1, T2	D
Luxembourg	T1	CS, D			T1	D	T1	CS, D			T1	D	T1	CS			T1	D		
Malta							T1	D, OTH					T1	OTH						
Monaco							T1, T2	D			T3	D								
Netherlands																			T1	D
New Zealand	T1, T2	CS, D			T1, T2	CS, D	T1, T2	CS, D			T1, T2	CS, D	T1, T2	CS, D			T1, T2	CS, D	T2	CS, D
Norway	T1, T2, T3	CS, D	T1	D	T1	D	T1, T2, T3	CS, D			T1, T2	D	T1, T2, T3	CS, D			T1	D	T2	D
Poland	T1	D					T1, T2	CS, D			T1	D							T2	D
Portugal																			D	D
Romania	T1	D			T1	D	T1	D			T1	D	T1	D			T1	D	T1	D
Russian Federation	T1	CS, D	T1	D	T1	D	CS, T1, T2	CS			T1	D	T1	CS			T1	D	T2	D
Slovakia							T1, T2	CS, D			T2	CS, D	T1, T2	CS, D			T2	CS, D	T2, T3	CS, D
Slovenia	D, T1, T2	CS, D					D, T2	CS, D			D, T1	D	D, T2	CS, D			D, T2	D	D, T1	D
Spain	T1, T2	CS, D	T1	D	T1	D	T1, T2	CS, D			T1	D	T1, T2	CS, D			T1	D	T2	D
Sweden	T1, T2, T3	CS	T1	CS	T1	CS	T2, T3	CS			T1	D	T2, T3	CS					T3	D
Switzerland	T2	CS	T2	D	T1	D	T2	CS			T1	D	T2	CS			T1	D	T2	D
Turkey	T1, T2	CS, D			T1	D	T1	D					T1	D					T2	CS, D
Ukraine	T1	CS, D	T1	CS, D	T1	D	T1	CS, D			T1	D	T1	CS, D			T1	D	T1	D
United Kingdom of Great Britain and Northern Ireland (KP)	D	D			D	CS	CS, D, T1, T3	CS, D	D	CS	D	CS, D							CS, T3	CS
United Kingdom of Great Britain and Northern Ireland (Convention)	D	D			D	CS	CS, D, T1, T3	CS, D	D	CS	D	CS, D							CS, T3	CS
United States of America	T1, T2	CS, D	T1	D	T1	D	OTH, T2, T3	CS, OTH			OTH, T1	D, OTH							T3	CS

Table 4.2

Forest land - AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2017)[a, b]

	Forest land remaining forest land							Land converted to forest land						
	IEF (t C/ha)													
	CSC[c] in living biomass/area[d]			Net CSC[c] in dead wood/area	Net CSC[c] in litter/area	Net CSC[c] in soils/area[e, f]		CSC[c] in living biomass/area[d]			Net CSC[c] in dead wood/area	Net CSC[c] in litter/area	Net CSC[c] in soils/area[e, f]	
	Gains	Losses	Net Change			Mineral soils	Organic soils	Gains	Losses	Net Change			Mineral soils	Organic soils
IPCC default EF														
Australia	0.062	–0.010	0.053	–0.013	–0.000	0.004	IE, NA	1.0	IE, NO	1.0	0.093	0.038	–0.16	9.5
Austria	2.4	–2.1	0.31	0.059	NE,IE	–0.18	NO	1.7	–0.52	1.2	0.016	1.2	0.70	NO
Belarus	1.5	–1.3	0.20	0.042	0.045	0.30	IE	NE	NE	NE	NE	NE	NE	NE
Belgium	0.44	NO	0.44	NO	NO	NO	NO	2.2	–0.002	2.2	0.061	0.24	1.0	NO
Bulgaria	0.47	IE, NO	0.47	NO	NO	NO	NO	2.4	–0.33	2.1	NE, NO	0.27	–1.2	NO
Canada	2.6	–2.5	0.16	0.12	–0.12	0.033	IE	4.2	–1.7	2.5	0.31	0.36	–0.20	IE, NO
Croatia	1.7	–1.1	0.61	NE	NE	NO	NO	1.2	–0.27	0.93	0.017	0.23	–0.25	NO
Cyprus	0.28	–0.055	0.22	NO	NO	0.22	NO	1.2	–0.005	1.2	0	0.015	0.90	NO
Czechia	3.2	–3.1	0.11	NO	NO	NO	NO	2.0	NO	2.0	0.020	0.54	0.86	NO
Denmark (KP)	0.015	–0.44	–0.43	–0.15	0.58	NA	–1.3	0.40	–0.089	0.32	0.005	0.59	0.16	–1.3
Denmark (Convention)	0.015	–0.44	–0.43	–0.15	0.58	NA, NO	–1.3	0.40	–0.089	0.32	0.005	0.59	0.16	–1.3
Estonia	0.12	IE	0.12	0.012	NO	0.17	–0.16	0.34	–0.018	0.32	0.010	0.30	0.062	–0.34
European Union (KP)	1.3	–0.82	0.52	0.019	–0.018	0.089	–0.27	2.0	–0.71	1.3	0.029	0.21	0.20	–0.93
European Union (Convention)	1.3	–0.82	0.52	0.019	–0.018	0.089	–0.27	2.0	–0.71	1.3	0.029	0.21	0.19	–0.93
Finland	1.7	–1.4	0.30	IE	IE	0.17	–0.19	1.5	–0.42	1.1	NA	IE, NA	0.048	–1.5
France (KP)	1.7	–1.1	0.60	–0.024	NE	NE	NO	1.4	–0.16	1.3	0.042	0.23	0.14	NO
France (Convention)	1.6	–1.1	0.58	–0.023	NE	NE	NO	1.4	–0.16	1.3	0.042	0.23	0.14	NO
Germany	1.0	IE	1.0	–0.052	–0.013	0.41	–2.2	3.6	–0.39	3.2	0.034	0.47	–0.32	–2.2
Greece	0.17	IE, NO	0.17	NA, NO	NA, NO	NA, NO	NA, NO	0.57	–0.41	0.16	NE, NO	NE, NO	NE, NO	NO
Hungary	0.52	IE, NO	0.52	NO	NO	NO	–2.6	2.0	–0.028	2.0	0.069	0.44	0.37	NO
Iceland	0.10	IE	0.10	IE, NO	NE	NA	–0.37	1.2	–0.018	1.2	IE, NA, NO	0.14	0.41	–0.37
Ireland	7.9	–7.1	0.77	IE	0.010	–0.038	–0.45	6.8	–4.5	2.2	IE, NO	1.1	0.10	–0.74
Italy	2.4	–1.8	0.60	0.008	0.014	NA, NO	NO	2.6	–2.0	0.67	0.008	0.014	0.18	NO
Japan	0.65	IE, NA	0.65	–0.020	0.003	0.024	NO	3.0	–0.011	3.0	0.65	0.28	0.15	NO
Kazakhstan	0.091	NO	0.091	0.006	0.007	0.18	NO	0.23	NO	0.23	0.030	0.066	2.0	NO
Latvia	3.0	–2.7	0.39	0.18	NA	NA	–0.52	0.36	IE, NO	0.36	0.084	0.081	IE, NA	–0.52
Liechtenstein	2.5	–2.4	0.11	0.014	IE	NO	NO	1.3	–1.2	0.067	NO	NO	NO	NO
Lithuania	0.93	IE	0.93	0.025	NO	NE	IE	1.6	IE	1.6	NO	0.10	0.56	IE
Luxembourg	3.1	–2.1	0.99	NO	NO	NO	NO	3.1	–0.096	3.0	0.28	0.96	1.6	NO
Malta	NA	NA	NA	NA	NA	NA	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	2.0	–0.92	1.1	0.067	NO	NO	–1.0	4.0	–0.67	3.3	NE	NE, NO	0.005	–1.2
New Zealand	1.2	–1.1	0.12	0.052	–0.006	0.000	–0.11	8.4	–2.0	6.5	0.40	–0.12	–0.26	–0.68
Norway	1.1	–0.60	0.49	0.029	0.15	0.004	–0.24	0.71	–0.11	0.60	0.016	1.5	–0.30	–0.93
Poland	0.97	IE	0.97	NO	NO	0.098	–0.68	1.3	NO	1.3	NO	NO	0.084	–0.68
Portugal	2.0	–1.7	0.28	IE	–0.002	–0.001	NO	2.3	–1.1	1.2	IE	0.084	0.37	NO
Romania	1.5	–0.76	0.78	NO	NO	NO	–0.68	1.1	IE	1.1	0.083	NO	1.8	NO
Russian Federation	0.32	–0.096	0.23	0.020	0.006	0.028	–0.71	0.027	–0.000	0.027	0.006	0.000	0.004	NA, NO
Slovakia	2.5	–1.9	0.57	NO	NO	NO	NO	1.5	NO	1.5	NO	0.42	1.1	NO
Slovenia	IE	–0.007	–0.007	0.17	NO	NO	NO	0.47	NO	0.47	0.28	0.52	0.26	NO
Spain	0.54	IE	0.54	NA	NA	NA	NO	1.3	IE, NO	1.3	0.054	0.13	0.57	NO
Sweden	0.36	IE	0.36	0.075	-0.12	0.19	–0.35	0.79	IE	0.79	0.032	0.34	–0.084	–0.72
Switzerland	2.9	–2.4	0.50	0.058	0.036	0.002	–0.078	1.4	–0.91	0.51	0.16	1.2	0.79	–0.078
Turkey	1.4	–0.35	1.1	NO	NO	NO	NO	0.25	–0.007	0.24	NO	0.21	0.84	NO
Ukraine	1.6	–0.27	1.3	NA	NA	NA	–0.68	0.49	–0.017	0.47	NA	0.051	0.83	NO
United Kingdom of Great Britain and Northern Ireland (KP)	4.8	–4.0	0.79	0.31	0.027	0.36	0.86	1.2	–0.20	0.97	0.029	0.021	–0.84	–1.2
United Kingdom of Great Britain and Northern Ireland (Convention)	4.8	–4.0	0.79	0.31	0.027	0.36	0.86	1.2	–0.20	0.97	0.029	0.021	–0.84	–1.2
United States of America	0.44	IE	0.44	0.077	0.004	–0.002	–0.053	22	IE	22	3.9	6.9	–0.017	IE

[a] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (–).

[b] Where Parties directly estimate emissions and removals rather than carbon stock changes, they may use notation keys only in the stock change columns.

[c] CSC = carbon stock change.

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses.

[e] When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.

[f] Parties who wish to do so may report annual on-site CO_2-C emissions/removals and off-site CO_2-C emissions from drained and rewetted organic soils here.

Table 4.3

Cropland - AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2017)[a, b]

	Cropland remaining cropland						Land converted to cropland					
	IEF (t C/ha)											
	CSC[c] in living biomass/area[d, e]			Net CSC[c] in DOM[f]/area[g]	Net CSC[c] in soils/area[h, i]		CSC[c] in living biomass/area[d, e]			Net CSC[c] in DOM[f]/area[g]	Net CSC[c] in soils/area[h, i]	
	Gains	Losses	Net Change		Mineral soils	Organic soils	Gains	Losses	Net Change		Mineral soils	Organic soils
IPCC default EF												
Australia	0.002	IE	0.002	NA	0.021	IE	IE, NA, NO	–0.033	–0.033	–0.047	–0.081	–5.0
Austria	0.034	–0.041	–0.007	NO	0.057	NO	0.71	–0.68	0.033	–0.028	–0.98	NO
Belarus	0.041	NA, NE	0.041	NE	NE	–1.0	NE	NE	NE	NE	NE	NE
Belgium	0.002	NO	0.002	NO	–0.041	–10	NO	–0.15	–0.15	–0.017	–1.3	NO
Bulgaria	0.10	–0.14	–0.040	NE	–0.001	NO	0.32	–0.37	–0.053	NE, NO	–0.047	NO
Canada	0.004	–0.001	0.003	–0.009	0.064	–5.0	NE, NO	–0.85	–0.85	–1.4	0.97	IE, NE, NO
Croatia	0.16	–0.18	–0.027	NO	0.000	–10	0.66	–0.11	0.56	NO	–0.86	NO
Cyprus	0.90	–0.75	0.15	NO	NO	NO	0.50	–0.058	0.44	0	0.68	NO
Czechia	0.000	NO	0.000	NO	–0.001	NO	0.004	–0.14	–0.14	–0.002	0.021	NO
Denmark (KP)	0.008	–0.020	–0.012	NO	0.070	–8.8	0.50	–0.36	0.14	–0.003	–0.028	IE, NO
Denmark (Convention)	0.008	–0.020	–0.012	NO	0.070	–8.8	0.50	–0.36	0.14	–0.003	–0.028	–0.051
Estonia	IE	–0.000	–0.000	NO	0.090	–6.1	IE, NO	–0.22	–0.22	–0.069	–0.44	–6.1
European Union (KP)	0.036	–0.022	0.015	–0.000	0.010	–4.8	0.12	–0.29	–0.17	–0.015	–0.75	–5.8
European Union (Convention)	0.036	–0.022	0.015	–0.000	0.010	–4.7	0.12	–0.29	–0.17	–0.015	–0.75	–5.7
Finland	0.000	–0.000	0.000	IE	–0.049	–6.6	0.11	–0.95	–0.84	–0.004	–0.45	–6.8
France (KP)	0.082	–0.084	–0.002	NE	0.064	IE	0.021	–0.30	–0.27	–0.020	–1.1	NO
France (Convention)	0.082	–0.084	–0.002	NE	0.063	IE	0.021	–0.30	–0.27	–0.020	–1.1	NO
Germany	0.000	–0.000	–0.000	NA	NE	–8.1	0.32	–0.36	–0.044	–0.009	–0.80	–8.1
Greece	0.053	–0.020	0.033	NO	NO	-10	NO	–0.006	–0.006	–0.001	–0.71	NO
Hungary	0.008	–0.011	–0.003	NO	0.023	NO	0.31	–0.29	0.015	–0.14	–0.79	NO
Iceland	NO	NO	NO	NO	0.17	–7.9	0.11	–0.77	–0.67	IE, NA, NO	0.10	–7.9
Ireland	0.025	–0.023	0.002	NO	0.028	NO	NO	NO	NO	NO	NO	NO
Italy	0.000	–0.001	–0.001	NO	NO	–10	NO	–0.38	–0.38	NO	–1.1	NO
Japan	IE	–0.011	–0.011	NA	–0.18	–2.0	IE, NA	–0.24	–0.24	–0.10	IE	–2.3
Kazakhstan	0.036	NO	0.036	0.025	–0.29	NO	NO	NO	NO	NO	NO	NO
Latvia	0.005	–0.001	0.004	–0.000	NA	–7.9	IE, NA, NE, NO	IE, NE, NO	IE, NA, NE, NO	–0.023	–0.009	–7.9
Liechtenstein	NO	NO	NO	NO	NO	–9.5	0.24	–0.39	–0.16	–0.006	–0.28	–9.5
Lithuania	0.008	–0.002	0.006	NO	0.006	IE	IE, NE, NO	–0.33	–0.33	NE, NO	–0.23	IE, NO
Luxembourg	0.016	–0.023	–0.007	NO	0.001	NO	0.23	–0.36	–0.13	–0.023	–1.2	NO
Malta	0.20	NO	0.20	NE	0.015	NO	0.004	NO	0.004	NE, NO	–0.37	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NO	–4.0	0.47	–0.71	–0.23	–0.027	–0.54	–4.1
New Zealand	0.011	0	0.011	0	–0.001	–9.9	0.40	–0.030	0.37	–0.000	–0.47	–10
Norway	0.005	NO	0.005	NO	0.016	–7.9	NO	–1.5	–1.5	–2.2	1.0	–7.9
Poland	0.035	IE	0.035	NO	–0.001	–1.0	NO	–0.37	–0.37	NO	–0.11	NO
Portugal	0.031	–0.013	0.018	NO	0.008	NO	0.15	–0.36	–0.21	–0.028	–0.69	NO
Romania	0.037	IE	0.037	–0.004	0.074	–5.0	0.22	–0.30	–0.081	–0.026	–0.076	NO
Russian Federation	0.014	0	0.014	NO	NO	–5.9	NO	–0.53	–0.53	–0.85	–1.6	NO
Slovakia	0.21	–0.006	0.20	NO	0.015	NO	NO	–0.025	–0.025	0	–0.66	NO
Slovenia	0.37	–0.046	0.33	NE, NO	–0.001	–10	0.79	–0.51	0.28	–0.040	–0.52	NO
Spain	0.031	IE	0.031	NA	0.026	NO	0.086	–0.034	0.052	–0.003	–0.62	NO
Sweden	0.018	IE	0.018	0.000	–0.049	–6.2	0.10	–0.29	–0.19	–0.095	–0.31	–1.7
Switzerland	NO	–0.12	–0.12	NO	–0.20	–9.5	0.008	–0.086	–0.078	–0.001	–0.19	–8.8
Turkey	0.001	IE	0.001	NO	0.000	–0.010	0.17	–0.49	–0.32	–0.099	–0.23	NO
Ukraine	0.044	–0.051	–0.007	NA	–0.29	–5.0	NA, NO	NA, NO	NA, NO	NA, NO	–0.17	NO
United Kingdom of Great Britain and Northern Ireland (KP)	0.000	–0.002	–0.002	NO	–0.29	–5.0	0.069	IE, NO	0.069	IE, NO	–1.3	–5.0
United Kingdom of Great Britain and Northern Ireland (Convention)	0.000	–0.002	–0.002	NO	–0.29	–5.0	0.069	IE, NO	0.069	IE, NO	–1.3	–5.0
United States of America	NE	NE	NE	NE	0.073	–13	NE	–0.67	–0.67	–0.29	–0.34	–12

[a] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (–).

[b] Where Parties directly estimate emissions and removals rather than carbon stock changes, they may use notation keys only in the stock change columns.

[c] CSC = carbon stock change.

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses.

[e] For category cropland remaining cropland this column only includes changes in perennial woody biomass.

[f] DOM = dead organic matter.

[g] No reporting on DOM pools is required for category cropland remaining cropland.

[h] When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.

[i] Parties who wish to do so may report annual on-site CO_2-C emissions/removals and off-site CO_2-C emissions from drained and rewetted organic soils here.

Table 4.4

Grassland - AD, IEFs, carbon stock changes in pools and net CO_2 emissions/removals (2017)[a, b]

	Grassland remaining grassland						Land converted to grassland					
	IEF (t C/ha)											
	CSC[c] in living biomass/area[d]			Net CSC[c] in DOM[e]/area[f]	Net CSC[c] in soils/area[g, h]		CSC[c] in living biomass/area[d]			Net CSC[c] in DOM[e]/area[f]	Net CSC[c] in soils/area[g, h]	
	Gains	Losses	Net Change		Mineral soils	Organic soils	Gains	Losses	Net Change		Mineral soils	Organic soils
IPCC default EF												
Australia	0.019	–0.016	0.003	0.000	–0.001	IE	IE, NA, NO	–0.58	–0.58	–0.13	–0.19	–5.0
Austria	NO	NO	NO	NO	0.002	–6.4	0.60	–1.2	–0.64	–0.36	0.92	NO
Belarus	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Belgium	NO	NO	NO	NO	0.21	–1.9	NO	–0.67	–0.67	–0.076	1.5	NO
Bulgaria	NE	NE	NE	NE	NE	NO	0.23	–0.32	–0.089	NE, NO	1.1	NO
Canada	NA, NO	NA, NO	NA, NO	NA, NO	NE, NO	NE, NO	NO	NO	NO	NO	NO	NO
Croatia	NO	NO	NO	NO	NO	–2.5	0.28	–0.70	–0.42	NO	1.1	NO
Cyprus	1.5	–1.2	0.25	NO	NO	NO	1.3	–0.010	1.3	0.032	0.90	NO
Czechia	NO	NO	NO	NO	0.040	NO	0.061	–0.054	0.006	–0.001	0.61	NO
Denmark (KP)	0.40	–0.49	–0.088	NO	IE	–6.7	0.36	–0.51	–0.15	NO	0.003	–8.9
Denmark (Convention)	0.12	–0.15	–0.026	NO	IE, NO	–5.2	0.36	–0.51	–0.15	NO	0.003	–8.9
Estonia	0.001	IE	0.001	NO	NO	–0.33	0.090	–0.052	0.039	–0.10	0.46	–5.0
European Union (KP)	0.072	–0.058	0.013	0.001	0.026	–3.4	0.12	–0.23	–0.11	–0.022	0.68	–4.5
European Union (Convention)	0.076	–0.062	0.014	0.001	0.028	–5.0	0.12	–0.23	–0.12	–0.023	0.68	–4.3
Finland	0.37	–0.067	0.30	NE	NA	–3.5	0.098	–0.087	0.011	NA, NE	0.12	–3.5
France (KP)	0.13	–0.10	0.022	NE	–0.004	IE	0.11	–0.21	–0.10	–0.021	0.90	NO
France (Convention)	0.12	–0.096	0.020	NE	–0.003	IE	0.11	–0.21	–0.10	–0.021	0.90	NO
Germany	0.041	–0.009	0.032	NO	–0.002	–6.2	0.47	–0.47	–0.007	–0.074	0.81	–6.4
Greece	NO	–0.000	–0.000	NO	NO	NO	NO	–0.21	–0.21	–0.000	0.71	NO
Hungary	NO	NO	NO	NO	0	NO	0.58	–0.52	0.061	–0.18	0.84	NO
Iceland	0.001	IE, NO	0.001	0.000	0.000	–5.7	0.087	IE, NA, NO	0.087	0.001	0.49	–5.7
Ireland	NO	NO	NO	NO	0.14	–6.6	0.013	–0.022	–0.009	–0.002	0.016	–3.9
Italy	0.44	–0.44	–0.000	0.004	NA, NO	–2.5	NO	NO	NO	NO	1.1	NO
Japan	NA	NA	NA	NA	0.087	–0.13	0.28	–0.82	–0.55	–0.37	IE, NO	–0.19
Kazakhstan	0.002	NO	0.002	0.002	0.022	NO	NO	IE, NO	IE, NO	NO	IE, NO	NO
Latvia	0.094	–0.011	0.083	0.007	NA	–6.1	IE, NA, NE, NO	IE, NE, NO	IE, NA, NE, NO	IE, NE, NO	NA, NE, NO	–2.3
Liechtenstein	0.072	–0.069	0.003	NO	0.024	–7.2	0.43	–1.3	–0.88	–0.35	0.30	–12
Lithuania	NO	NO	NO	NO	NO	IE	0.048	NE, NO	0.048	NE, NO	0.31	IE, NO
Luxembourg	NO	NO	NO	NO	NO	NO	0.55	–0.66	–0.11	–0.048	1.4	NO
Malta	0.000	NE, NO	0.000	NE	0.004	NO	NO	NO	NO	NE, NO	0.27	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	0.037	–0.034	0.003	NO	0.003	–4.6	0.80	–0.81	–0.009	–0.11	0.71	–4.2
New Zealand	0.008	–0.004	0.004	0.000	–0.001	–2.2	0.15	–3.6	–3.5	–0.32	0.55	–1.9
Norway	0.28	–0.16	0.12	NO	–0.040	–3.6	0.65	–1.7	–1.0	–3.1	2.0	–3.6
Poland	NO	NO	NO	NO	–0.022	–0.25	0.36	IE, NO	0.36	IE, NO	0.84	NO
Portugal	NO	NO	NO	NO	0.26	NO	0.051	–0.23	–0.18	–0.011	–0.44	NO
Romania	0.095	NE, NO	0.095	NE	NE	0.25	0.003	–0.37	–0.36	–0.008	0.066	NO
Russian Federation	NA	NA	NA	NA	NA, NO	–5.8	0.12	NA, NO	0.12	0.10	0.42	–5.8
Slovakia	NO	NO	NO	NO	NO	NO	0.009	–0.016	–0.007	–0.002	0.70	NO
Slovenia	0.38	–0.13	0.24	NO	0.024	NO	0.061	–0.58	–0.52	–0.053	0.63	NO
Spain	NE	NE	NE	NA	NE	NO	IE, NO	–0.46	–0.46	–0.039	0.64	NO
Sweden	0.25	IE	0.25	0.17	–0.18	–1.7	0.12	–0.36	–0.23	–0.23	0.081	–2.8
Switzerland	0.022	–0.009	0.012	NO	–0.038	–9.1	0.13	–0.82	–0.69	–0.29	0.39	–8.8
Turkey	NO	NO	NO	NO	NO	–0.003	0.10	–2.0	–1.9	–0.23	0.039	NO
Ukraine	NA, NO	NA, NO	NA, NO	NA, NO	0.006	–0.25	NA	NA	NA	NA	0.86	NO
United Kingdom of Great Britain and Northern Ireland (KP)	0.002	–0.004	–0.001	NO	0.13	IE, NO	0.003	–0.11	–0.11	–0.001	0.63	–0.25
United Kingdom of Great Britain and Northern Ireland (Convention)	0.002	–0.004	–0.001	NO	0.13	IE, NO	0.003	–0.11	–0.11	–0.001	0.63	–0.25
United States of America	NE	NE	NE	NE	0.007	–3.1	NE	–0.22	–0.22	–0.057	0.18	–3.0

[a] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (–).

[b] Where Parties directly estimate emissions and removals rather than carbon stock changes, they may use notation keys only in the stock change columns.

[c] CSC = carbon stock change.

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses.

[e] DOM = dead organic matter.

[f] No reporting on DOM pools is required for category grassland remaining grassland.

[g] When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.

[h] Parties who wish to do so may report annual on-site CO_2-C emissions/removals and off-site CO_2-C emissions from drained and rewetted organic soils here.

Table 4.5

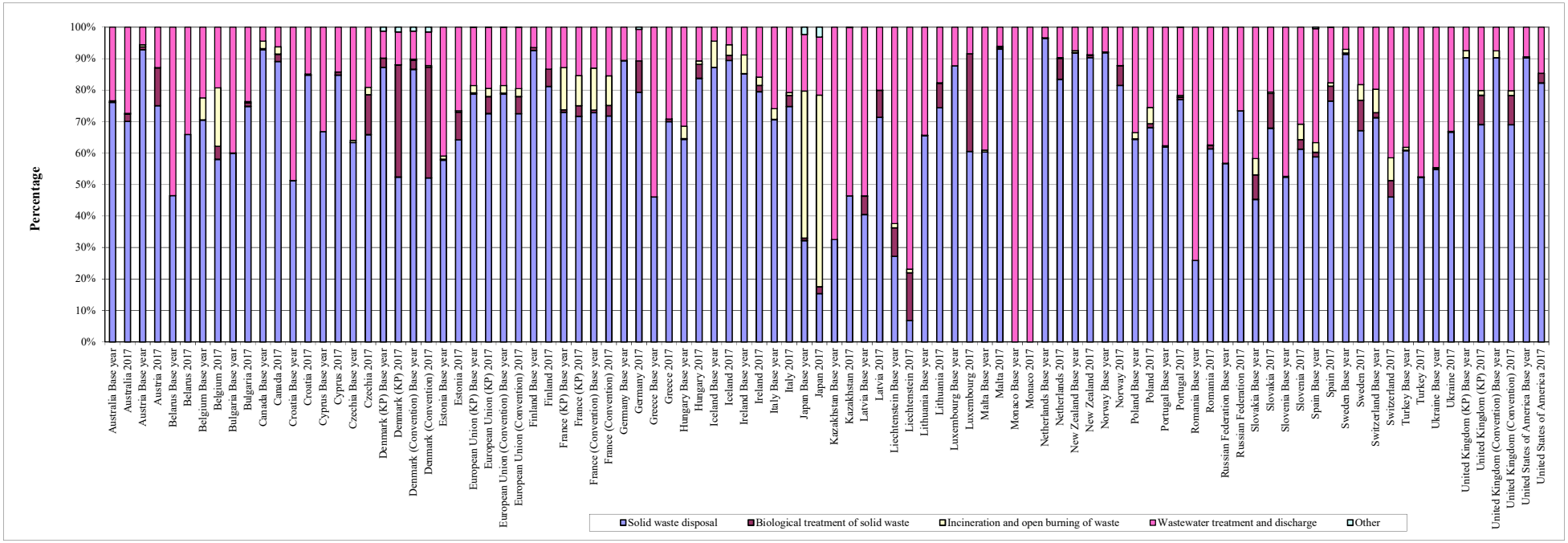
Land Area (2017)

Area (kha)	CRF						Total	FAO[a]	difference	FAO[a]	difference
	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land		Total country area	%	Forest	%
Australia	138 052	39 478	512 253	17 378	1 145	60 694	769 000	769 202	0.03	125 059	-9.41
Austria	4 041	1 407	1 378	153	564	845	8 387	8 252	-1.61	3 871	-4.20
Belarus	9 537	6 352	3 444	133	1 040	846	21 352	20 299	-4.93	8 653	-9.27
Belgium	714	1 019	577	47	696	NO	3 053	3 028	-0.81	684	-4.15
Bulgaria	3 910	4 147	1 730	232	523	557	11 100	10 856	-2.20	3 840	-1.80
Canada	225 781	47 268	6 383	484	952	NE, NO	280 867	909 351	223.77	347 022	53.70
Croatia	2 374	1 526	1 187	75	266	231	5 659	5 596	-1.12	1 922	-19.05
Cyprus	164	246	131	4.9	71	3.6	620	924	48.92	173	5.59
Czechia	2 672	3 199	1 007	166	844	IE, NA, NO	7 887	7 722	-2.09	2 669	-0.10
Denmark (KP)	639	2 817	177	118	528	26	4 306		–		–
Denmark (Convention)	639	2 817	419	120	534	216 386	220 914	4 199	-98.10	617	-3.42
Estonia	2 438	1 032	274	22	342	36	4 145	4 347	4.88	2 232	-8.46
European Union (KP)	167 039	126 989	91 656	24 933	29 942	18 082	458 640		–		–
European Union (Convention)	166 893	126 855	86 747	23 964	29 894	12 757	447 110	438 432	-1.94	161 450	-3.26
Finland	21 877	2 489	243	6 440	1 484	1 310	33 843	30 391	-10.20	22 218	1.56
France (KP)	23 793	18 059	14 124	1 157	5 753	974	63 860		–		–
France (Convention)	24 775	18 119	15 127	1 178	5 804	1 544	66 547	54 756	-17.72	17 102	-30.97
Germany	11 174	13 490	6 391	732	3 973	20	35 780	34 936	-2.36	11 421	2.21
Greece	3 468	3 135	5 420	301	602	273	13 198	12 890	-2.34	4 084	17.77
Hungary	2 057	5 128	1 266	263	587	2.5	9 304	9 053	-2.70	2 074	0.81
Iceland	140	123	3 645	969	35	5 325	10 237	10 025	-2.07	51	-63.68
Ireland	769	768	4 158	1 225	124	66	7 112	6 889	-3.13	760	-1.22
Italy	9 415	8 889	8 316	586	2 273	655	30 134	29 414	-2.39	9 351	-0.68
Japan	24 876	4 266	951	1 348	3 863	2 493	37 797	36 456	-3.55	24 956	0.32
Kazakhstan	13 560	35 943	188 789	8 849	2 243	23 107	272 490	269 970	-0.92	3 309	-75.60
Latvia	3 192	1 929	625	460	246	5.4	6 457	6 218	-3.71	3 356	5.15
Liechtenstein	6.2	1.7	4.9	0.37	1.8	1.0	16	16	-0.34	6.9	10.54
Lithuania	2 208	2 059	1 506	364	383	8.0	6 528	6 264	-4.04	2 182	-1.19
Luxembourg	96	61	75	1.2	26	0.054	259	243	-6.03	87	-9.54
Malta	0.072	4.0	10	0.025	9.2	0.56	24	32	32.29	0.35	386.11
Monaco	NO	NO	NO	NO	0.20	NO	0.20		–		–
Netherlands	363	852	1 443	821	632	40	4 151	3 369	-18.85	377	3.71
New Zealand	9 924	476	14 684	709	235	897	26 925	26 331	-2.21	10 152	2.30
Norway	12 138	934	233	3 728	699	14 646	32 378	36 512	12.77	12 114	-0.20
Poland	9 426	13 953	4 168	1 374	2 266	83	31 270	30 619	-2.08	9 456	0.32
Portugal	4 367	2 391	648	197	505	1 131	9 239	9 161	-0.85	3 171	-27.39
Romania	7 009	8 582	4 995	1 123	1 719	410	23 839	23 008	-3.49	6 930	-1.13
Russian Federation	897 016	95 789	121 122	228 297	15 579	359 770	1 717 572	1 637 687	-4.65	814 889	-9.16
Slovakia	2 024	1 528	854	94	237	166	4 904	4 808	-1.95	1 940	-4.17
Slovenia	1 208	249	408	14	116	32	2 027	2 014	-0.66	1 248	3.33
Spain	15 691	20 026	11 914	420	1 440	1 160	50 651	49 956	-1.37	18 452	17.59
Sweden	28 218	2 792	517	7 405	1 895	4 299	45 127	40 731	-9.74	28 073	-0.52
Switzerland	1 259	391	1 378	188	330	583	4 129	3 952	-4.29	1 258	-0.11
Turkey	22 851	27 121	24 115	1983	941	1 543	78 554	76 963	-2.03	11 817	-48.29
Ukraine	10 711	34 870	7 821	3 409	2 578	1 003	60 391	57 929	-4.08	9 679	-9.64
United Kingdom of Great Britain and Northern Ireland (KP)	3 590	5 088	14 469	169	1 801	421	25 538		–		–
United Kingdom of Great Britain and Northern Ireland (Convention)	3 590	5 088	14 469	169	1 801	421	25 538	24 193	-5.27	3 161	-11.95
United States of America	274 635	162 548	245 374	22 534	7 257	NA, NE	712 347	914 742	28.41	310 370	13.01

[a] Source of international statistics: FAOSTAT data, downloaded on 28 May 2019 from http://www.fao.org/faostat/en/#data/RL. At the time of download data for 2017 was not available, therefore, data for 2016 is shown in this table.

Figure 5.1

Contribution of subsectors to total GHG emissions in the Waste sector[a, b]



[a] In accordance with the UNFCCC reporting guidelines on annual inventories of Annex I Parties the year 1990 should be the base year for the estimation and reporting of inventories. However, in accordance with decisions 9/CP.2, 11/CP.4, and 7/CP.12 some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Croatia (1990), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

[b] Indirect CO_2 emissions are excluded from the totals in this graph.

Table 5.1a

Solid waste disposal on land, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge (2017)

	Solid waste disposal							Biological treatment of solid waste									
	CH_4							CH_4						N_2O			
	Methods and EF used		Share of national total[a]	Emissions per capita[b]	CH_4 IEF			Methods and EF used		Share of national total[a]	Emissions per capita[b]	IEF		Methods and EF used		Share of national total[a]	Emissions per capita[b]	IEF	
	Methods	EF			Managed	Unmanaged	Uncategorized	Methods	EF			Composting	Anaerobic digestion	Methods	EF			Composting	Anaerobic digestion
			(%)	(kg CO_2 eq.)	(t/t)	(t/t)	(t/t)			(%)	(kg CO_2 eq.)	g/kg	g/kg			(%)	(kg CO_2 eq.)	g/kg	g/kg
IPCC default EF																			
Australia	T2, T3	D	1.49	333	0.018	NO	NO	T1	CS	0.02	4.4	0.75	NO	T1	CS	0.03	6.8	0.096	NO
Austria	T2	CS, D	1.35	127	0.30	NO	NO	T1, T2	CS, D	0.10	9.2	1.8	107	T2	CS	0.12	11	0.25	NA, NO
Belarus	T1	CS, D	4.30	425	NO	0.042	NE			–	–	NO	NO			–	–	NO	NO
Belgium	T2	D	0.75	76	0.035	NO	NO	T1	CS	0.02	2.1	0.75	NO	T1	CS	0.03	3.2	0.096	NO
Bulgaria	T2	CS, D	4.62	402	0.027	0.42	NO	T1	D	0.04	3.4	4.0	NO	T1	D	0.03	2.4	0.24	NO
Canada	CS	CS	2.33	455	0.038	0.39	NO	T1	D	0.04	7.1	4.0	NA, NE	T1	D	0.03	5.1	0.24	NA, NE
Croatia	T2	CS	7.10	430	0.044	0.034	NO	T1	D	0.01	0.91	4.0	IE	T1	D	0.01	0.65	0.24	NA
Cyprus	T2	D	5.32	551	0.022	0.058	NO	T1	D	0.04	3.8	4.0	NO	T1	D	0.03	2.7	0.24	NO
Czechia	T1	CS, D	2.88	351	0.052	NO	NO	CS, D, T1	CS, D	0.50	61	4.0	IE, NE	T1	D	0.05	6.1	0.24	IE, NO
Denmark (KP)	CS, T2	CS, D	1.24	103	0.030	NO	NO	CS, T1	CS, OTH	0.66	55	NO	NE, NO	CS, T1	CS, OTH	0.18	15	NO	NA, NO
Denmark (Convention)	CS, T2, T3	CS, D	1.21	103	0.030	0.025	NE, NO	CS, T1	CS, OTH	0.64	55	NO	NE, NO	CS, T1	CS, OTH	0.17	15	NO	NA, NO
Estonia	T2	D	1.01	0.16	0.093	NO	NO	T1	D	0.08	0.013	4.0	NE, NO	T1	D	0.06	0.009	0.24	NE, NO
European Union (KP)			2.33	1.5	0.029	0.49	NA, NO			0.11	0.066	3.4	58			0.07	0.043	0.27	0.023
European Union (Convention)			2.33	1.5	0.029	0.50	NA, NO			0.11	0.066	3.4	58			0.07	0.043	0.27	0.023
Finland	T2	CS, D	2.77	278	0.029	NO	NO	T1	D	0.12	12	5.8	1.0	T1	D	0.07	7.1	0.35	NA
France (KP)	T2	CS, D	2.65	0.18	0.035	NO	NO	T2	CS	0.05	0.004	1.9	5.9	T2	CS	0.07	0.005	0.34	NA
France (Convention)	T2	CS, D	2.66	0.19	0.036	NO	NO	T2	CS	0.05	0.004	1.9	5.9	T2	CS	0.07	0.005	0.34	NA
Germany	T2	CS	0.89	98	0.43	NO	NO	T2	CS	0.08	8.6	1.4	50	T2	CS	0.03	3.7	0.074	0.067
Greece	T2	CS, D	3.39	295	0.016	0.39	NO	D	D	0.02	2.0	4.0	NO	D	D	0.02	1.5	0.24	NO
Hungary	T2	D	4.43	289	0.027	NO,IE	NO	T1	D	0.17	11	10	75	T1	D	0.06	4.1	0.60	NA, NO
Iceland	T2	CS, D	4.32	607	0.040	0.037	NO	T2	CS, D	0.05	6.4	4.0	NO	T1	D	0.03	4.6	0.24	NO
Ireland	T2	CS, D	1.22	155	0.062	IE	NO	T1	D	0.02	2.3	4.0	NO	T1	D	0.01	1.6	0.24	NO
Italy	T2	CS	3.19	226	0.053	NO	NO	D	CS, D	0.03	2.0	1.6	2.0	D	D	0.12	8.6	0.60	NA, NO
Japan	T3	CS	0.24	24	0.29	NO	0.79	T2	CS	0.01	0.81	2.8	NE	T2	CS	0.03	2.7	0.78	NO
Kazakhstan	M	CS, M	0.53	104	0.024	0.051	NO			–	–	NO	NO			–	–	NO	NO
Latvia	T2	CS, D	3.56	207	0.046	NO	NO	D	D	0.25	15	4.0	NO	D	D	0.18	10	0.24	NO
Liechtenstein	T2	CS	0.06	2.8	NO	NO	NO	CS	CS	0.08	3.9	1.8	NO	CS	CS	0.05	2.3	0.092	NO
Lithuania	T2	D	3.78	273	0.090	0.091	NO	T1	D	0.29	21	10	NE	T1	D	0.11	7.8	0.60	NO
Luxembourg	T1	D	0.50	75	0.14	NO	NO	T1	D	0.20	30	9.7	IE, NE	T1	D	0.05	7.9	0.58	NA
Malta	M, T2	M, PS	6.54	296	0.022	NA	NO	T1	D	0.04	1.7	NO	0.80			–	–	NO	NA, NO
Monaco			–	–	NO	NO	NO			–	–	NO	NO			–	–	NO	NO
Netherlands	T2	CS	1.33	150	0.038	NO	NO	T1	CS	0.06	6.9	0.82	3.5	T1	CS	0.05	5.2	0.080	0.046
New Zealand	T2	CS, D	4.61	769	0.019	0.014	NO	T1	D	0.02	3.6	4.0	NO	T1	D	0.02	2.6	0.24	NO
Norway	T2	D	1.85	186	2.6	NO	NO	T1	D	0.08	7.9	4.0	0.80	T1	D	0.06	6.3	0.30	NO
Poland	T2	CS, D	2.13	229	0.041	NO	NO	T1	D	0.02	2.4	4.0	NA, NO	T1	D	0.02	1.7	0.24	NA, NO
Portugal	T2	CS, D	5.08	349	0.038	NO	NA, NO	T1	D	0.03	2.1	4.0	0.80	T1	D	0.02	1.3	0.24	NO
Romania	T2	CS, D	3.17	184	0.016	1.2	NA	T1	D	0.03	1.8	4.0	NO	T1	D	0.02	1.3	0.24	NO
Russian Federation	T2, T3	CS, D	3.22	473	0.041	0.025	NO	T1	D	0.00	0.12	8.0	NO	T1	D	0.00	0.089	0.48	NO
Slovakia	T2	CS, D	2.63	210	0.028	0.079	NO	T1	D	0.25	20	4.0	NO	T1	D	0.18	14	0.24	NO
Slovenia	T2	CS, D	1.95	165	0.11	NO	NO	T1	D	0.06	4.7	4.0	NO	T1	D	0.04	3.4	0.24	NO
Spain	T2	CS, D, OTH	3.05	223	0.031	NO	NO	T1	D	0.11	8.1	4.0	81	T1	D	0.08	5.5	0.24	NE, NO
Sweden	T2	CS, D	1.60	83	0.054	NO	NO	T1, T2	CS, D	0.17	8.7	11	133	T1	D	0.06	3.2	0.69	NA, NO
Switzerland	T2	CS, D	0.67	38	NO	NO	NO	T2	CS	0.06	3.1	1.0	0.18	T2	CS	0.02	1.2	0.050	NO
Turkey	T2	CS, D	1.73	112	0.002	0.037	NO	T1	D	0.00	0.10	4.0	NO	T1	D	0.00	0.072	0.24	NO
Ukraine	T3	CS, D	2.54	182	0.024	0.028	NO	T1	D	0.00	0.30	4.0	NA	T1	D	0.00	0.27	0.30	NA
United Kingdom of Great Britain and Northern Ireland (KP)	T2	CS	3.01	216	0.012	NO	NO	T1	D	0.25	18	10	1.1	T1	D	0.15	11	0.60	NO
United Kingdom of Great Britain and Northern Ireland (Convention)	T2	CS	3.01	216	0.012	NO	NO	T1	D	0.25	18	10	1.1	T1	D	0.15	11	0.60	NO
United States of America	CS	CS	1.67	326	0.021	NO	NO	D	D	0.03	6.5	4.0	NE	D	D	0.03	5.8	0.30	NE

[a] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[b] Calculated using population data from CRF Table 5.D. World Bank population data was used for Netherlands as it was not presented in CRF Table 5.D.

Table 5.1b

Solid waste disposal on land, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge (2017)

	Activity data		Incineration and open burning of waste						Wastewater treatment and discharge											
			CO_2						CH_4						N_2O					
	Population (million)		Methods and EF used		Share of national total[b]	Emissions per capita[c]	IEF		Methods and EF used		Share of national total[b]	Emissions per capita[c]	CH_4 IEF		Methods and EF used		Share of national total[b]	Emissions per capita[c]	N_2O IEF	
	CRF	World Bank[a]	Methods	EF			Waste incineration	Open burning of waste	Methods	EF			Domestic	Industrial	Methods	EF			Domestic	Industrial
					(%)	(kg CO_2 eq.)	kg/t	kg/t			(%)	(kg CO_2 eq.)	kg/kg	kg/kg			(%)	(kg CO_2 eq.)	kg N_2O-N/kg N	kg N_2O-N/kg N
IPCC default EF[d]																			0.005	
Australia	25	25	T2	CS	0.01	1.2	1 411	NO	T2, T3	CS, D	0.49	110	0.080	0.074	CS	D	0.09	20	0.007	IE
Austria	8.8	8.8	T2	CS	0.00	0.23	2 052	NO	T2	CS, D	0.03	2.7	0.16	IE, NA, NO	CS	CS, D	0.20	19	0.030	IE
Belarus	9.5	9.5			–	–	NO		T1	D	1.99	197	NE	0.10	T1	D	0.24	24	0.010	NE
Belgium	11	11	T1, T3	PS	0.24	24	7 204	NO	CR, T1	CR, D	0.16	16	NA	NA	D	D	0.09	9.0	NA	NA
Bulgaria	7.1	7.1	T1	D	0.02	2.1	1 585	NO	T2	D	1.23	107	0.14	0.037	T1	D	0.23	20	0.005	NA
Canada	37	37	T1, T2, T3	CS, D	0.03	5.8	608	NE, NO	CS, T3	CS, D, PS	0.10	19	NA	NA	D	D	0.07	13	0.005	NE
Croatia	4.1	4.1			–	–	NO	NO	T1	D	0.90	54	0.11	0.003	T1	D	0.35	21	0.005	NA
Cyprus	0.86	1.2			–	–	NO	NO	T1	D	0.71	73	0.060	0.079	OTH, T1	D, OTH	0.19	19	0.005	NE
Czechia	11	11	T1	D	0.10	13	1 478	NO	CS, T1	CS, D	0.68	83	0.15	0.017	T1	CS, D	0.15	19	0.005	NE
Denmark (KP)	5.7				–	–	NO	NO	CS	CS	0.11	8.9	0.080	IE, NO	CS	CS	0.14	12	0.038	0.003
Denmark (Convention)	5.8	5.8	T1	CS	0.01	0.55	294	154	CS	CS	0.10	8.8	0.080	IE, NA, NE, NO	CS, T1, T2	CS, D	0.14	12	0.032	0.005
Estonia	1 316	1.3	T1, T2	D	0.00	0.001	1 601	344	T1	D	0.26	0.042	0.068	0.20	T1	D	0.15	0.025	0.005	NO
European Union (KP)	68 842				0.07	0.046	773	11			0.46	0.29	0.11	0.025			0.17	0.10	0.005	0.024
European Union (Convention)	68 842	512			0.07	0.046	776	11			0.46	0.29	0.11	0.025			0.17	0.10	0.005	0.024
Finland	5.5	5.5			–	–	IE, NO	NE, NO	CS, T2	CS, D	0.30	31	0.044	0.001	CS, T1	D	0.15	15	0.005	0.005
France (KP)	67 099		T1, T2	CS, D	0.34	0.023	4 256	113	T1	D	0.48	0.034	0.087	0.58	T1	D	0.09	0.006	0.002	NA
France (Convention)	67 681	67	T1, T2	CS, D	0.33	0.023	4 255	113	T1	D	0.49	0.034	0.087	0.58	T1	D	0.09	0.006	0.002	NA
Germany	83	83	T1	CS	–	–	NO	NO	CS, D, T2	CS, D	0.06	6.8	0.19	0.001	CS, D, T2	CS, D	0.05	5.5	0.006	IE
Greece	11	11	D	CS, D	0.00	0.32	140	NO	CS, D	CS, D	1.09	95	0.023	0.20	D	CS	0.33	28	0.005	NE
Hungary	9.8	9.8	T2	CS, D	0.06	3.7	1 897	NO	T1	D	0.44	29	0.13	0.013	CS	D	0.13	8.1	0.006	NE
Iceland	0.34	0.34	T1, T2	D	0.15	21	261	IE, NO	T1	CS, D	0.12	16	0.024	IE, NO	T1	D	0.15	21	0.005	IE
Ireland	4.8	4.8	T1	D	0.04	5.1	2 933	505	T1, T2	CS, D	0.08	11	0.062	IE, NO	T1	D	0.16	20	0.005	IE
Italy	60	61	D	CS	0.02	1.6	924	NO	T1	D	0.57	40	0.15	0.25	T1	CR, D	0.31	22	0.005	1.0
Japan	128	127	CS	CS	0.84	84	583	30	CS, D	CS, D	0.13	13	NA	NA	CS, D	CS, D	0.16	16	NA	0.007
Kazakhstan	18	18			–	–		NO	T1	D	0.52	101	0.13	0.075	T1	D	0.09	18	0.005	NO
Latvia	2.0	1.9	D	D	0.00	0.15	1 385	NO	T1, T2	CS, PS	0.71	41	0.074	0.005	D	D	0.28	16	0.005	0.005
Liechtenstein	0.038	0.038	CS	CS	0.01	0.27	NO	244	CS	CS	0.30	15	NA	IE, NO	D	D	0.33	17	NA	IE, NO
Lithuania	2.8	2.8	T1	D	0.01	0.45	978	NO	T1	D	0.69	49	0.057	IE, NA	T1	D	0.21	15	0.005	NA
Luxembourg	0.68	0.60			–	–	IE, NO	NO	T1	CS	0.03	4.2	0.16	NO	T1	D, PS	0.04	6.3	0.002	0.003
Malta	0.48	0.47	T1	D	0.02	1.0	95	NO	D	CS	0.15	6.7	0.009	IE, NO	D	D	0.28	12	0.002	IE
Monaco	0.038	0.039			–	–	IE, NO	NO	T1	D	2.02	46	0.045	IE	T1	D	0.54	12	0.005	IE
Netherlands		17	CS	CS	–	–	IE, NA	NO	T1, T2	CS, D	0.12	13	0.056	0.002	T2	D	0.04	4.4	IE	NE
New Zealand	4.8	4.8	T1	D	0.00	0.77	226	131	T1, T2	CS	0.31	51	0.032	0.022	CS, T1	CS, D	0.14	24	0.005	0.009
Norway	5.3	5.3	D	OTH	0.00	0.18	74	NE, NO	T1	CS, D	0.12	12	NE	NE	CS, T1	CS, D	0.15	15	0.008	NE
Poland	38	38	T1, T2	CS, D	0.14	16	775	NA	T1, T2	CS, D	0.61	66	0.15	0.031	T1	D	0.18	20	0.005	NA
Portugal	10	10	T1, T2	CS, D	0.04	2.5	937	NO	T2	CS, D	1.17	81	0.12	0.019	D	CS, D	0.26	18	0.004	IE
Romania	20	20	D	D	0.01	0.48	289	NO	D	D	1.47	85	0.13	0.015	D	D	0.47	27	0.005	NE
Russian Federation	147	144			–	–	IE, NO	NE, NO	T1, T2, T3	CS, D	1.03	151	0.22	0.077	T1	CS, D	0.14	20	0.005	NO
Slovakia	5.4	5.4	T2	CS, D	0.01	0.55	12	NO	CS, D, T2	D	0.68	54	0.29	0.025	CS, T2	CS, D	0.12	9.3	0.005	0.005
Slovenia	2.1	2.1	T1	D	0.16	13	2 427	NO	T1	CS, D	0.77	65	0.096	0.002	T1	D	0.21	18	0.005	NA
Spain	47	47			–	–	IE, NO	NO	T1, T2	CS, D	0.42	31	0.061	0.010	D	D	0.28	21	0.005	NE
Sweden	10	10	T3	PS	0.11	5.8	388	NE	T2	CS	0.05	2.8	0.22	1.6	T1	CS, D	0.38	20	0.021	0.005
Switzerland	8.5	8.5	T1, T2	CS	0.02	1.1	59	NO	T2	CS, D	0.40	22	0.26	IE	D	D	0.21	12	0.005	IE
Turkey	81	81	T2	CS, D	0.00	0.024	IE, NO	188	T2	CS	0.47	30	0.075	0.013	T1	D	1.10	72	0.014	IE
Ukraine	45	45	T1, T2	CS, D	0.00	0.20	150	NE	T2	CS, D	0.92	66	0.11	0.028	CS, T1	CS, D	0.34	24	0.010	0.004
United Kingdom of Great Britain and Northern Ireland (KP)	66		T1, T2	CS, D	0.05	3.9	683	NE, NO	CS, T1	CS, D	0.72	52	0.019	0.18	T1	D	0.15	11	0.004	NE
United Kingdom of Great Britain and Northern Ireland (Convention)	66	66	T1, T2	CS, D	0.05	3.9	683	NE, NO	CS, T1	CS, D	0.73	52	0.020	0.18	T1	D	0.15	11	0.004	NE
United States of America	330	326			–	–	IE, NA	NA	D	CS, D	0.22	43	0.12	0.030	D	CS, D	0.08	15	0.005	NE

[a] Source of population data: World Bank https://data.worldbank.org/indicator/SP.POP.TOTL, downloaded on 28 May 2019.

[b] The national total includes indirect CO_2 emissions from the atmospheric oxidation of CH_4, CO and NMVOCs for the following Parties: Austria, Canada, Czechia, Denmark (KP), Denmark (Convention), European Union (KP), European Union (Convention), Finland, Japan, Latvia, Netherlands, Portugal and Switzerland.

[c] Calculated using population data from CRF Table 5.D. World Bank population data was used for Netherlands as it was not presented in CRF Table 5.D.

[d] Source of default emission factors: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 5 Chapter 6 Wastewater Treatment and Discharge, page 6.28.

Table 6.1

Selected values (forest parameters), elected activities under Article 3.4, accounting period, forest management cap[a]

	Minimum value for 'tree crown cover' (%)[b]	Minimum 'tree height' (m)[b]	Minimum area for 'Forest land' (ha)[b]	Cropland Management[c]	Grazing Land Management[c]	Revegetation[c]	Wetland drainage and rewetting[c]	Harvest Wood Products[c]	Accounting period[d]	FM CAP[e] (Mt CO_2 eq.)	Forest Management Reference Level (FMRL)[f] (Mt CO_2 eq./yr)
Australia	20	2	0.2	X	X	X		X	Annually/CP	117.21	4.700
Austria	30	2	0.05					X	CP	22.08	–6.516
Belgium	20	5	0.5					X	CP	41.39	–2.499
Bulgaria	10	5	0.1					X	CP	31.95	–8.168
Croatia	10	2	0.1					X	CP	8.74	–6.289
Cyprus	10	5	0.3					X	CP	1.58	-0.157
Czechia	30	2	0.05					X	CP	55.53	-4.686
Denmark (KP)	10	5	0.5	X	X			X	Annually	19.87	0.409
Estonia	30	2	0.5					X	CP	11.20	–1.742
European Union (KP)	10-30	2-5	0.05-1	X	X	X	X	X	Annually/CP	1 643.64	–306.706
Finland	10	5	0.5					X	CP	19.98	–20.466
France (KP)	10	5	0.5					X	CP	153.46	–67.410
Germany	10	5	0.1	X	X			X	CP	351.01	–22.418
Greece	25	2	0.3					X	CP	30.12	-1.830
Hungary	30	5	0.5					X	Annually	30.68	–1.000
Iceland	10	2	0.5			X		X	CP	1.02	0.154
Ireland	20	5	0.1	X	X			X	CP	15.80	−0.142
Italy	10	5	0.5	X	X			X	CP	146.14	–21.182
Japan	30	5	0.3	X	X	X		X			0.00
Kazakhstan	10	2	0.05					X	CP		
Latvia	20	5	0.1					X	CP	7.39	–16.302
Liechtenstein	20	3	0.06					X	CP	0.06	0.00026
Lithuania	30	5	0.1					X	CP	13.50	–4.552
Luxembourg	10	5	0.5					X	CP	3.60	–0.418
Malta	30	5	1					X	CP	0.55	–0.049
Monaco	10	5	0.5					X	CP	0.03	
Netherlands	20	5	0.5					X	CP	62.50	−1.464
New Zealand	30	5	1					X	CP	18.43	11.150
Norway	10	5	0.5	X	X			X	CP	14.54	–11.400
Poland	10	2	0.1					X	CP	162.41	–27.133
Portugal	10	5	1	X	X			X	CP	17.01	–6.830
Romania	10	5	0.25			X		X	CP	85.38	–15.444
Russian Federation	18	5	1					X			
Slovakia	20	5	0.3					X	CP	20.80	0.358
Slovenia	30	2	0.25					X	CP	5.69	–3.171
Spain	20	3	1	X				X	CP	79.34	−23.100
Sweden	10	5	0.5					X	CP	20.18	–41.336
Switzerland	20	3	0.06					X	CP	15.04	0.220
Ukraine	30	5	0.1					X	CP	262.63	–48.700
United Kingdom of Great Britain and Northern Ireland (KP)	20	2	0.1	X	X		X	X	CP	224.82	–8.268

[a] As either reported by a Party in its report to facilitate the calculation of the assigned amount for the second commitment period under the Kyoto Protocol, submitted in accordance with decisions 2/CMP.8, annex I, and 6/CMP.9, or subsequently reviewed under Article 8 of the Kyoto Protocol and recorded in the initial review report and the compilation and accounting database.

[b] As reported by Party in accordance with paragraph 8(b) of the annex to decision 13/CMP.1 or paragraph 1(f) of Annex I to decision 2/CMP.8 and paragraph 21 of the annex to decision 2/CMP.7.

[c] An "X" indicates if any activity under Article 3.4 was elected for reporting, in accordance with paragraph 8 of the annex to decision 2/CMP.7 and paragraph 1(g) of Annex I to decision 2/CMP.8.

[d] Parties specified in their report to facilitate the calculation of the assigned amount for the second commitment period under the Kyoto Protocol whether they intend to account for activities under Article 3, paragraph 3 and 4, of the Kyoto Protocol 'annually' or over the second commitment period, in accordance to paragraph 1(h) of Annex I to decision 2/CMP.8.

[e] In accordance with paragraph 13 of the annex to decision 2/CMP.7, for the second commitment period, additions to the assigned amount of a Party resulting from forest management under Article 3, paragraph 4, and from forest management project activities undertaken under Article 6, shall not exceed 3.5 per cent of the base year greenhouse gas emissions excluding land use, land-use change and forestry pursuant to Article 3, paragraphs 7 and 8, or any amendments thereto, times eight. The FM CAP was calculated on the basis of the base year or period emissions reported in the annual greenhouse gas inventory report due by 15 April 2015, as included in the information communicated as part of the report to facilitate the calculation of a Party's assigned amount for the second commitment period, and takes into account any corrections or adjustments made during the review process of that report under Article 8 of the Kyoto Protocol.

[f] The forest management reference level as inscribed in the appendix to the annex to decision 2/CMP.7, as contained in the intial review report for the second committment period under the Kyoto Protocol, when available.

Table 6.2(a)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Afforestation and reforestation															Deforestation														
	Change in carbon pool reported[b]							Greenhouse gas sources reported[c]								Change in carbon pool reported[b]							Greenhouse gas sources reported[c]							
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		HWP[e]	Fertilization[f]	Drained, rewetted and other soils[g]		Nitrogen mineralization in mineral soils[i]	Indirect N_2O emissions from managed soil[f]	Biomass burning[j]			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		HWP[e]	Fertilization[f]	Drained, rewetted and other soils[g]		Nitrogen mineralization in mineral soils[i]	Indirect N_2O emissions from managed soil[f]	Biomass burning[j]		
					Mineral	Organic[d]														Mineral	Organic[d]										
								N_2O	CH_4[h]	N_2O	N_2O	N_2O	CO_2[k]	CH_4	N_2O								N_2O	CH_4[h]	N_2O	N_2O	N_2O	CO_2[k]	CH_4	N_2O
Australia	R	R	R	R	R	IE	R	IE	NO	NO	R	IE	R	R	R	R	R	R	R	R	IE	NR	IE	NO	NO	R	IE	R	R	R
Austria	R	R	R	R	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Belgium	R	R	R	R	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO	R	R	R	R	R	NO	R	IE	NO	NO	R	NO	NO	NO	NO
Bulgaria	R	IE	R	NO	R	NO	R	NO	NO	NO	NO	NO	IE	R	R	R	IE	R	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	NO
Croatia	R	R	R	R	R	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	NO	R	NO	NO	NO	R	NO	NO	NO	NO
Cyprus	R	R	R	NO	NR	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	NO	NO	NO	R	NO	NO	NO	NO
Denmark (KP)	R	R	R	R	R	R	R	IE	R	R	NO	R	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	R	IE	NO	NO	NO
Estonia	R	R	R	R	R	R	R	NO	NE	NE	NO	NO	IE	R	R	R	R	R	R	R	R	R	NO	NE	NE	NO	NO	NO	NO	NO
European Union (KP)	NO, NR, R	NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	NO, NR, R	NO, NR, R	IE, NO, NR, R	IE, NO, R	NO, R	NO, R	NO, R	IE, NO, R	IE, NO, R	IE, NO, R	IE, NO, R	NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	NO, NR, R	IE, NO, NR, R	NO, NR, R	IE, NO	NO, R	NO, R	IE, NO, R	IE, NO, R	IE, NO, R	IE, NO, R	IE, NO, R
Finland	R	R	IE	IE	R	R	R	R	R	R	R	R	R	R	R	R	R	IE	IE,R	R	R	IO	IE	R	R	R	IE	R	R	R
France (KP)	R	R	R	R	R	NO	NO	NO	NO	NO	R	NE	R	R	R	R	R	R	R	R	NO	IO	NO	NO	NO	R	NE	R	R	R
Germany	R	R	R	R	R	R	IE	NO	NO, R	NO, R	R	R	IE, NO	IE, NO	IE, NO	R	R	R	R	R	R	NO	NO	NO, R	NO, R	R	R	NO	NO	NO
Greece	R	R	NR	NR	NR	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	R	NO	NO	NO	NO
Hungary	R	R	NR	NR	NR	NO	IE	IE	NO	NO	NO	NO	IE	R	R	R	R	R	R	R	NO	IO	IE	NO	NO	R	R	IE	R	R
Iceland	R	R	R	NO	R	R	NO	R	R	R	NO	NO	NO	NO	NO	R	NO	NO	NO	R	R	NO	NO	R	R	NE	NO	NO	NO	NO
Ireland	R	R	R	R	R	R	R	IE	R	R	NO	IE	R	R	R	R	R	R	R	R	R	IO	IE	R	R	R	IE	NO	NO	NO
Italy	R	R	R	R	R	NO	R	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	NO
Japan	R	R	R	R	R	NO	NO	IE	NO	NO	NO	IE	IE	R	R	R	R	R	R	R	NO	IO	IE	NO	NO	R	R	NO	NO	NO
Kazakhstan																														
Latvia	R	R	R	R	NO	R	NO	NO	R	R	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	IE	R	R	IE	IE	NO	NO	NO
Liechtenstein	R	R	NR	NR	R	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Lithuania	R	R	R	NO	R	R	IE	NO	R	R	NO	NO	R	R	R	R	R	R	R	R	R	IO	NO	NO	NO	R	NO	NO	NO	NO
Luxembourg	R	R	R	R	R	NO	IO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Malta	NR	NR	NR	NR	NR	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	R	R	R	R	R	R	IE	NO	NE	NE	R	NO	R	R	R	R	R	R	R	R	R	IO	IE	NE	NE	R	IE	R	R	R
New Zealand	R	R	R	R	R	R	R	IE	NE	NE	R	IE	IE	R	R	R	R	R	R	R	R	R	IE	NE	NE	R	IE	IE	R	R
Norway	R	R	R	R	R	R	R	R	NE, R	NE, R	R	R	IE, NO	NO, R	NO, R	R	R	R	R	R	R	R	IE	NE, R	IE, NE	R	R	NO	NO	NO
Poland	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	NO	NO
Portugal	R	R	R	IE	R	NO	R	IE	NO	NO	R	IE	R	R	R	R	R	R	IE	R	NO	R	IE	NO	NO	R	IE	R	R	R
Romania	R	R	R	NO	R	NR	R	IE	NO	NO	R	R	R	R	R	R	R	R	NO	R	NR	R	IE	NO	NO	R	R	R	R	R
Russian Federation	R	R	R	R	R	NO	R	NO	NO	NO	NO	NO	IE	R	R	R	R	R	R	R	NO	IE	NO	NO	NO	NO	NO	NO	NO	NO
Slovakia	R	R	R	NO, NR	R	NO, NR	NR	NO	NO	NO	NO	NO	R	R	R	R	R	R	R	R	NO, NR	NR	NO	NO	NO	NO	NO	NO	NO	NO
Slovenia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	R	R	R	R	R	NO	IO	NO	NO	NO	R	NO	NO	NO	NO
Spain	R	IE	NR, R	NR, R	NR, R	NO	NR	NO	NO	NO	NE, R	IE, NE	IE, NO, R	NO, R	NO, R	NR, R	IE, NR	NR, R	NR, R	NR, R	NO	NR	NO	NO	NO	NE, R	IE, NE	NO, R	IE, NO, R	IE, NO, R
Sweden	R	R	R	R	R	R	R	NO	R	R	R	R	NO	NO	NO	R	R	R	R	R	R	IO	NO	R	R	R	R	NO	NO	NO
Switzerland	R	R	NR	NR	R	R	NO	NO	NO	R	R	NO	IE	IE	IE	R	R	R	R	R	R	IO	NO	NO	NO	R	NO	NO	NO	NO
Ukraine	R	R	R	R	R	NO	IE	NO	NO	NO	R	R	R	R	R	R	R	R	R	R	NO	IO	NO	NO	NO	R	R	NO	NO	NO
United Kingdom of Great Britain and Northern Ireland (KP)	R	R	R	R	R	R	R	R	NE	R	R	R	R	R	R	R	IE	R	IE	R	IE	IO	NO	NO	NO	R	R	R	R	R

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported, verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] HWP from lands reported under deforestation, which originated from the deforestation event at the time of the land-use change shall be accounted for on the basis of instantaneous oxidation (IO).

[f] N_2O emissions from fertilization of each activity (afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting) should be reported here when these emissions are not reported under the agriculture sector.

[g] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[h] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[i] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[j] Emissions from burning of organic soils should also be included here, as appropriate.

[k] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

Table 6.2(b)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Forest management															Cropland management										
	Change in carbon pool reported[b]							Greenhouse gas sources reported[c]								Change in carbon pool reported[b]						Greenhouse gas sources reported[c]				
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		HWP[e]	Fertilization[f]	Drained, rewetted and other soils[g]		Nitrogen mineralization in mineral soils[i]	Indirect N_2O emissions from managed soil[f]	Biomass burning[j]			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Drained, rewetted and other soils[g]	Nitrogen mineralization in mineral soils[i]	Biomass burning[j]		
					Mineral	Organic[d]														Mineral	Organic[d]						
								N_2O	CH_4[h]	N_2O	N_2O	N_2O	CO_2[k]	CH_4	N_2O							CH_4[h]	N_2O	CO_2[k]	CH_4	N_2O
Australia	R	R	R	R	R	IE	R	IE	NA	NA	R	IE	R	R	R	R	R	R	R	R	IE	NA	R	R	R	R
Austria	R	R	IE	R	R	NO	R	NO	NO	NO	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	R	R	NO	NO	NR	NO	R	NO	NO	NO	R	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	R	IE	NO	NO	NO	NO	R	NO	NO	NO	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	R	R	NO	NO	NO	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	R	R	NO	R	R	NO	R	NO	NO	NO	NO	NO	NO	NO	NO	NR	NR	NR	NR	NR	NR	NA	NA	NA	NA	NA
Czechia	R	R	IE	R	NR	R	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	R	R	R	R	R	R	R	R	R	R	NO	R	NO	NO	NO	R	R	NO	NO	R	R	R	R	NO	NO	NO
Estonia	R	R	R	R	R	R	R	NO	R	R	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NR, R	IE, NR, R	IE, NO, NR, R	IE, NO, NR, R	NO, NR, R	NO, NR, R	NR, R	IE, NO, R	NO, R	NO, R	NO, R	IE, NO, R	IE, NO, R	NO, R	NO, R	NR, R	IE, NR, R	IE, NO, NR, R	IE, NO, NR, R	NR, R	NO, R	NO, R	IE, NO, R	NO, R	IE, NO, R	IE, NO, R
Finland	R	R	IE	IE	R	R	R	R	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	R	R	R	R	R	NO	R	NO	NO	NO	R	NE	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Germany	R	R	R	R	R	R	R	NO	NO, R	NO, R	R	R	IE, NO	NO, R	NO, R	R	R	IE	IE, NO	R	R	NO, R	R	NO	NO	NO
Greece	R	R	NR	NR	NR	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	R	R	NR	NR	NR	R	R	IE	NO	NO	NO	NO	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	R	R	R	NR	R	R	R	NO	R	R	NE	NE	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	R	R	R	R	R	R	R	IE	R	R	NO	IE	R	R	R	R	IE	NO	NO	R	NO	NO	IE	NO	R	R
Italy	R	R	R	R	NR	NR	R	NO	NO	NO	NO	NO	R	R	R	R	R	NO	NO	R	R	NO	NO	R	R	R
Japan	R	R	R	R	R	NO	R	R	NO	NO	R	R	IE	R	R	R	R	NR	NR	R	R	R	R	IE	R	R
Kazakhstan																										
Latvia	R	R	R	R	NO	R	R	NO	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	R	R	NR	NR	NR	NO	R	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	R	R	R	R	NO	R	R	NO	R	R	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	R	R	R	R	R	NO	IO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	IE	IE	NR	NR	IE	NO	NO	IE	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	R	R	R	R	R	R	R	NO	NE	NE	R	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	R	R	R	R	R	R	R	NO	NE	NE	R	IE	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	R	R	R	R	R	R	R	R	NE, R	NE, R	R	R	IE	NE, R	NE, R	NO, R	NO, R	NO	NO	R	R	NE, R	R	NO	NO	NO
Poland	R	R	R	R	R	R	R	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	R	R	R	IE	R	NO	R	IE	NO	NO	R	IE	R	R	R	R	R	R	NO	R	NO	NO	R	R	R	R
Romania	R	R	R	NO	R	NR	R	IE	NO	NO	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	R	R	R	R	R	R	R	NO	R	R	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	R	R	NO, NR	NO, NR	NO, NR	NO, NR	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	R	R	NR	R	NR	NO	R	NO	NO	NO	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	R	IE	NR	NR	NR	NO	R	NO	NO	NO	NE	NE	IE	R	R	R	IE	NR, R	NR	R	NO	NO	NE, R	NO, R	IE, NO, R	IE, NO, R
Sweden	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	R	R	R	R	R	R	R	NO	NO	R	NO	NA	IE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	R	R	NA	NA	R	R	R	NO	NO	R	NO	NO	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	R	R	R	R	R	R	R	NO	NE	R	R	NO	R	R	R	R	IE	NR	NR	R	R	NE	R	NE	R	R

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported , verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] HWP from lands reported under deforestation, which originated from the deforestation event at the time of the land-use change shall be accounted for on the basis of instantaneous oxidation (IO).

[f] N_2O emissions from fertilization of each activity (afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting) should be reported here when these emissions are not reported under the agriculture sector.

[g] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[h] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[i] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[j] Emissions from burning of organic soils should also be included here, as appropriate.

[k] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

Table 6.2(c)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Grazing land management											Revegetation												
	Change in carbon pool reported[b]						Greenhouse gas sources reported[c]					Change in carbon pool reported[b]						Greenhouse gas sources reported[c]						
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Drained, rewetted and other soils[e]	Nitrogen mineralization in mineral soils[g]	Biomass burning[h]			Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Fertilization[j]	Drained, rewetted and other soils[e]		Nitrogen mineralization in mineral soils[g]	Indirect N_2O emissions from managed soil[g]	Biomass burning[h]		
					Mineral	Organic[d]										Mineral	Organic[d]								
							CH_4[f]	N_2O	CO_2[i]	CH_4	N_2O							N_2O	CH_4[f]	N_2O	N_2O	N_2O	CO_2[i]	CH_4	N_2O
Australia	R	R	R	R	R	IE	NA	R	R	R	R	R	IE	NA	NA	NA	NA	IE	NA	NA	NA	IE	IE	IE	IE
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NR	NR	NR	NR	NR	NR	NA	NA	NA	NA	NA	NR	NR	NR	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	R	R	NO	NO	R	R	R	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	IE, NO, NR, R	NR, R	NO, R	NO, R	IE, NO, R	IE, NO, R	NO, R	NO, R	NR, R	IE, NR, R	IE, NR, R	NO, NR, R	NR, R	NO	NO, R	NO	NO	NO, R	NO, R	NO, R	NO, R	NO, R
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Germany	R	R	IE	IE, NO	R	R	NO, R	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	R	IE	IE	NO	R	NO	R	NO	NO	IE	IE	NE	R	R
Ireland	R	IE	NO	NO	R	R	R	IE	NO	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NO	NO	NO	NO	R	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	R	R	NR	NR	R	R	R	R	NO	NO	NO	R	R	R	IE	R	NO	IE	NO	NO	NA	IE, NA	NO	NO	NO
Kazakhstan																									
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NR	NR	NR	NR	NR	NR	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NO, R	NO, R	NO	NO	R	R	NE, R	R	IE, NO	NE, NO	NE, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	R	R	R	NO	R	NO	NO	R	R	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	R	R	R	R	R	NO	R	NO	NO	R	R	R	R	R
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	R	IE	NR	NR	R	R	NE	R	NE	R	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported, verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[f] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[g] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under the appropriate activity (afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation) should be reported here when these emissions are not reported under the agriculture sector.

[h] Emissions from burning of organic soils should also be included here, as appropriate.

[i] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

[j] N_2O emissions from fertilization of afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting should be reported here when these emissions are not reported under the agriculture sector.

Table 6.2(d)

Activity coverage in the reporting of information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4[a]

	Wetland drainage and rewetting												
	Change in carbon pool reported[b]						Greenhouse gas sources reported[c]						
	Above-ground biomass	Below-ground biomass	Litter	Deadwood	Soil		Fertilization[e]	Drained, rewetted and other soils[f]		Indirect N_2O emissions from managed soil[e]	Biomass burning[h]		
					Mineral	Organic[d]							
							N_2O	CH_4[g]	N_2O	N_2O	CO_2[i]	CH_4	N_2O
Australia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NR	NR	NR	NR		NR	NA	NA	NA	NA	NA	NA	NA
Czechia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NR, R	NR, R	NR, R	NR, R		NO, NR, R	NO	NO	NO	NO	NO	NO	NO
Finland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Germany	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan													
Latvia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Malta	NR	NR	NR	NR		NR	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	NR	NR	NR	NR		NR	NE	NE	NE	NE	NE	NE	NE

[a] As reported in Table NIR 1. "Summary Table - Activity coverage and other information relating to activities under Article 3, paragraph 3, forest management under Article 3.4, and elected activities under Article 3.4.

[b] Indicate R (reported), NR (not reported), IE (included elsewhere) or NO (not occurring), for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4, or instantaneous oxidation (IO) for carbon stock changes in harvest wood products (HWP). With the exception of HWP, if changes in a carbon pool are not reported , verifiable information in the national inventory report (NIR) must be provided that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[c] Indicate R (reported), NE (not estimated), IE (included elsewhere) or NO (not occurring) for greenhouse gas sources reported, for each relevant activity under Article 3.3, forest management or any elected activity under Article 3.4. Indicate NA (not applicable) for each activity that is not elected under Article 3.4. Explanation about the use of notation keys should be provided in the NIR.

[d] Includes CO_2 emissions/removals from organic soils, including CO_2 emissions from dissolved organic carbon associated with drainage and rewetting. On-site CO_2 emissions/removals from drainage and rewetting from organic soils and off-site CO_2 emissions via water-borne carbon losses from organic soils should be reported here for wetland drainage and rewetting. These emissions could be reported for other activities as appropriate.

[e] N_2O emissions from fertilization of each activity (afforestation/reforestation, deforestation, forest management, revegetation and wetland drainage and rewetting) should be reported here when these emissions are not reported under the agriculture sector.

[f] CH_4 and N_2O emissions from drained and rewetted organic soils should be reported here, as appropriate, when emissions are not reported under the agriculture sector. For wetland drainage and rewetting only emissions from organic soils are included.

[g] CH_4 emissions from drained soils and drainage ditches should be reported here, as appropriate.

[h] Emissions from burning of organic soils should also be included here, as appropriate.

[i] If CO_2 emissions from biomass burning are not already included under changes in carbon stocks, they should be reported under biomass burning. Parties that include CO_2 emissions from biomass burning in their carbon stock change estimates should report IE (included elsewhere).

Table 6.3(a)

Afforestation and reforestation - area and implied carbon stock change factors from the change in carbon stocks for 2017[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)										Area subject to natural disturbances		
	Total	Mineral Soils	Organic Soil[b]	CSC in above-ground biomass[c, d]			CSC in below-ground biomass[c, d]			Net CSC in litter[c]	Net CSC in dead wood[c]	Net CSC in soil[c]		Total	Mineral Soils	Organic Soil[b]
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[e, f]	(kha)		
Australia	8 047	8 043	3.4	0.59	IE, NA	0.59	0.24	IE, NA	0.24	0.058	0.15	–0.049	17	NA	NA	NA
Austria	233	233	NA, NO	1.4	–0.46	0.97	0.36	–0.099	0.26	0.79	0.016	0.46	NA, NO	NA	NA	NA
Belgium	44	44	NA, NO	1.6	–0.001	1.6	0.29	–0.000	0.29	NA, NO	NA, NO	0.89	NA, NO	NA	NA	NA
Bulgaria	281	281	NO	2.9	–0.27	2.7	IE, NO	IE, NO	IE, NO	0.22	NE, NO	–0.97	NO	NO	NO	NO
Croatia	63	63	NA, NO	0.86	–0.13	0.73	0.38	–0.14	0.24	0.22	0.016	–0.25	NA, NO	NA	NA	NA
Cyprus	9.3	9.3	NO	0.64	–0.019	0.62	0.18	–0.005	0.17	0.28	NO	0.011	NO			
Czechia	63	63	NO	2.1	NO	2.1	0.45	NO	0.45	0.47	0.026	0.72	NO	NO	NO	NO
Denmark (KP)	106	95	11	1.1	–0.063	1.0	0.25	IE	0.25	0.32	0.003	0.11	–1.3			
Estonia	54	42	11	0.88	IE, NO	0.88	0.37	IE, NO	0.37	0.30	0.002	–0.72	–0.34	NO	NO	NO
European Union (KP)	9 571	9 154	417	1.7	–0.62	1.1	0.40	–0.17	0.23	0.13	0.044	0.060	–0.99	NA, NO	NA, NO	NA, NO
Finland	190	114	76	1.1	–0.47	0.63	0.38	–0.17	0.21	IE, NA	IE, NA	0.090	–1.2	NA	NA	NA
France (KP)	1 586	1 586	IE, NO	1.3	–0.21	1.1	0.47	IE, NO	0.47	0.14	0.026	0.093	IE, NO	NO	NO	NO
Germany	562	513	49	3.0	–0.16	2.9	0.61	–0.082	0.53	0.47	0.034	–0.19	–2.2	NA	NA	NA
Greece	34	34	NO	1.9	–1.4	0.54	0.37	–0.27	0.098	NA, NE	NA, NE	NA, NE	NA	NO	NO	NO
Hungary	174	174	NA, NO	1.6	–0.021	1.6	0.40	–0.000	0.40	NA, NE	0.072	NA, NE	NA, NO	NA	NA	NA
Iceland	47	44	3.4	0.81	IE, NA, NO	0.81	0.20	IE, NA, NO	0.20	0.14	NA, NO	0.41	–0.37	NO	NO	NO
Ireland	323	145	178	5.0	–3.1	1.9	1.8	–1.4	0.35	0.46	0.64	0.10	–0.74	NA	NA	NA
Italy	1 962	1 962	NO	2.1	–1.6	0.53	0.43	–0.33	0.10	0.014	0.009	0.12	NA, NO	NO	NO	NO
Japan	108	108	NA, NO	2.2	–0.001	2.2	0.58	–0.006	0.57	0.21	0.87	0.086	NA, NO	NA	NA	NA
Kazakhstan																
Latvia	78	76	1.8	0.44	–0.073	0.37	0.11	–0.018	0.091	0.081	0.086	NA	–0.52	NA	NA	NA
Liechtenstein	0.035	0.035	NO	1.8	–0.052	1.7	0.59	–0.017	0.57	NO	NO	0.24	NO	NO	NO	NO
Lithuania	53	45	8.3	1.3	–0.096	1.2	0.31	–0.45	–0.14	0.095	NA, NO	0.40	3.8	NA	NA	NA
Luxembourg	8.9	8.9	NO	3.4	–0.036	3.4	0.68	IE, NO	0.68	0.36	0.11	0.58	NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	47	42	5.6	3.4	–0.28	3.1	0.60	–0.17	0.43	NE, NO	0.098	0.014	–1.1	NO	NO	NO
New Zealand	680	678	1.7	7.0	–1.6	5.4	1.5	–0.35	1.1	–0.12	0.40	–0.26	–0.68	NA	NA	NA
Norway	61	53	7.6	0.93	–0.25	0.68	0.27	–0.088	0.18	1.9	0.023	–0.42	–0.93	NA	NA	NA
Poland	780	761	19	0.81	NO	0.81	0.22	NO	0.22	NO	NO	0.046	–0.68	NO	NO	NO
Portugal	623	623	NO	2.1	–1.3	0.78	0.40	–0.35	0.048	0.047	IE, NO	0.21	NO	NO	NO	NO
Romania	36	36	IE, NO	2.8	IE, NO	2.8	IE, NO	IE, NO	IE, NO	0.060	IE, NO	1.3	IE, NO	NO	NO	NO
Russian Federation	586	586	NO	1.8	–0.025	1.7	0.45	–0.006	0.45	0.047	0.40	0.43	NO	NO	NO	NO
Slovakia	47	47	NA, NO	1.2	NA, NO	1.2	0.28	NA, NO	0.28	0.42	NA, NO	1.2	NA, NO	NA	NA	NA
Slovenia	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NO	NO	NO
Spain	1 263	1 263	NA, NO	0.94	IE, NA	0.94	IE, NA	IE, NA	IE, NA	0.075	0.030	0.32	NA, NO	NA	NA	NA
Sweden	356	337	19	0.80	IE, NO	0.80	0.26	IE, NO	0.26	0.22	0.032	–0.063	–2.1	NO	NO	NO
Switzerland	2.6	2.6	0.011	2.2	–1.3	0.84	0.74	–0.36	0.39	0.022	0.035	0.70	–0.078			
Ukraine	311	311	NA, NO	0.54	–0.015	0.53	0.12	IE, NA	0.12	0.89	NA	0.76	NA, NO	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	549	514	35	1.7	–0.40	1.3	0.72	–0.27	0.45	0.044	0.11	–0.67	–0.95	NA	NA	NA

[a] As both afforestation and reforestation under Article 3.3 are subject to the same provisions specified in the annex to decision 2/CMP.7, they can be reported together.

[b] A Party should report on-site CO_2 emissions from drained organic soils here. A Party may also choose to include emissions and removals from rewetted and other organic soils, including off-site CO_2 emissions, here. A Party should provide detailed information on methodologies, emissions and removals from these subdivisions in the NIR.

[c] Carbon stock changes (CSC). The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[d] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key included elsewhere (IE) should be filled in, in the other column.

[e] The value reported here is an emission and not a carbon stock change.

[f] CO_2 emissions from dissolved organic carbon from drained and CO_2 emissions/removals from rewetted organic soils may also be included here.

Table 6.3(b)

Deforestation - area and implied carbon stock change factors from the change in carbon stocks for 2017

	Area subject to the activity			Implied carbon stock change factor (t C/ha)										Area subject to natural disturbance		
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[a, b]			CSC in below-ground biomass[a, b]			Net CSC in litter[a]	Net CSC in dead wood[a]	Net CSC in soil[a]		Total	Mineral Soils	Organic Soil
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[c, d]	(kha)		
Australia	10 385	10 383	2.1	0.35	–0.52	–0.17	0.17	–0.21	–0.048	–0.042	–0.074	–0.30	–7.7	NO	NO	NO
Austria	77	77	NA, NO	0.21	–0.85	–0.64	0.053	–0.21	–0.16	–0.50	0.001	–0.43	NA, NO	NA	NA	NA
Belgium	39	39	NA, NO	0.025	–4.4	–4.4	0.005	–0.90	–0.90	–0.44	–0.11	–1.6	NA, NO	NA	NA	NA
Bulgaria	5.4	5.4	NO	0.86	–5.3	–4.5	IE, NO	IE, NO	IE, NO	–0.48	–0.27	–2.6	NO	NO	NO	NO
Croatia	4.7	4.7	NA, NO	0.86	–0.064	0.80	NA, NO	–0.017	–0.017	–0.008	–0.007	–1.6	NA, NO	NA	NA	NA
Cyprus	0.44	0.44	NO	0.16	–0.002	0.16	0.046	–0.000	0.046	–0.16	NO	–0.28	NO			
Czechia	18	18	NO	NA, NO	–2.7	–2.7	NA, NO	–0.58	–0.58	–0.35	–0.076	–0.74	NA, NO	NO	NO	NO
Denmark (KP)	12	11	0.58	0.004	–0.044	–0.039	0.002	–0.009	–0.007	–0.016	–0.001	–0.077	–5.5	NO	NO	NO
Estonia	20	17	3.4	IE, NA	–1.1	–1.1	IE, NA	–0.26	–0.26	–0.71	–0.055	–1.0	–1.9	NA	NA	NA
European Union (KP)	3 719	3 559	160	0.059	–1.4	–1.3	0.022	–0.23	–0.20	–0.22	–0.032	–0.75	–4.3	NA, NO	NA, NO	NA, NO
Finland	419	327	92	0.020	–0.45	–0.43	0.007	–0.14	–0.13	IE, NA	–0.006	–0.29	–4.8	NA	NA	NA
France (KP)	1 230	1 230	IE, NO	NO	–1.4	–1.4	NO	–0.39	–0.39	–0.16	–0.049	–0.60	IE, NO	NO	NO	NO
Germany	302	281	22	0.26	–1.2	–0.94	0.10	–0.21	–0.11	–0.48	–0.051	0.095	–5.9	NA	NA	NA
Greece	5.6	5.6	NO	NA, NO	–0.32	–0.32	NA, NO	–0.13	–0.13	–0.15	–0.014	–1.8	NA, NO	NO	NO	NO
Hungary	16	16	NO	IE, NO	–2.2	–2.2	IE, NO	–0.56	–0.56	–0.91	–0.32	–0.79	NO	NO	NO	NO
Iceland	0.065	0.053	0.012	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	–0.62	–7.9	NO	NO	NO
Ireland	20	12	8.7	0.001	–0.31	–0.31	0.004	–0.063	–0.058	–0.027	–0.022	–0.29	–0.96	NA	NA	NA
Italy	59	59	NO	NA, NO	–2.8	–2.8	NA, NO	–0.59	–0.59	–0.18	–0.090	–4.9	NA, NO	NO	NO	NO
Japan	315	314	0.53	0.039	–0.87	–0.83	0.020	–0.22	–0.20	–0.16	–0.38	–0.027	NA, NO	NA	NA	NA
Kazakhstan																
Latvia	55	43	12	NO	–0.11	–0.11	NO	-0.019	–0.019	–0.11	–0.15	–0.16	–4.5	NO	NO	NO
Liechtenstein	0.21	0.21	NO	0.36	–3.2	–2.9	0.12	–1.1	–0.94	–0.70	–0.36	–0.90	NO	NO	NO	NO
Lithuania	2.4	2.0	0.38	IE, NO	–0.62	–0.62	IE, NO	–0.17	–0.17	–0.42	–0.10	–1.3	–1.3	NO	NO	NO
Luxembourg	5.9	5.9	NO	0.071	–0.71	–0.63	IE, NA, NO	–0.15	–0.15	–0.13	–0.037	–0.71	NA, NO	NO	NO	NO
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	75	68	7.0	0.92	–3.9	–3.0	0.36	–0.75	–0.39	–1.1	–0.076	0.085	–2.5	NO	NO	NO
New Zealand	200	199	0.94	0.063	–2.2	–2.1	0.068	–0.48	–0.41	–0.11	–0.12	0.51	–2.1	NA	NA	NA
Norway	161	150	10	0.19	–1.0	–0.85	0.058	–0.28	–0.22	–2.2	–0.18	0.26	–7.9			
Poland	33	33	NO	NO	–1.8	–1.8	NO	–0.37	–0.37	–0.002	–0.051	–1.5	NO	NO	NO	NO
Portugal	373	373	NO	0.068	–0.35	–0.28	0.036	–0.075	–0.039	–0.045	IE	–1.0	NO	NO	NO	NO
Romania	409	409	NA, NO	NA, NO	–3.4	–3.4	IE, NA	IE, NA	IE, NA	–0.29	IE, NA	–1.4	NA, NO	NA	NA	NA
Russian Federation	673	658	15	NO	–0.62	–0.62	NO	–0.17	–0.17	–0.14	–0.16	–0.79	–0.66	NO	NO	NO
Slovakia	8.7	8.7	NA, NO	NA, NO	–1.3	–1.3	NA, NO	–0.28	–0.28	–0.12	–0.071	–0.024	NA, NO	NA	NA	NA
Slovenia	26	26	NO	NA, NO	–0.95	–0.95	NA, NO	–0.12	–0.12	–0.13	–0.073	–1.1	NA	NO	NO	NO
Spain	121	121	NA, NO	IE, NA	–1.0	–1.0	IE, NA	IE, NA	IE, NA	–0.074	–0.029	–0.26	NA, NO	NA	NA	NA
Sweden	314	300	14	0.032	–0.17	–0.13	0.010	–0.058	–0.048	–0.41	0.001	–0.60	–1.9	NA	NA	NA
Switzerland	9.8	9.8	0.048	0.000	–2.1	–2.1	0.000	–0.65	–0.65	–0.65	–0.15	–0.91	–4.7			
Ukraine	50	50	NA, NO	NA	–0.062	–0.062	NA	–0.010	–0.010	–0.013	NA	–0.59	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	67	67	IE, NA, NO	0.001	–2.1	–2.1	IE, NA, NO	IE, NA	IE, NA, NO	–0.074	IE, NA	–2.1	IE, NA, NO	NA	NA	NA

[a] Carbon stock change (CSC). The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[b] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[c] The value reported here is an emission and not a carbon stock change.

[d] CO_2 emissions from dissolved organic carbon from drained and CO_2 emissions/removals from rewetted organic soils may also be included here.

Table 6.3(c)

Forest management - area and implied carbon stock change factors from the change in carbon stocks for 2017[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)										Area subject to newly established forest(CEF-ne)			Area subject to harvested and converted forest plantations (CEF-hc)			Area subject to natural disturbances		
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]		Total	Mineral Soils	Organic Soil	Total	Mineral Soils	Organic Soil	Total	Mineral Soils	Organic Soil
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d, e]	(kha)			(kha)			(kha)		
Australia	10 842	10 842	IE, NA	0.49	IE, NA	0.49	0.12	IE, NA	0.12	–0.031	–0.088	0.043	IE, NA	NA	NA	NA	NA	NA	NA	IE, NA	IE	NA
Austria	3 808	3 808	NA, NO	1.9	–1.7	0.26	0.45	–0.42	0.030	IE, NA, NE, NO	0.059	–0.19	NA, NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Belgium	669	669	NA, NO	0.38	NA, NO	0.38	0.064	NA, NO	0.064	NA, NO	NA, NO	NA, NO	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	3 622	3 622	NO	0.47	IE, NO	0.47	IE, NO	IE, NO	IE, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Croatia	2 311	2 311	NA, NO	1.4	–0.89	0.52	0.33	–0.21	0.12	NA, NE	NA, NE	NA, NE	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	145	145	NO	0.27	–0.040	0.23	0.074	–0.011	0.063	NO	0.001	NO	NO									
Czechia	2 609	2 590	19	2.6	–2.5	0.089	0.56	–0.54	0.019	IE, NO	NO	NE, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Denmark (KP)	533	507	26	IE, NA, NO	–0.60	–0.60	IE, NA, NO	–0.059	–0.059	0.64	–0.15	NA, NO	–1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	2 385	1 865	520	0.12	IE, NA	0.12	IE, NA	IE, NA	IE, NA	NA, NE	0.012	0.20	–0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	154 195	142 115	12 080	1.2	–0.67	0.55	0.26	–0.17	0.085	–0.018	0.016	0.097	–0.30	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO	IE, NA, NO
Finland	21 656	15 772	5 884	1.4	–1.1	0.26	0.37	–0.33	0.037	IE, NA	IE, NA	0.17	–0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	21 445	21 445	IE	1.4	–0.94	0.42	0.39	–0.23	0.16	0.001	–0.026	IE, NA	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Germany	10 611	10 512	99	0.90	IE, NA	0.90	0.13	IE, NA	0.13	–0.013	–0.052	0.41	–2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	1 248	1 248	NA, NO	0.42	–0.089	0.33	0.14	–0.025	0.12	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Hungary	1 765	1 759	6.5	0.42	IE, NA	0.42	0.10	IE, NA	0.10	NA, NE	NA, NE	NA, NE	–2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	94	93	0.43	0.20	–0.010	0.19	0.049	IE, NA, NE	0.049	0.005	IE, NA, NO	0.013	–0.37	NO	NO	NO	NO	NO	NO	NO	NO	NO
Ireland	446	176	270	6.1	–5.4	0.69	1.8	–1.7	0.087	0.080	–0.069	–0.038	–0.45	NO	NO	NO	NO	NO	NO	NA	NA	NA
Italy	7 453	7 453	NA, NO	2.1	–1.6	0.46	0.43	–0.34	0.092	0.003	0.002	NA, NE, NO	NA, NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Japan	15 826	15 783	43	0.72	–0.096	0.63	0.19	–0.026	0.16	0.003	–0.037	0.022	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan																						
Latvia	3 113	2 684	429	2.4	–2.2	0.26	0.60	–0.54	0.065	0.001	0.055	NA, NO	–0.52	NO	NO	NO	NO	NO	NO	NA	NA	NA
Liechtenstein	6.2	6.2	NO	1.7	–1.7	0.021	0.56	–0.55	0.007	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	2 155	1 817	338	0.78	IE, NA, NO	0.78	0.18	IE, NA, NO	0.18	0.007	–0.028	NA, NO	–1.5	IE	IE	IE	NO	NO	NO	NA	NA	NA
Luxembourg	87	87	NO	2.5	–1.9	0.62	0.54	–0.40	0.14	0	0	0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Malta	0.072	0.072	NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	308	294	14	1.8	–0.96	0.85	0.15	NO	0.15	NO	0.056	NO	–1.0	NO	NO	NO	NO	NO	NO	NO	NO	NO
New Zealand	9 245	9 229	16	0.99	–0.92	0.070	0.22	–0.20	0.025	–0.007	0.054	0.000	–0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	12 079	11 357	722	0.87	–0.47	0.39	0.22	–0.12	0.092	0.15	0.029	0.004	–0.24	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	8 646	8 402	244	0.77	IE, NA, NO	0.77	0.20	IE, NA, NO	0.20	NA, NO	NA, NO	0.098	–0.68	NO	NO	NO	NO	NO	NO	NA	NA	NA
Portugal	3 744	3 744	NO	1.6	–1.5	0.15	0.32	–0.21	0.12	–0.002	IE, NO	–0.006	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Romania	6 974	6 878	95	4.1	–0.73	3.4	IE, NA, NO	IE, NA, NO	IE, NA, NO	0.004	NA, NO	0.087	–0.68	NA	NA	NA	NA	NA	NA	NO	NO	NO
Russian Federation	640 001	638 051	1 950	0.29	–0.075	0.21	0.084	–0.041	0.043	0.004	0.020	0.007	–0.71	IE	IE	IE	NO	NO	NO	NA	NA	NA
Slovakia	1 977	1 977	NA, NO	2.0	–1.6	0.44	0.41	–0.32	0.089	NA, NO	NA, NO	NA, NO	NA, NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	1 116	1 115	0.77	IE, NA	–0.014	–0.014	0.008	IE, NA	0.008	NA, NO	0.17	NA, NO	NA, NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Spain	14 428	14 428	NA, NO	0.54	IE, NA, NO	0.54	IE, NA, NO	IE, NA, NO	IE, NA, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NO	NO	NO	NO	NO	NO	NO	NA	NA	NA
Sweden	27 884	23 946	3 938	0.27	IE, NO	0.27	0.086	IE, NO	0.086	–0.11	0.075	0.19	–0.32	NO	NO	NO	NO	NO	NO	NO	NO	NO
Switzerland	1 264	1 260	4.0	2.2	–1.8	0.41	0.64	–0.55	0.090	0.036	0.058	0.002	–0.078									
Ukraine	9 570	9 377	193	1.7	–0.29	1.4	IE, NA	IE, NA	IE, NA	NA	NA	NA	–0.68	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	2 962	2 767	195	3.3	–2.8	0.49	1.7	–1.5	0.16	0.024	0.32	0.42	1.0	NA	NA	NA	NA	NA	NA	NO	NO	NO

[a] For forest management, information reported here refers to anthropogenic carbon stock change for the inventory year for all geographical locations that encompass land subject to forest management under Article 3.4. Newly established forest will reach at least the equivalent carbon stock that was contained in the harvested forest plantation at the time of harvest, and, if not, a debit would be generated under Article 3.4. Reporting is required by Parties which apply the provision to exclude emissions from natural disturbances in accordance with paragraphs 33 and 34 in the annex to decision 2/CMP.7.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

[e] CO_2 emissions from dissolved organic carbon from drained and CO_2 emissions/removals from rewetted organic soils may also be included here.

Table 6.3(d)

Cropland management - area and implied carbon stock change factors from the change in carbon stocks for 2017[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	39 469	39 456	13	0.002	–0.001	0.001	IE, NA	–0.000	–0.000	–0.000	–0.000	0.017	–5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus													
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	2 859	2 770	88	0.013	–0.020	–0.006	0.002	–0.008	–0.006	NO	NO	0.066	–8.8
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	55 039	54 418	622	0.019	–0.007	0.012	0.002	–0.004	–0.002	–0.000	IE, NA, NE, NO	–0.058	–6.6
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	IE
Germany	14 706	14 292	415	0.018	–0.015	0.003	0.006	–0.011	–0.005	IE, NA	IE, NA, NO	–0.054	–7.4
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	770	770	NO	0.025	–0.023	0.002	IE	IE	IE	NO	NO	0.027	NO
Italy	8 981	8 956	25	0.000	–0.001	–0.001	IE, NO	IE, NO	IE, NO	NE	NE	NE	10
Japan	3 911	3 726	186	0.000	–0.007	–0.007	0.000	–0.004	–0.004	NA	NA	-0.20	–2.4
Kazakhstan													
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NE, NO	NE	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	937	877	60	0.003	–0.002	0.001	0.001	–0.001	0.001	NO	NO	0.014	–7.9
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	2 341	2 341	NO	0.033	–0.018	0.014	0.010	–0.013	–0.003	–0.001	IE	–0.042	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	20 173	20 173	NO	0.027	IE	0.027	IE	IE	IE	–0.000	NO	0.015	NO
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	5 209	5 115	94	0.016	–0.004	0.012	IE, NE	IE, NE	IE, NE	NE	NE	–0.55	–5.0

[a] For those Parties where Cropland management has been elected, this table contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to cropland management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(e)

Cropland management - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	39 478	39 466	13	0.000	IE,NA	0.000	IE, NA	IE, NA	IE, NA	IE, NA	IE, NA	-0.12	–5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus													
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	2 994	2 881	113	0.032	–0.028	0.004	0.007	–0.005	0.002	NO	NO	–0.044	–9.5
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	58 516	57 970	546	0.012	–0.011	0.001	0.002	–0.003	–0.001	–0.000	IE, NA, NE, NO	–0.093	–6.8
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	14 092	13 777	315	0.014	–0.018	–0.004	0.006	–0.011	–0.006	IE, NA	IE, NA, NO	–0.053	–7.7
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	770	770	NO	0.043	–0.040	0.003	IE	IE	IE	NO	NO	–0.001	NO
Italy	10 704	10 680	25	0.003	–0.021	–0.018	IE, NO	IE, NO	IE, NO	NE	NE	NE	10
Japan	4 597	4 408	188	0.000	–0.010	–0.010	0.000	–0.007	–0.007	NA	NA	–0.51	–2.4
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NE, NO	NE	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	938	879	59	0.006	–0.004	0.001	0.002	–0.002	0.000	NO	NO	0.001	–7.9
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	2 974	2 974	NO	0.016	–0.004	0.012	0.003	–0.002	0.002	–0.005	IE	–0.29	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	20 999	20 999	NO	0.006	IE	0.006	IE	IE	IE	–0.000	NO	–0.004	NO
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)	5 983	5 889	93	0.024	–0.002	0.022	IE, NO	IE, NO	IE, NO	NE, NO	NE, NO	–0.61	–5.0

[a] For those Parties where Cropland management has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to cropland management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(f)

Grazing land management - area and implied carbon stock change factors from the change in carbon stocks for 2017[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	529 624	529 575	49	0.018	–0.015	0.003	IE, NA	–0.000	–0.000	–0.000	0.001	–0.002	–5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	183	157	26	0.099	–0.24	–0.14	0.27	–0.25	0.029	NO	NO	–0.005	–6.9
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	26 739	23 986	2 753	0.006	–0.015	–0.009	0.005	–0.004	0.001	0.000	IE, NA, NE, NO	0.12	–3.2
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	IE
Germany	6 241	5 256	986	0.014	–0.022	–0.008	0.011	–0.008	0.004	IE, NA	IE, NA, NO	0.081	–6.3
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	4 164	3 830	334	NO	–0.000	–0.000	IE, NO	NO	IE, NO	NO	NO	0.13	–6.6
Italy	544	544	NO	NO	NO	NO	NO	NO	NO	NE	NE	0.031	NO
Japan	601	560	41	0.002	IE, NO	0.002	0.006	IE, NO	0.006	NA	NA	0.13	–0.19
Kazakhstan													
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	215	212	3.4	0.19	–0.12	0.076	0.074	–0.045	0.029	NO	NO	–0.069	–2.6
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	593	593	NO	0.027	–0.037	–0.010	0.022	–0.030	–0.008	0.000	IE	0.12	NO
Romania													
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	15 015	13 607	1 407	0.002	–0.013	–0.011	IE, NE	IE, NE	IE, NE	NE	NE	0.14	–0.037

[a] If grazing land management has been elected, report here information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to grazing land management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(g)

Grazing land management - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	537 526	537 478	49	0.006	–0.003	0.003	IE, NA	IE, NA	IE, NA	IE, NA	0.001	-0.006	–5.0
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	147	111	36	0.012	–0.022	–0.009	0.034	–0.049	–0.015	NO	NO	–0.000	–7.0
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	26 373	23 461	2 912	0.017	–0.020	–0.003	0.006	–0.005	0.001	–0.000	IE, NA, NE, NO	0.091	–3.3
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	6 936	5 841	1 095	0.023	–0.038	–0.015	0.019	–0.014	0.005	IE, NA	IE, NA, NO	0.11	–6.8
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	4 336	3 963	373	NO	–0.000	–0.000	IE, NO	IE, NO	IE, NO	NO	NO	–0.010	–4.7
Italy	3.0	3.0	NO	NO	NO	NO	NO	NO	NO	NE	NE	0.47	NO
Japan	647	605	41	0.005	IE	0.005	0.018	IE	0.018	NA	NA	–0.39	–0.19
Kazakhstan	6 200	6 200	NO	0.000	NO	0.000	IE	NO	IE, NO	0.000	NO	–0.15	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	230	227	3.6	0.20	–0.12	0.085	0.078	–0.045	0.033	NO	NO	0.032	–3.6
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	529	529	NO	0.025	–0.063	–0.039	0.044	–0.033	0.011	–0.009	IE	–0.65	NO
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)	14 422	13 014	1 408	0.019	–0.016	0.003	IE, NE	IE, NE	IE, NE	NE	NE	0.14	–0.034

[a] If grazing land management has been elected, report here information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to grazing land management under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(h)

Revegetation - area and implied carbon stock change factors from the change in carbon stocks for 2017[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	18 216	18 216	IE	0.015	–0.015	–0.000	IE	IE	IE	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	394	394	NA, NE, NO	0.89	IE, NA, NE, NO	0.89	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	0.003	IE, NA, NE, NO	0.44	NA, NE, NO
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	288	288	NO	0.057	IE	0.057	IE	IE	IE	IE	IE, NO	0.51	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy													
Japan	87	85	2.1	2.4	–0.008	2.4	0.64	–0.002	0.63	0.044	IE	0.94	NO
Kazakhstan													
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	106	106	NO	3.2	IE	3.2	IE	IE	IE	0.011	NO	0.25	NO
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(i)

Revegetation - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	18 216	18 216	IE	0.003	–0.007	–0.004	IE	IE	IE	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	259	259	NA, NO	1.1	IE, NA, NO	1.1	IE, NA, NO	IE, NA, NO	IE, NA, NO	0.026	NA, NO	1.1	NA, NO
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	167	167	NO	0.057	IE, NA	0.057	IE, NA	IE, NA	IE, NA	IE, NA	NA, NO	0.51	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	5.9	5.8	0.14	2.2	–0.023	2.2	0.58	–0.006	0.57	0.043	IE	0.88	NO
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	88	88	NO	3.0	IE	3.0	IE	IE	IE	0.073	NO	2.2	NO
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)													

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(j)

Wetland drainage and rewetting - area and implied carbon stock change factors from the change in carbon stocks for 2017[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO
Finland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NO	NE
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
Italy													
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan													
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article 3.4.

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.3(k)

Wetland drainage and rewetting - area and implied carbon stock change factors from the change in carbon stocks for the base year[a]

	Area subject to the activity			Implied carbon stock change factor (t C/ha)									
	Total	Mineral Soils	Organic Soil	CSC in above-ground biomass[b, c]			CSC in below-ground biomass[b, c]			Net CSC in litter[b]	Net CSC in dead wood[b]	Net CSC in soil[b]	
	(kha)			Gains	Losses	Net change	Gains	Losses	Net change			Mineral	Organic[d]
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Austria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria													
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Czechia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Finland													
France (KP)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Germany	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Greece	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA
Italy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Japan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Latvia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein													
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand													
Norway	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Romania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sweden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland													
Ukraine													
United Kingdom of Great Britain and Northern Ireland (KP)													

[a] For those Parties where revegetation has been elected, contains information on anthropogenic carbon stock change for the inventory year for all geographic locations that encompass land subject to Revegetation under Article

[b] The signs for estimates of gains in carbon stocks are positive (+) and of losses in carbon stocks are negative (-).

[c] Carbon stock gains and losses should be listed separately except in cases where, due to the methods used, it is technically impossible to separate information on gains and losses. In that case, net gains should be reported in the "Gains" column and net losses should be reported in the "Losses" column. The notation key IE should be filled in, in the other column.

[d] The value reported here is an emission or removal and not a carbon stock change.

Table 6.4

Direct and indirect N_2O emissions from N fertilization for 2017[a, b]

	Afforestation and Reforestation	Deforestation[c]	Forest management	Revegetation	Wetland drainage and rewetting[d]
	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer	N_2O-N per unit of fertilizer
	kg N_2O-N/kg N	kg N_2O-N/kg N	kg N_2O-N/kg N	kg N_2O-N/kg N	kg N_2O-N/kg N
Australia	IE	IE	IE	IE	NA
Austria	NO	NO	NO	NA	NA
Belgium	NO	IE	NO	NA	NA
Bulgaria	NO	NO	NO	NA	NA
Croatia	NO	NO	NO	NA	NA
Cyprus				NO	NO
Czechia	NO	NO	NO	NA	NA
Denmark (KP)	IE	IE	IE	NA	NA
Estonia	NO	NO	NO	NA	NA
European Union (KP)	0.022	IE, NO	0.000	0.010	IE, NA, NE, NO
Finland	NA	IE	0.010	NA	NA
France (KP)	NO	NO	NE	NE	NE
Germany	NO	NO	NO	NA	NA
Greece	NA	NA	NA	NA	NA
Hungary	IE	IE	IE	NA	NA
Iceland	0.012	NA	NA	0.010	NA
Ireland	IE	IE	IE	NA	NA
Italy	NO	NO	NO		
Japan	IE	IE	0.000	IE	NA
Kazakhstan					
Latvia	NO	IE	NO	NA	NA
Liechtenstein	NO	NO	NO	NO	NO
Lithuania	NO	NO	NO	NA	NA
Luxembourg	NO	NO	NO	NA	NA
Malta	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO
Netherlands	NO	IE	NO	NA	NA
New Zealand	IE	IE	IE	NA	NA
Norway	0.000	IE	0.000	NA	NA
Poland	NO	NO	NO	NA	NA
Portugal	IE	IE	IE	NA	NA
Romania	IE	IE	IE	IE	IE
Russian Federation	NO	NO	NO	NA	NA
Slovakia	NO	NO	NO	NA	NA
Slovenia	NO	NA	NA	NA	NA
Spain	NO	NO	NO	NA	NA
Sweden	NO	IE	0.000	NA	NA
Switzerland	NO	NA	NO	NA	NA
Ukraine	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	0.013	NO	NO	NA	NE

[a] N_2O emissions from fertilization for cropland management, grazing land management and revegetation as well as from fertilization of areas categorized as cropland or grassland underdeforestation should be reported in the agriculture sector. If a Party is not able to separate fertilizer applied to forest land from agriculture, it may report all N_2O emissions from fertilization in the agriculture sector. In this case, reporting of N_2O emissions from fertilization should not be included under afforestation/reforestation, deforestation or forest management, revegetation or wetland drainage and rewetting, as appropriate, to avoid double counting.

[b] Direct and indirect N_2O emissions from fertilization are estimated following section 11.2 of the 2006 IPCC Guidelines based on the amount of fertilizer applied to land under forest management. The indirect N_2O emissions from afforestation and reforestation and land under forest management are estimated as part of the total indirect emissions in the agriculture sector based on the total amount of fertilizer used in the country. Parties should show that double counting of N_2O emissions from fertilization with agriculture sector estimates has been avoided.

[c] Only for areas that have been subsequently reforested.

[d] Only N_2O emissions which have not been reported under agriculture should be included here.

Table 6.5

CH_4 and N_2O emissions from drained and rewetted organic soils for 2017[a, b, c]

	Afforestation and Reforestation			Deforestation			Forest Management			Cropland Management			Grazing Land Management			Revegetation			Wetland drainage and rewetting		
	Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor		Area of organic soils	Implied Emission Factor	
		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4		N_2O-N	CH_4
	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha	kha	kg N_2O-N/ha	kg CH_4/ha
Australia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Austria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Belgium	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Bulgaria	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Croatia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Cyprus	NO	NO	NO	NO	NO	NO				NO		NO	NO		NO				NO	NO	NO
Czechia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	11	1.4	4.0	0.58	NO	28	26	1.4	44	93		48	28		58	NA	NA	NA	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	257	2.0	9.3	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
European Union (KP)	367	1.2	4.9	93	2.3	21	6 669	1.3	8.7	508		28	1 348		23	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO
Finland	69	1.4	1.8	40	1.4	19	4 288	0.95	7.8	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
France (KP)	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	NE		NE	NE		NE	NE	NE	NE	NE	NE	NE
Germany	49	1.4	4.6	22	1.6	18	99	1.4	4.6	415		24	986		20	NA	NA	NA	NA	NA	NA
Greece	NO	NA	NA	NO	NA	NA	NO	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Hungary	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Iceland	3.4	0.44	7.4	0.012	0.44	7.4	0.43	0.44	7.4	NA		NA	NA		NA	NO	NA	NA	NA	NA	NA
Ireland	164	1.2	6.3	8.7	1.5	55	270	0.66	6.5	NO		NO	334		29	NA	NA	NA	NA	NA	NA
Italy	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO						
Japan	NO	NO	NO	NO	NO	NO	NO	NO	NO	24		58	40 544		0.002	NO	NO	NO	NA	NA	NA
Kazakhstan																					
Latvia	1.8	2.8	67	8.4	13	30	446	2.7	20	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO	NO
Lithuania	4.2	1.8	7.9	NO	NO	NO	170	1.8	7.9	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Luxembourg	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO	NO	NO	NO	NO	NO
Netherlands	NE	NE	NE	NE	NE	NE	NE	NE	NE	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
New Zealand	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE		NE	NE	NE	NE	NE	NE	NE
Norway	7.6	3.2	7.4	10	IE, NE	58	241	2.3	8.9	60		58	2.5		63	NA	NA	NA	NA	NA	NA
Poland	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Portugal	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO		NO	NA	NA	NA	NA	NA	NA
Romania	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NO	NO	NO	NA	NA	NA
Russian Federation	NO	NO	NO	15	1.9	21	1 950	1.7	9.8	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Slovakia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NA	NA	NO	NA	NA	NO	NA	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Spain	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NA		NA	NA	NA	NA	NA	NA	NA
Sweden	19	2.3	9.0	14	IE, NO	3.9	927	2.2	9.0	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Switzerland	0.000	2.8	NE, NO	NO	NO	NO	0.12	2.8	NE	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
Ukraine	NO	NO	NO	NA	NA	NA	193	0.60	NA	NA		NA	NA		NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	46	0.20	NE, NO	NO	NO	NO	184	0.21	NE, NO	NE		NE	NE		NE	NA	NA	NA	NE	NE	NE

[a] Methodologies for CH_4 and N_2O emissions from drained and rewetted soils are given in the "Wetlands Supplement" for all land-use categories.

[b] N_2O emissions from drained cropland and grazing land soils are covered in the agriculture sector under cultivation of histosols.

[c] For activities other than wetland drainage and rewetting, a Party may choose to include CH_4 emissions from drained, rewetted and other organic soils. A Party should provide detailed information on methodologies, emissions and removals from these subdivisions in the NIR, ensuring consistency in reporting among categories.

Table 6.6

N_2O emissions from N mineralization/immobilization due to carbon loss/gain associated with land-use conversions and management change in mineral soils for 2017[a]

	Afforestation and Reforestation			Deforestation[c]			Forest Management			Cropland Management			Grazing land Management			Revegetation		
	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]	Land area[b]	Carbon Stock Change	IEF N_2O-N[d]
	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha	kha	kt C	kg N_2O-N/ha
Australia	8 043	–398	0.028	10 383	–3 136	0.039	10 842	464	0.005	1 739	–83	0.006	529 575	–1 259	0.001	NA	NA	NA
Austria	122	–64	0.49	33	–55	0.99	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belgium	19	–0.059	0.002	36	–63	1.3	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bulgaria	285	–274	0.60	5.4	–14	1.7	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Croatia	62	–16	NO	4.6	–7.6	1.4	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyprus										NO	NO	NO	NO	NO	NO			
Czechia	NO	NO	NO	3.1	–0.78	0.17	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Denmark (KP)	NO	NO	NO	3.9	–1.2	0.15	507	NO	NO	2 770	–4.9	0.002	157	–0.73	0.004	NA	NA	NA
Estonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
European Union (KP)	3 439	–865	0.26	2 702	–508	0.93	40 458	9 924	0.002	6 229	–3164	0.46	5 786	–646	0.15	NA, NE, NO	NA, NE, NO	NA, NE, NO
Finland	114	2.7	0.016	327	95	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
France (KP)	NO	NO	NO	1 284	NA	0.39	NO	NO	NO	NE	NE	NE	NE	NE	NE	NE	NE	NE
Germany	513	–99	0.36	281	27	0.064	10 512	4 310	NO	936	–771	0.80	5 256	425	NO	NA	NA	NA
Greece	NO	NA	NA	5.6	–10	1.2	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hungary	173	–28	0.25	16	–13	0.52	1 767	NE	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NO	NA	NA	NE	NE	NA	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ireland	145	NE	NO	9.3	–6.1	44	176	NO	NO	IE	IE	IE	IE	IE	IE	NA	NA	NA
Italy	NO	NO	NO	3.7	290	52	NO	NO	NO	NO	46	NO	NO	NO	NO			
Japan	NA	NA	NA	314	–13	0.045	15 783	–195	0.013	25	NA	0.38	549	NA	0.008	NA	NA	NA
Kazakhstan																		
Latvia	NO	NO	NO	29	–6.6	0.19	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liechtenstein	NO	NO	NO	0.21		0.60	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Lithuania	45	18	NO	2.0	–2.6	0.87	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	NO	NO	NO	5.9	–4.2	0.73	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malta	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Monaco	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Netherlands	42	0.57	0.18	68	5.8	0.17	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	681	180	0.18	202	4.6	0.015	9 224	21	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Norway	28	–33	0.79	99	–40	0.27	11 357	40	NO	22	–2.3	0.071	211	–16	0.050	NA	NA	NA
Poland	780	NE	NE	15	IE	0.009				NA	NA	NA	NA	NA	NA	NA	NA	NA
Portugal	17	–36	1.4	100	–389	2.6	19	–38	1.4	94	–262	1.9	54	–138	1.7	NA	NA	NA
Romania	7.1	0.12	0.89	7.1	13	98	NO	NO	NO	NA	NA	NA	NA	NA	NA	NO	NO	NO
Russian Federation	NO	NO	NO	658	527	0.66	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovakia	NO	NO	NO	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Slovenia	NO	NA	NA	18	–26	1.2	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spain	119	–3.3	0.29	79	–2.3	0.30	NE	NE	NE	407	–17	0.43	NA	NA	NA	NA	NA	NA
Sweden	337	–21	0.038	300	–193	0.28	23 946	4 503	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Switzerland	1.1	0.033	0.020	7.2	9.2	0.86	NO	NO	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ukraine	311	236	NA	50	–30	0.43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)	659	–346	0.45	67	–144	1.8	3 532	1 150	0.017	2 021	–2157	0.87	320	–933	2.4	NA	NA	NA

[a] N_2O emissions from nitrogen mineralization/immobilization associated with loss/gain of soil organic matter resulting from change of land use or management of mineral soils under afforestation/reforestation, deforestation, forest management, cropland management, grazing land management and revegetation should be reported here when these emissions/removals are not reported under the agriculture sector.

[b] Land areas should include lands converted and/or lands where a management change has taken place and resulted in carbon loss. Gains could be reported, under tier 3 approaches, if sufficient scientific justification is provided.

[c] N_2O emissions associated with deforestation followed by the establishment of cropland should be reported under deforestation even if cropland management is not elected under Article 3.4.

[d] In the calculation of the implied emission factor, N_2O emissions are converted to N_2O-N by multiplying by 28/44.

Table 6.7(a)

Emissions from biomass burning 2017[a]

	Afforestation/reforestation				Deforestation				Total article 3.3				Forest management			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor			Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)				(t/activity data unit)				(t/activity data unit)		
Australia		0.57	0.020	0.000		IE	0.14	0.003		0.16	0.10	0.002		2.6	0.16	0.002
Austria		NO	NO	NO		NO	NO	NO		NO	NO	NO		IE, NO	0.093	0.005
Belgium		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Bulgaria		IE, NO	0.000	0.000		NO	NO	NO		IE, NO	0.000	0.000		IE, NO	0.000	0.000
Croatia		31	0.093	0.005		NO	NO	NO		31	0.093	0.005		31	0.093	0.005
Cyprus														NO	NO	NO
Czechia		NO	NO	NO		NO	NO	NO		NO	NO	NO		0.000	0.000	0.000
Denmark (KP)		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Estonia		IE, NA	0.19	0.002		NO	NO	NO		IE, NA, NO	0.19	0.002		IE, NO	0.19	0.002
European Union (KP)																
Finland		NA	NA	NA		NA	IE, NA	IE, NA		NA	IE, NA	IE, NA		6.4	0.028	0.002
France (KP)		17	0.067	0.005		IE, NO	NO	NO		17	0.067	0.005				
Germany		IE, NO	IE, NO	IE, NO		NO	NO	NO		IE, NO	IE, NO	IE, NO		IE, NO	0.23	0.013
Greece		19	0.24	0.002		NA	NA	NA		19	0.24	0.002		19	0.24	0.002
Hungary		IE	0.000	0.000		IE, NO	0.000	0.000		IE, NO	0.000	0.000		IE	0.000	0.000
Iceland		NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA	NA
Ireland		152	0.66	0.004		NO	NO	NO		152	0.66	0.004		261	1.1	0.007
Italy		IE, NO	0.57	0.018		NO	NO	NO		IE, NO	0.57	0.018		IE, NO	0.57	0.018
Japan		IE, NO	0.000	0.000		NO	NO	NO		IE, NO	0.000	0.000		IE, NO	0.000	0.000
Kazakhstan																
Latvia		NO	NO	NO		NO	NO	NO		NO	NO	NO				
Liechtenstein		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Lithuania		NO	NO	NO		NO	NO	NO		NO	NO	NO		10	0.043	0.002
Luxembourg		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Malta		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO		NO	NO	NO		NO	NO	NO
Netherlands		94	0.28	0.016		7.3	0.010	0.001		9.0	0.036	0.002		94	0.28	0.016
New Zealand		IE	0.000	0.000		IE	0.000	0.000		IE	0.000	0.000		IE	0.000	0.000
Norway		IE, NO	0.029	0.002		NO	NO	NO		IE, NO	0.029	0.002		IE	0.029	0.002
Poland		IE, NO	1.5	0.004		NO	NO	NO		IE, NO	1.5	0.004		IE, NO	0.25	0.004
Portugal		34	0.12	0.002		NO	0.070	0.001		20	0.10	0.001		36	0.12	0.002
Romania		48	0.21	0.006		NO	NO	NO		48	0.21	0.006		48	0.21	0.006
Russian Federation		IE	0.000	0.000		NO	NO	NO		IE	0.000	0.000		25	0.13	0.007
Slovakia		IE, NO	0.12	0.007		NO	NO	NO		IE, NO	0.12	0.007				
Slovenia		NA	NA	NA		NA	NA	NA		NA	NA	NA	Area burned	69	0.21	0.011
Spain		21	0.067	0.005		11	0.024	0.002		20	0.066	0.005		IE	0.066	0.005
Sweden	Area burned	NO	NO	NO	Area burned	NO	NO	NO	Area burned	NO	NO	NO		IE	0.062	0.000
Switzerland		IE	IE	IE						IE	IE	IE				
Ukraine		0.002	0.000	0.000		NA, NO	NA, NO	NA, NO		0.002	0.000	0.000		0.002	0.000	0.000
United Kingdom of Great Britain and Northern Ireland (KP)	Biomass burned	0.002	0.000	0.000	Biomass burned	0.002	0.000	0.000	Biomass burned	0.002	0.000	0.000	Biomass burned	0.001	0.000	0.000

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data could area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(b)

Emissions from biomass burning on cropland management land[a]

	Base year				2017			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		IE	IE	IE		IE	0.20	0.004
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czechia		NA	NA	NA		NA	NA	NA
Denmark (KP)		NO	NO	NO		NO	NO	NO
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland		NA	NA	NA		NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NO	NO	NO		NO	NO	NO
Greece		NA	NA	NA		NA	NA	NA
Hungary		NA	NA	NA		NA	NA	NA
Iceland		NA	NA	NA		NA	NA	NA
Ireland		NO	0.011	0.000		NO	NO	NO
Italy		4.3	0.024	0.001		9.7	0.053	0.002
Japan		IE, NO	0.000	0.000		IE, NO	0.000	0.000
Kazakhstan		NO	NO	NO				
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta		NO	NO	NO		NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		NO	NO	NO		NO	NO	NO
Poland		NA	NA	NA		NA	NA	NA
Portugal		NO	0.034	0.000		NO	0.034	0.000
Romania		NA	NA	NA		NA	NA	NA
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		0.080	0.023	0.002		0.22	0.026	0.002
Sweden	Area burned	NA	NA	NA	Area burned	NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)		NE, NO	0.011	0.000		NE, NO	0.011	0.000

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(c)

Emissions from biomass burning on grazing land management land[a]

	Base year				2017			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		IE	0.010	0.000		IE	0.007	0.000
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czechia		NA	NA	NA		NA	NA	NA
Denmark (KP)		IE	1.7	0.15		IE	1.7	0.15
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland		NA	NA	NA		NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NO	NO	NO		NO	NO	NO
Greece		NA	NA	NA		NA	NA	NA
Hungary		NA	NA	NA		NA	NA	NA
Iceland		NA, NO	NA	NA		NA, NO	NA	NA
Ireland		42	0.25	0.007		39	0.23	0.006
Italy		NO	NO	NO		NO	NO	NO
Japan		NO	NO	NO		NO	NO	NO
Kazakhstan		IE, NO	IE, NO	IE, NO				
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta		NO	NO	NO		NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		IE, NO	NE, NO	NE, NO		IE, NO	NE, NO	NE, NO
Poland		NA	NA	NA		NA	NA	NA
Portugal		NO	0.006	0.000		NO	0.014	0.000
Romania		NA	NA	NA		NA	NA	NA
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		NA	NA	NA		NA	NA	NA
Sweden	Area burned	NA	NA	NA	Area burned	NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)		NE, NO	0.026	0.002		NE, NO	0.025	0.002

[a] Total for controlled burning and wildfires. Greenhouse gas emissions from prescribed savanna burning are reported in the agriculture sector.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(d)

Emissions from biomass burning on revegetation land[a]

	Base year				2017			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		IE	IE	IE		IE	IE	IE
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czechia		NA	NA	NA		NA	NA	NA
Denmark (KP)		NA	NA	NA		NA	NA	NA
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland		NA	NA	NA		NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NA	NA	NA		NA	NA	NA
Greece		NA	NA	NA		NA	NA	NA
Hungary		NA	NA	NA		NA	NA	NA
Iceland		NE	NE	NE		NO	NO	NO
Ireland		NA	NA	NA		NA	NA	NA
Italy		NA	NA	NA				
Japan		NO	NO	NO		NO	NO	NO
Kazakhstan		NO	NO	NO				
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta		NO	NO	NO		NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		NA	NA	NA		NA	NA	NA
Poland		NA	NA	NA		NA	NA	NA
Portugal		NA	NA	NA		NA	NA	NA
Romania		NO	NO	NO		NO	NO	NO
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		NA	NA	NA		NA	NA	NA
Sweden	Area burned	NA	NA	NA	Area burned	NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland (KP)						NA	NA	NA

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).

Table 6.7(e)

Emissions from biomass burning on wetland drainage and rewetting land[a]

	Base year				2017			
	Activity data	Implied Emission Factor			Activity data	Implied Emission Factor		
	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O	Description of unit area[b]: ab or bb[c]	CO_2	CH_4	N_2O
		(t/activity data unit)				(t/activity data unit)		
Australia		NA	NA	NA		NA	NA	NA
Austria		NA	NA	NA		NA	NA	NA
Belgium		NA	NA	NA		NA	NA	NA
Bulgaria						NA	NA	NA
Croatia		NA	NA	NA		NA	NA	NA
Cyprus		NO	NO	NO		NO	NO	NO
Czechia		NA	NA	NA		NA	NA	NA
Denmark (KP)		NA	NA	NA		NA	NA	NA
Estonia		NA	NA	NA		NA	NA	NA
European Union (KP)								
Finland		NA	NA	NA		NA	NA	NA
France (KP)		NO	NO	NO		NE	NE	NE
Germany		NA	NA	NA		NA	NA	NA
Greece		NA	NA	NA		NA	NA	NA
Hungary		NA	NA	NA		NA	NA	NA
Iceland		NA	NA	NA		NA	NA	NA
Ireland		NA	NA	NA		NA	NA	NA
Italy		NA	NA	NA				
Japan		NA	NA	NA		NA	NA	NA
Kazakhstan		NO	NO	NO				
Latvia		NA	NA	NA		NA	NA	NA
Liechtenstein						NO	NO	NO
Lithuania		NA	NA	NA		NA	NA	NA
Luxembourg		NA	NA	NA		NA	NA	NA
Malta		NO	NO	NO		NO	NO	NO
Monaco		NO	NO	NO		NO	NO	NO
Netherlands		NA	NA	NA		NA	NA	NA
New Zealand						NA	NA	NA
Norway		NA	NA	NA		NA	NA	NA
Poland		NA	NA	NA		NA	NA	NA
Portugal		NA	NA	NA		NA	NA	NA
Romania		NO	NO	NO		NO	NO	NO
Russian Federation		NA	NA	NA		NA	NA	NA
Slovakia		NA	NA	NA		NA	NA	NA
Slovenia		NA	NA	NA		NA	NA	NA
Spain		NA	NA	NA		NA	NA	NA
Sweden		NA	NA	NA		NA	NA	NA
Switzerland								
Ukraine						NA	NA	NA
United Kingdom of Great Britain and Northern Ireland						NE	NE	NE

[a] Total for controlled burning and wildfires.

[b] For each activity, activity data should be selected between area burned or fuel burned. Units will be ha for area burned, and kg dm for fuel burned. The implied emission factor will refer to the selected activity data with an automatic change in the units.

[c] Area burned (ab) and biomass burned (bb).