

ANNEXES TO THE NATIONAL INVENTORY REPORT

March, 2026

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Annexes to the national inventory report

Annex 1: Key categories

1.1. Description of methodology used for identifying key categories, if different from the Intergovernmental Panel on Climate Change (IPCC) tier 1 approach

Key categories according to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC, 2006) are those found in the accumulative 95% (Tier 1) or 90% (Tier 2) of the total annual emissions in the last reported year or belonging to the total trend, when ranked from contributing the largest to smallest share in annual total and in the trend. As originally designed it applied only to source categories. Following the 2006 IPCC Guidelines, Croatia undertook a key category analysis using Tier 1 and Tier 2 Level and Trend methods.

1.1.1. Level assessment

Level assessment involves an identification of categories as a key by calculating the proportion of emissions and removals in each category to the total emissions and removals. The calculated values of proportion are added from the category that accounts for the largest proportion, until the sum reaches 95% for Tier 1, 90% for Tier 2. Tier 1 level assessment uses emissions and removals from each category directly and Tier 2 level assessment analyses the emissions and removals of each category, multiplied by the uncertainty (which is calculated in uncertainty analysis chapter) of each category.

1.1.2. Trend Assessment

The purpose of the trend assessment is to identify categories that may not be large enough to be identified by the level assessment, but whose trend is significantly different from the trend of the overall inventory and should therefore receive particular attention.

The difference between the rate of change in emissions and removals in a category and the rate of change in total emissions and removals is calculated. The trend assessment is calculated by multiplying this value by the ratio of contribution of the relevant category to total emissions and removals. The calculated results, regarded as trend assessment values, are added from the category of which the proportion to the total of trend assessment values is the largest, until the total reaches 95% for Tier 1, 90% for Tier 2. At this point, these categories are defined as the key categories. Tier 2 trend assessment is calculated multiplying the Tier 1 trend assessment with uncertainty of each category.

Table A1.1-1: Categories Assessed in Key Category Analysis

Source Categories Assessed in Key Source Category Analysis	Direct GHG
ENERGY	
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O

Source Categories Assessed in Key Source Category Analysis	Direct GHG
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O
1.A.3.a Domestic Aviation	CO ₂
1.A.3.a Domestic Aviation	CH ₄
1.A.3.a Domestic Aviation	N ₂ O
1.A.3.b Road Transportation	CO ₂
1.A.3.b Road Transportation	CH ₄
1.A.3.b Road Transportation	N ₂ O
1.A.3.c Railways	CO ₂
1.A.3.c Railways	CH ₄
1.A.3.c Railways	N ₂ O
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O
1.A.4 Other Sectors - Liquid Fuels	CO ₂
1.A.4 Other Sectors - Liquid Fuels	CH ₄
1.A.4 Other Sectors - Liquid Fuels	N ₂ O
1.A.4 Other Sectors - Solid Fuels	CO ₂
1.A.4 Other Sectors - Solid Fuels	CH ₄
1.A.4 Other Sectors - Solid Fuels	N ₂ O
1.A.4 Other Sectors - Gaseous Fuels	CO ₂
1.A.4 Other Sectors - Gaseous Fuels	CH ₄
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O
1.A.4 Other Sectors - Biomass	CH ₄

Source Categories Assessed in Key Source Category Analysis	Direct GHG
1.A.4 Other Sectors - Biomass	N ₂ O
1.B.1 Fugitive emissions from Solid Fuels	CH ₄
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄
1.B.2.c. Venting and flaring	CO ₂
1.B.2.c. Venting and flaring	CH ₄
1.B.2.c. Venting and flaring	N ₂ O
INDUSTRIAL PROCESSES AND PRODUCT USE	
2.A.1 Cement Production	CO ₂
2.A.2 Lime Production	CO ₂
2.A.3 Glass Production	CO ₂
2.A.4 Other Process Uses of Carbonates	CO ₂
2.B.1 Ammonia Production	CO ₂
2.B.1 Ammonia Production	CH ₄
2.B.1 Ammonia Production	N ₂ O
2.B.2 Nitric Acid Production	N ₂ O
2.B.8 Petrochemical and Carbon Black Production	CO ₂
2.B.8 Petrochemical and Carbon Black Production	CH ₄
2.C.1 Iron and Steel Production	CO ₂
2.C.2 Ferroalloys Production	CO ₂
2.C.2 Ferroalloys Production	CH ₄
2.C.3 Aluminium Production	CO ₂
2.C.3 Aluminium Production	PFCs
2.D Non-energy Products from Fuels and Solvent Use	CO ₂
2.F.1 Refrigeration and Air conditioning	F-gases
2.F.2 Foam blowing agents	F-gases
2.F.3 Fire Protection	F-gases
2.F.4 Aerosols	F-gases
2.G Other Product Manufacture and Use	N ₂ O
2.G Other Product Manufacture and Use	F-gases
AGRICULTURE	
3.A Enteric Fermentation	CH ₄
3.B Manure Management	CH ₄
3.B Manure Management	N ₂ O
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O

Source Categories Assessed in Key Source Category Analysis	Direct GHG
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O
3.G Liming	CO ₂
3.H Urea Application	CO ₂
LAND USE, LAND USE CHANGE AND FORESTRY	
4.A.1 Forest Land Remaining Forest Land	CO ₂
4.A.2 Land Converted to Forest Land	CO ₂
4.B.1 Cropland Remaining Cropland	CO ₂
4.B.2 Land Converted to Cropland	CO ₂
4.C.1 Grassland Remaining Grassland	CO ₂
4.C.2 Land Converted to Grassland	CO ₂
4.D.2 Land Converted to Wetlands	CO ₂
4.E.2 Land Converted to Settlements	CO ₂
4.G Harvested Wood Products	CO ₂
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O
4(V) Biomass Burning	CO ₂
4(V) Biomass Burning	CH ₄
4(V) Biomass Burning	N ₂ O
WASTE	
5.A Solid Waste Disposal	CH ₄
5.B Biological Treatment of Solid Waste	CH ₄
5.B Biological Treatment of Solid Waste	N ₂ O
5.C Incineration and Open Burning of Waste	CO ₂
5.C Incineration and Open Burning of Waste	N ₂ O
5.C Incineration and Open Burning of Waste	N ₂ O
5.C Incineration and Open Burning of Waste	CH ₄
5.D Wastewater Treatment and Discharge	CH ₄
5.D Wastewater Treatment and Discharge	N ₂ O

1.2. Information on the level of disaggregation

The level of disaggregation is in accordance with the suggested source categories split of the 2006 IPCC Guidelines and Uncertainty Management in National Greenhouse Gas Inventories and additionally.

Approach 1 and Approach 2 have been done in defining and calculating key categories.

1.3. Tables 4.2 and 4.3 of volume 1 of the 2006 IPCC Guidelines, including and excluding land use, land-use change and forestry

Table A1.3-1: Key categories analysis – Level Assessment - Tier 1 (Excluding LULUCF) – 1990

Tier 1 Analysis - Level Assessment				
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Level Assessment	Cumulative Total (%)
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	0.146	15%
1.A.3.b Road Transportation	CO ₂	3,505.880	0.111	26%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	0.078	34%
3.A Enteric Fermentation	CH ₄	2,336.027	0.074	41%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	0.063	47%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	0.060	53%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	0.050	58%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	0.049	63%
2.C.3 Aluminium Production	PFCs	1,117.284	0.036	67%
2.A.1 Cement Production	CO ₂	1,086.203	0.035	70%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	0.030	73%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	0.024	76%
2.B.2 Nitric Acid Production	N ₂ O	670.739	0.021	78%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	0.021	80%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	0.019	82%
2.B.1 Ammonia Production	CO ₂	558.672	0.018	83%
5.A Solid Waste Disposal	CH ₄	552.642	0.018	85%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	0.017	87%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	0.014	88%
3.B Manure Management	CH ₄	407.781	0.013	90%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	0.011	91%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	0.010	92%
3.B Manure Management	N ₂ O	268.166	0.009	92%

1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	0.008	93%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.006	94%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	0.006	95%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.006	95%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	0.005	96%
2.A.2 Lime Production	CO ₂	156.820	0.005	96%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	0.005	97%
1.A.3.c Railways	CO ₂	140.079	0.004	97%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	0.004	97%
2.C.3 Aluminium Production	CO ₂	118.797	0.004	98%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	0.002	98%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.002	98%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	0.002	98%
1.A.3.b Road Transportation	N ₂ O	52.208	0.002	99%
3.H Urea Application	CO ₂	50.020	0.002	99%
1.A.3.b Road Transportation	CH ₄	46.028	0.001	99%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	0.001	99%
2.C.1 Iron and Steel Production	CO ₂	43.808	0.001	99%
2.A.3 Glass Production	CO ₂	43.216	0.001	99%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.001	99%
2.G Other Product Manufacture and Use	N ₂ O	32.648	0.001	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	0.001	100%
1.A.3.c Railways	N ₂ O	11.781	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	0.000	100%

1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	100%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	0.000	100%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	0.000	100%
3.G Liming	CO ₂	0.000	0.000	100%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	0.000	100%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	0.000	100%
TOTAL		31,446.32		

Table A1.3-2: Key categories analysis – Level Assessment - Tier 1 (Excluding LULUCF) – 2024

Tier 1 Analysis - Level Assessment					
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Level Assessment	Cumulative Total (%)
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.319	32%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.083	40%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.080	48%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.064	55%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.053	60%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.041	64%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.039	68%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.039	72%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.037	76%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.032	79%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.028	82%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.026	84%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.020	86%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.016	88%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.015	89%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.013	91%
3.B Manure Management	CH ₄	407.781	314.443	0.012	92%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.011	93%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.009	94%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.008	95%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.006	95%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.005	96%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.004	96%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.004	96%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.004	97%
3.B Manure Management	N ₂ O	268.166	89.470	0.004	97%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.003	97%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.003	98%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.002	98%
1.A.3.c Railways	CO ₂	140.079	54.118	0.002	98%

1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.002	98%
3.H Urea Application	CO ₂	50.020	42.943	0.002	99%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.002	99%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.001	99%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.001	99%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.001	99%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.001	99%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.001	99%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.001	99%
3.G Liming	CO ₂	0.000	14.428	0.001	99%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.001	99%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.001	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.000	100%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	100%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.000	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	100%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	1.283	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	100%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	100%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	100%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	100%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	0.000	100%
TOTAL		31,446.32	25,240.59		

Table A1.3-3: Key categories analysis – Level Assessment - Tier 1 (Including LULUCF) – 1990

Tier 1 Analysis - Level Assessment Including LULUCF				
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Level Assessment	Cumulative Total (%)
4.A.1 Forest Land Remaining Forest Land	CO ₂	6,483.136	0.167	17%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	0.118	29%
1.A.3.b Road Transportation	CO ₂	3,505.880	0.090	38%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	0.063	44%
3.A Enteric Fermentation	CH ₄	2,336.027	0.060	50%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	0.051	55%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	0.048	60%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	0.041	64%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	0.040	68%
2.C.3 Aluminium Production	PFCs	1,117.284	0.029	71%
2.A.1 Cement Production	CO ₂	1,086.203	0.028	74%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	0.025	76%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	0.019	78%
2.B.2 Nitric Acid Production	N ₂ O	670.739	0.017	80%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	0.017	81%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	0.015	83%
2.B.1 Ammonia Production	CO ₂	558.672	0.014	84%
5.A Solid Waste Disposal	CH ₄	552.642	0.014	86%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	0.014	87%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	0.011	88%
3.B Manure Management	CH ₄	407.781	0.011	89%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	0.009	90%
4.G Harvested Wood Products	CO ₂	317.852	0.008	91%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	0.008	92%
3.B Manure Management	N ₂ O	268.166	0.007	93%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	0.006	93%
4.E.2 Land Converted to Settlements	CO ₂	242.513	0.006	94%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.005	94%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	0.005	95%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.004	95%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	0.004	96%
2.A.2 Lime Production	CO ₂	156.820	0.004	96%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	0.004	96%
1.A.3.c Railways	CO ₂	140.079	0.004	97%

1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	0.003	97%
2.C.3 Aluminium Production	CO ₂	118.797	0.003	97%
4.B.1 Cropland Remaining Cropland	CO ₂	88.941	0.002	98%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	0.002	98%
4.D.2 Land Converted to Wetlands	CO ₂	76.564	0.002	98%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.002	98%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	0.002	98%
1.A.3.b Road Transportation	N ₂ O	52.208	0.001	99%
3.H Urea Application	CO ₂	50.020	0.001	99%
1.A.3.b Road Transportation	CH ₄	46.028	0.001	99%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	0.001	99%
2.C.1 Iron and Steel Production	CO ₂	43.808	0.001	99%
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	43.570	0.001	99%
2.A.3 Glass Production	CO ₂	43.216	0.001	99%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.001	99%
4.A.2 Land Converted to Forest Land	CO ₂	32.717	0.001	99%
2.G Other Product Manufacture and Use	N ₂ O	32.648	0.001	100%
4.B.2 Land Converted to Cropland	CO ₂	21.470	0.001	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	0.000	100%
4(V) Biomass Burning	CO ₂	16.107	0.000	100%
1.A.3.c Railways	N ₂ O	11.781	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	0.000	100%
4.C.2 Land Converted to Grassland	CO ₂	8.426	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.000	100%
4.C.1 Grassland Remaining Grassland	CO ₂	2.069	0.000	100%

1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	0.000	100%
4(V) Biomass Burning	CH ₄	1.851	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	0.000	100%
4(V) Biomass Burning	N ₂ O	1.011	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	100%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	0.000	100%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	0.000	100%
3.G Liming	CO ₂	0.000	0.000	100%
5.B Biological Treatment of Soild Waste	CH ₄	0.000	0.000	100%
5.B Biological Treatment of Soild Waste	N ₂ O	0.000	0.000	100%
TOTAL		37,794.36		

Table A1.3-4: Key categories analysis – Level Assessment - Tier 1 (Including LULUCF) – 2024

Tier 1 Analysis - Level Assessment Including LULUCF					
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO2)	Last Year (2024) Estimate (Gg eq-CO2)	Level Assessment	Cumulative Total (%)
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.253	25%
4.A.1 Forest Land Remaining Forest Land	CO ₂	6,483.136	4,537.548	0.142	40%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.066	46%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.063	53%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.051	58%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.042	62%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.033	65%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.031	68%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.031	71%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.030	74%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.025	77%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.022	79%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.021	81%
4.E.2 Land Converted to Settlements	CO ₂	242.513	520.104	0.016	83%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.016	84%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.013	86%
4.G Harvested Wood Products	CO ₂	317.852	387.736	0.012	87%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.012	88%
4.A.2 Land Converted to Forest Land	CO ₂	32.717	328.485	0.010	89%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.010	90%
3.B Manure Management	CH ₄	407.781	314.443	0.010	91%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.009	92%
4.C.2 Land Converted to Grassland	CO ₂	8.426	232.810	0.007	93%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.007	93%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.007	94%
4(V) Biomass Burning	CO ₂	16.107	162.593	0.005	94%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.005	95%
4.B.1 Cropland Remaining Cropland	CO ₂	88.941	143.643	0.005	95%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.004	96%
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	43.570	118.620	0.004	96%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.003	96%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.003	97%

1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.003	97%
3.B Manure Management	N ₂ O	268.166	89.470	0.003	97%
4.B.2 Land Converted to Cropland	CO ₂	21.470	88.960	0.003	98%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.002	98%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.002	98%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.002	98%
1.A.3.c Railways	CO ₂	140.079	54.118	0.002	98%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.002	99%
3.H Urea Application	CO ₂	50.020	42.943	0.001	99%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.001	99%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.001	99%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.001	99%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.001	99%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.001	99%
4(V) Biomass Burning	CH ₄	1.851	20.211	0.001	99%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.001	99%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.000	99%
3.G Liming	CO ₂	0.000	14.428	0.000	99%
4.D.2 Land Converted to Wetlands	CO ₂	76.564	13.363	0.000	99%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.000	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.000	100%
4(V) Biomass Burning	N ₂ O	1.011	11.483	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.000	100%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	100%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.000	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	100%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	100%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	100%
4.C.1 Grassland Remaining Grassland	CO ₂	2.069	2.069	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	1.283	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	100%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	100%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	100%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.000	100%

5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	0.000	100%
TOTAL		37,794.36	29,646.13		

Table A1.3-5: Key categories analysis – Trend Assessment - Tier 1 (Excluding LULUCF)

Tier 1 Analysis - Trend Assessment						
IPCC Source/Sink Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Trend Assessment	% Contribution to trend	Cumulative Total (%)
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.258	0.240	24%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.164	0.152	39%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.099	0.092	48%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.050	0.047	53%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.047	0.044	57%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.046	0.042	62%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.045	0.042	66%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.044	0.041	70%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.044	0.041	74%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.033	0.030	77%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.029	0.027	80%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.026	0.024	82%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.025	0.023	85%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.023	0.021	87%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.021	0.019	89%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.016	0.015	90%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.009	0.008	91%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.008	0.007	92%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.007	0.007	92%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.007	0.006	93%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.006	0.006	93%
3.B Manure Management	N ₂ O	268.166	89.470	0.006	0.006	94%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.006	0.006	95%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.006	0.006	95%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.005	0.004	96%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.005	0.004	96%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.005	0.004	96%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.003	0.003	97%
1.A.3.c Railways	CO ₂	140.079	54.118	0.003	0.003	97%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.003	0.002	97%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.002	0.002	97%

1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.002	0.002	98%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.002	0.002	98%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.002	0.002	98%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.002	0.002	98%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.002	0.001	98%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.001	0.001	98%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.001	0.001	99%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.001	0.001	99%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.001	0.001	99%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.001	0.001	99%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.001	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.001	0.001	99%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.001	0.001	99%
3.G Liming	CO ₂	0.000	14.428	0.001	0.001	99%
3.B Manure Management	CH ₄	407.781	314.443	0.001	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.001	0.001	99%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.001	0.001	99%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	0.000	100%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.000	0.000	100%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	0.000	100%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	0.000	100%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.000	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	0.000	100%
3.H Urea Application	CO ₂	50.020	42.943	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	0.000	100%

5.C Incineration and Open Burning of Waste	N ₂ O	4.193	1.283	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.000	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.000	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	0.000	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	0.000	100%
TOTAL		31,446.32	25,240.59			

Table A1.3-6: Key categories analysis – Trend Assessment - Tier 1 (Including LULUCF)

Tier 1 Analysis - Trend Assessment Including LULUCF						
IPCC Source/Sink Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Trend Assessment	% Contribution to trend	Cumulative Total (%)
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.198	0.213	21%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.130	0.140	35%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.077	0.083	44%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.039	0.042	48%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.038	0.041	52%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.037	0.040	56%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.036	0.039	60%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.035	0.038	63%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.034	0.037	67%
4.A.1 Forest Land Remaining Forest Land	CO ₂	6,483.136	4,537.548	0.030	0.032	70%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.027	0.029	73%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.022	0.023	76%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.021	0.022	78%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.019	0.021	80%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.019	0.020	82%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.016	0.018	84%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.013	0.014	85%
4.E.2 Land Converted to Settlements	CO ₂	242.513	520.104	0.012	0.013	86%
4.A.2 Land Converted to Forest Land	CO ₂	32.717	328.485	0.012	0.012	88%
4.C.2 Land Converted to Grassland	CO ₂	8.426	232.810	0.009	0.009	88%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.007	0.007	89%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.006	0.006	90%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.006	0.006	90%
4(V) Biomass Burning	CO ₂	16.107	162.593	0.006	0.006	91%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.005	0.006	92%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.005	0.006	92%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.005	0.006	93%
3.B Manure Management	N ₂ O	268.166	89.470	0.005	0.005	93%
4.G Harvested Wood Products	CO ₂	317.852	387.736	0.005	0.005	94%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.004	0.004	94%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.004	0.004	95%

2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.004	0.004	95%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.004	0.004	95%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.003	0.003	96%
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	43.570	118.620	0.003	0.003	96%
4.B.2 Land Converted to Cropland	CO ₂	21.470	88.960	0.003	0.003	96%
4.B.1 Cropland Remaining Cropland	CO ₂	88.941	143.643	0.003	0.003	97%
1.A.3.c Railways	CO ₂	140.079	54.118	0.002	0.003	97%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.002	0.002	97%
4.D.2 Land Converted to Wetlands	CO ₂	76.564	13.363	0.002	0.002	97%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.002	0.002	98%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.002	0.002	98%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.001	0.001	98%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.001	0.001	98%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.001	0.001	98%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.001	0.001	98%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.001	0.001	98%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.001	0.001	99%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.001	0.001	99%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.001	0.001	99%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.001	0.001	99%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.001	0.001	99%
3.B Manure Management	CH ₄	407.781	314.443	0.001	0.001	99%
4(V) Biomass Burning	CH ₄	1.851	20.211	0.001	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.001	0.001	99%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.001	0.001	99%
3.G Liming	CO ₂	0.000	14.428	0.001	0.001	99%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.001	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.000	0.001	99%
4(V) Biomass Burning	N ₂ O	1.011	11.483	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	0.000	100%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	0.000	100%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	0.000	100%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.000	0.000	100%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.000	0.000	100%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	1.283	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.000	0.000	100%
3.H Urea Application	CO ₂	50.020	42.943	0.000	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	0.000	100%
4.C.1 Grassland Remaining Grassland	CO ₂	2.069	2.069	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	0.000	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	0.000	100%

1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	0.000	100%
TOTAL		37,794.36	29,646.13			

Table A1.3-7: Key categories analysis – Level Assessment - Tier 2 (Excluding LULUCF) – 1990

Tier 2 Analysis - Level Assessment - Excluding LULUCF				
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Level Assessment Tier 2	Cumulative Total (%)
2.C.3 Aluminium Production	PFCs	1,117.284	0.175	17%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	0.125	30%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	0.055	35%
3.B Manure Management	N ₂ O	268.166	0.052	41%
2.A.1 Cement Production	CO ₂	1,086.203	0.043	45%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	0.043	49%
3.A Enteric Fermentation	CH ₄	2,336.027	0.042	53%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	0.041	57%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	0.034	61%
1.A.3.b Road Transportation	CO ₂	3,505.880	0.034	64%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	0.030	67%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	0.024	69%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	0.023	72%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	0.021	74%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	0.018	76%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.018	78%
2.B.2 Nitric Acid Production	N ₂ O	670.739	0.018	79%
5.A Solid Waste Disposal	CH ₄	552.642	0.016	81%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	0.016	82%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	0.015	84%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	0.015	86%
1.A.3.b Road Transportation	N ₂ O	52.208	0.014	87%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	0.014	88%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	0.013	90%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	0.012	91%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	0.012	92%
3.B Manure Management	CH ₄	407.781	0.010	93%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	0.009	94%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	0.007	95%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.006	95%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	0.005	96%
2.G Other Product Manufacture and Use	N ₂ O	32.648	0.004	96%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	0.004	97%
1.A.3.c Railways	N ₂ O	11.781	0.003	97%

1.A.3.b Road Transportation	CH ₄	46.028	0.003	97%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.003	97%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.002	98%
2.B.1 Ammonia Production	CO ₂	558.672	0.002	98%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	0.002	98%
2.C.3 Aluminium Production	CO ₂	118.797	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	0.001	99%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	0.001	99%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	0.001	99%
1.A.3.c Railways	CO ₂	140.079	0.001	99%
3.H Urea Application	CO ₂	50.020	0.001	99%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	0.001	100%
2.A.2 Lime Production	CO ₂	156.820	0.001	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.001	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	0.000	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	0.000	100%
2.A.3 Glass Production	CO ₂	43.216	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.000	100%

1.A.3.a Domestic Aviation	N ₂ O	0.049	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	100%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	0.000	100%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	0.000	100%
3.G Liming	CO ₂	0.000	0.000	100%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	0.000	100%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	0.000	100%
TOTAL		31,446.32		

Table A1.3-8: Key categories analysis – Level Assessment - Tier 2 (Excluding LULUCF) – 2024

Tier 2 Analysis - Level Assessment - Excluding LULUCF					
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Level Assessment Tier 2	Cumulative Total (%)
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.151	15%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.141	29%
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.118	41%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.073	48%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.044	53%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.043	57%
3.B Manure Management	N ₂ O	268.166	89.470	0.034	60%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.033	64%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.029	67%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.029	70%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.028	72%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.028	75%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.024	78%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.023	80%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.019	82%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.017	84%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.015	85%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.015	87%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.014	88%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.011	89%
3.B Manure Management	CH ₄	407.781	314.443	0.010	90%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.009	91%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.008	92%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.007	93%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.007	93%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.007	94%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.006	95%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.005	95%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.005	96%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.004	96%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.004	96%

1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.003	97%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.003	97%
3.G Liming	CO ₂	0.000	14.428	0.002	97%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.002	97%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.002	98%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.002	98%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.002	98%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.002	98%
3.H Urea Application	CO ₂	50.020	42.943	0.002	98%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.002	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.002	99%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.001	99%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.001	99%
1.A.3.c Railways	CO ₂	140.079	54.118	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.001	99%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.001	99%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.001	99%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.001	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	100%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	100%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	100%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	100%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	100%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	100%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	1.283	0.000	100%
TOTAL		31,446.32	25,240.59		

Table A1.3-9: Key categories analysis – Level Assessment - Tier 2 (Including LULUCF) – 1990

Tier 2 Analysis - Level Assessment - Including LULUCF				
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Level Assessment Tier 2	Cumulative Total (%)
4.A.1 Forest Land Remaining Forest Land	CO ₂	6,483.136	0.430	43%
2.C.3 Aluminium Production	PFCs	1,117.284	0.080	51%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	0.057	57%
4.B.1 Cropland Remaining Cropland	CO ₂	88.941	0.049	62%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	0.025	64%
3.B Manure Management	N ₂ O	268.166	0.024	67%
4.E.2 Land Converted to Settlements	CO ₂	242.513	0.020	69%
2.A.1 Cement Production	CO ₂	1,086.203	0.020	71%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	0.020	72%
3.A Enteric Fermentation	CH ₄	2,336.027	0.019	74%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	0.019	76%
4.D.2 Land Converted to Wetlands	CO ₂	76.564	0.017	78%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	0.016	80%
1.A.3.b Road Transportation	CO ₂	3,505.880	0.016	81%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	0.014	82%
4.G Harvested Wood Products	CO ₂	317.852	0.014	84%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	0.011	85%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	0.011	86%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	0.010	87%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	0.008	88%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.008	89%
2.B.2 Nitric Acid Production	N ₂ O	670.739	0.008	89%
5.A Solid Waste Disposal	CH ₄	552.642	0.007	90%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	0.007	91%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	0.007	92%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	0.007	92%
1.A.3.b Road Transportation	N ₂ O	52.208	0.007	93%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	0.006	94%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	0.006	94%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	0.006	95%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	0.006	95%
3.B Manure Management	CH ₄	407.781	0.005	96%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	0.004	96%

4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	43.570	0.004	96%
4.B.2 Land Converted to Cropland	CO ₂	21.470	0.003	97%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	0.003	97%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.003	97%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	0.002	98%
2.G Other Product Manufacture and Use	N ₂ O	32.648	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	0.002	98%
4.A.2 Land Converted to Forest Land	CO ₂	32.717	0.002	98%
1.A.3.c Railways	N ₂ O	11.781	0.001	98%
1.A.3.b Road Transportation	CH ₄	46.028	0.001	99%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.001	99%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.001	99%
4.C.2 Land Converted to Grassland	CO ₂	8.426	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.001	99%
2.B.1 Ammonia Production	CO ₂	558.672	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	0.001	99%
2.C.3 Aluminium Production	CO ₂	118.797	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	0.001	99%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	0.001	99%
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	0.001	99%
1.A.3.c Railways	CO ₂	140.079	0.001	99%
3.H Urea Application	CO ₂	50.020	0.001	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	0.001	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	0.001	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	0.000	100%
4(V) Biomass Burning	CO ₂	16.107	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	0.000	100%
2.A.2 Lime Production	CO ₂	156.820	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.000	100%
4.C.1 Grassland Remaining Grassland	CO ₂	2.069	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	0.000	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	0.000	100%
4(V) Biomass Burning	CH ₄	1.851	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	0.000	100%
2.A.3 Glass Production	CO ₂	43.216	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	100%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.000	100%
4(V) Biomass Burning	N ₂ O	1.011	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.000	100%
5.C Incineration and Open Burning of Waste	N ₂ O	0.007	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	100%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	0.000	100%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	0.000	100%
3.G Liming	CO ₂	0.000	0.000	100%
5.B Biological Treatment of Soild Waste	CH ₄	0.000	0.000	100%
3.G Liming	CO ₂	0.000	0.000	100%
5.B Biological Treatment of Soild Waste	CH ₄	0.000	0.000	100%
TOTAL		37,794.36		

Table A1.3-10: Key categories analysis – Level Assessment - Tier 2 (Including LULUCF) – 2024

Tier 2 Analysis - Level Assessment - Including LULUCF					
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Level Assessment Tier 2	Cumulative Total (%)
4.A.1 Forest Land Remaining Forest Land	CO ₂	6,483.136	4,537.548	0.417	42%
4.E.2 Land Converted to Settlements	CO ₂	242.513	520.104	0.084	50%
4.B.1 Cropland Remaining Cropland	CO ₂	88.941	143.643	0.049	55%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.048	60%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.045	64%
4.C.2 Land Converted to Grassland	CO ₂	8.426	232.810	0.041	68%
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.038	72%
4.A.2 Land Converted to Forest Land	CO ₂	32.717	328.485	0.028	75%
4.B.2 Land Converted to Cropland	CO ₂	21.470	88.960	0.027	78%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.023	80%
4.G Harvested Wood Products	CO ₂	317.852	387.736	0.021	82%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.014	83%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.014	85%
3.B Manure Management	N ₂ O	268.166	89.470	0.011	86%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.011	87%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.009	88%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.009	89%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.009	90%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.009	90%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.008	91%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.007	92%
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	43.570	118.620	0.007	93%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.006	93%
4(V) Biomass Burning	CO ₂	16.107	162.593	0.006	94%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.006	94%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.005	95%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.005	95%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.004	96%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.004	96%
3.B Manure Management	CH ₄	407.781	314.443	0.003	96%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.003	97%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.003	97%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.002	97%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.002	98%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.002	98%
4.D.2 Land Converted to Wetlands	CO ₂	76.564	13.363	0.002	98%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.002	98%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.001	99%
4(V) Biomass Burning	CH ₄	1.851	20.211	0.001	99%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.001	99%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.001	99%
3.G Liming	CO ₂	0.000	14.428	0.001	99%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.001	99%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.001	99%
4(V) Biomass Burning	N ₂ O	1.011	11.483	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.001	99%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.001	99%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.001	99%
3.H Urea Application	CO ₂	50.020	42.943	0.001	99%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.001	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	100%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	100%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.000	100%
4.C.1 Grassland Remaining Grassland	CO ₂	2.069	2.069	0.000	100%
1.A.3.c Railways	CO ₂	140.079	54.118	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	100%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.000	100%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	100%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	100%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	100%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	100%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	100%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	100%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	100%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	100%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	100%

2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	100%
TOTAL		37,794.36	29,646.13		

Table A1.3-11: Key categories analysis – Trend Assessment - Tier 2 (Excluding LULUCF)

Tier 2 Analysis - Trend Assessment Excluding LULUCF						
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Trend Assessment Tier 2	% Contribution to Trend	Cumulative Total (%)
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.099	0.229	23%
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.258	0.114	34%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.045	0.075	42%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.164	0.072	49%
3.B Manure Management	N ₂ O	268.166	89.470	0.006	0.072	56%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.007	0.041	60%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.006	0.039	64%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.044	0.027	67%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.050	0.023	69%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.047	0.021	71%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.046	0.021	73%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.003	0.020	75%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.005	0.019	77%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.001	0.017	79%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.002	0.016	81%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.033	0.015	82%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.006	0.014	83%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.005	0.012	85%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.002	0.011	86%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.025	0.011	87%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.001	0.010	88%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.023	0.010	89%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.029	0.010	90%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.002	0.009	91%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.021	0.009	92%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.002	0.007	92%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.002	0.006	93%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.026	0.005	93%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.001	0.005	94%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.001	0.004	94%

1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	0.004	95%
3.G Liming	CO ₂	0.000	14.428	0.001	0.004	95%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.000	0.003	95%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	0.003	96%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.000	0.003	96%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.009	0.003	96%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.016	0.003	97%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.000	0.003	97%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.000	0.003	97%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.001	0.002	97%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	0.002	98%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.000	0.002	98%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.000	0.002	98%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.001	0.002	99%
1.A.3.c Railways	CO ₂	140.079	54.118	0.003	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.000	0.001	99%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	0.001	99%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.006	0.001	99%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.002	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	0.001	99%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	0.001	99%
3.B Manure Management	CH ₄	407.781	314.443	0.001	0.001	99%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.001	0.001	99%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	0.001	99%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.001	0.001	99%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.000	0.001	100%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	0.000	100%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.001	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	0.000	100%

1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	0.000	100%
3.H Urea Application	CO ₂	50.020	42.943	0.000	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	0.000	100%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.001	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	0.000	100%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.003	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.008	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	0.000	100%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.007	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	0.000	100%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.005	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.044	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.044	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	0.000	100%
		31,446.32	25,240.59			

Table A1.3-12: Key categories analysis – Trend Assessment - Tier 2 (Including LULUCF)

Tier 2 Analysis - Trend Assessment Including LULUCF						
IPCC Source Categories	Direct GHG	Base Year (1990) Estimate (Gg eq-CO ₂)	Last Year (2024) Estimate (Gg eq-CO ₂)	Trend Assessment Tier 2	% Contribution to Trend	Cumulative Total (%)
4.A.1 Forest Land Remaining Forest Land	CO ₂	6,483.136	4,537.548	0.030	0.153	15%
4.E.2 Land Converted to Settlements	CO ₂	242.513	520.104	0.012	0.109	26%
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases	0.000	2,018.328	0.077	0.102	36%
4.C.2 Land Converted to Grassland	CO ₂	8.426	232.810	0.009	0.084	45%
4.A.2 Land Converted to Forest Land	CO ₂	32.717	328.485	0.012	0.053	50%
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	0.198	0.051	55%
4.B.1 Cropland Remaining Cropland	CO ₂	88.941	143.643	0.003	0.050	60%
4.B.2 Land Converted to Cropland	CO ₂	21.470	88.960	0.003	0.045	65%
3.B Manure Management	N ₂ O	268.166	89.470	0.005	0.033	68%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	0.130	0.033	71%
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063	0.034	0.033	75%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500	0.006	0.019	77%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	424.729	211.930	0.005	0.019	78%
4.G Harvested Wood Products	CO ₂	317.852	387.736	0.005	0.014	80%
3.A Enteric Fermentation	CH ₄	2,336.027	979.017	0.036	0.012	81%
4.D.2 Land Converted to Wetlands	CO ₂	76.564	13.363	0.002	0.012	82%
4(V) Biomass Burning	CO ₂	16.107	162.593	0.006	0.012	83%
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	952.308	698.579	0.003	0.011	85%
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	0.039	0.010	86%
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	43.570	118.620	0.003	0.010	87%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	0.038	0.010	88%
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	0.037	0.009	88%
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	192.246	61.867	0.004	0.009	89%
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	155.067	91.091	0.001	0.008	90%
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	0.001	0.007	91%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	0.027	0.007	92%
5.D Wastewater Treatment and Discharge	CH ₄	655.100	402.881	0.005	0.007	92%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884	0.004	0.006	93%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	0.000	501.859	0.019	0.005	93%
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	309.662	217.897	0.001	0.005	94%
5.D Wastewater Treatment and Discharge	N ₂ O	59.478	96.110	0.002	0.005	94%

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	0.019	0.005	95%
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	0.000	16.115	0.001	0.005	95%
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	0.016	0.004	96%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	0.022	0.004	96%
5.B Biological Treatment of Solid Waste	CH ₄	0.000	32.951	0.001	0.003	96%
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	0.001	0.002	97%
4(V) Biomass Burning	CH ₄	1.851	20.211	0.001	0.002	97%
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	0.001	0.002	97%
2.B.2 Nitric Acid Production	N ₂ O	670.739	13.342	0.021	0.002	97%
1.A.3.b Road Transportation	CH ₄	46.028	9.797	0.001	0.002	97%
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	0.000	0.002	98%
3.G Liming	CO ₂	0.000	14.428	0.001	0.002	98%
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875	0.000	0.002	98%
5.B Biological Treatment of Solid Waste	N ₂ O	0.000	9.073	0.000	0.001	98%
4(V) Biomass Burning	N ₂ O	1.011	11.483	0.000	0.001	98%
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	0.000	0.001	98%
2.B.1 Ammonia Production	CO ₂	558.672	128.271	0.013	0.001	98%
2.G Other Product Manufacture and Use	N ₂ O	32.648	17.502	0.000	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	0.007	0.001	99%
1.A.3.c Railways	N ₂ O	11.781	5.535	0.000	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	0.000	0.001	99%
2.F.2 Foam blowing agents	Aggregate F-gases	0.000	14.580	0.001	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O	0.000	3.720	0.000	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	0.000	0.001	99%
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄	0.000	12.792	0.000	0.001	99%
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	0.000	0.001	99%
1.A.3.c Railways	CO ₂	140.079	54.118	0.002	0.001	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	0.000	0.001	99%
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	0.000	0.000	99%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	0.002	0.000	100%
3.B Manure Management	CH ₄	407.781	314.443	0.001	0.000	100%
2.A.1 Cement Production	CO ₂	1,086.203	994.573	0.004	0.000	100%
2.F.3 Fire Protection	Aggregate F-gases	0.000	5.504	0.000	0.000	100%
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	0.001	0.000	100%
1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	0.000	0.000	100%
2.C.1 Iron and Steel Production	CO ₂	43.808	11.678	0.001	0.000	100%

1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄	0.000	2.948	0.000	0.000	100%
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	0.000	0.000	100%
2.A.2 Lime Production	CO ₂	156.820	96.085	0.001	0.000	100%
2.F.4 Aerosols	Aggregate F-gases	0.000	9.253	0.000	0.000	100%
4.C.1 Grassland Remaining Grassland	CO ₂	2.069	2.069	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	0.000	0.000	100%
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	0.000	0.000	100%
1.B.2.c. Venting and flaring	CH ₄	0.660	0.021	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	0.000	0.000	100%
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	0.000	0.000	100%
2.A.3 Glass Production	CO ₂	43.216	22.054	0.001	0.000	100%
3.H Urea Application	CO ₂	50.020	42.943	0.000	0.000	100%
1.B.2.c. Venting and flaring	N ₂ O	0.560	0.108	0.000	0.000	100%
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	0.000	0.000	100%
2.A.4 Other Process Uses of Carbonates	CO ₂	11.322	12.878	0.000	0.000	100%
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	0.000	0.000	100%
1.A.3.c Railways	CH ₄	0.195	0.068	0.000	0.000	100%
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N ₂ O	0.056	0.011	0.000	0.000	100%
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	0.000	0.000	100%
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	0.000	0.000	100%
1.B.2.c. Venting and flaring	CO ₂	0.002	0.000	0.000	0.000	100%
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802	0.000	0.002	0.000	100%
2.B.1 Ammonia Production	CH ₄	0.000	0.000	0.000	0.000	100%
2.B.1 Ammonia Production	N ₂ O	0.000	0.000	0.000	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CO ₂	192.426	0.000	0.006	0.000	100%
2.B.8 Petrochemical and Carbon Black Production	CH ₄	6.101	0.000	0.000	0.000	100%
2.C.2 Ferroalloys Production	CO ₂	173.798	0.000	0.005	0.000	100%
2.C.2 Ferroalloys Production	CH ₄	4.366	0.000	0.000	0.000	100%
2.C.3 Aluminium Production	CO ₂	118.797	0.000	0.004	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.035	0.000	100%

5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	0.000	100%
2.C.3 Aluminium Production	PFCs	1,117.284	0.000	0.035	0.000	100%
5.C Incineration and Open Burning of Waste	CO ₂	0.536	0.000	0.000	0.000	100%
TOTAL		37,794.36	29,646.13			

Table A1.3-13: Source Analysis Summary (Croatian Inventory NID 2026, 1990)

Tier 1 and Tier 2 Analysis - Key Source Analysis Summary (Croatian Inventory, year 1990)					
A	B	C	D		E
IPCC Source Categories	GHG	Key	If Column C is Yes, Criteria for Identification		Com.
1. Energy					
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	Yes	L1e L2e	L1i	
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	Yes	L1e L2e	L1i L2i	
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	Yes	L1e	L1i	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	Yes	L1e L2e	L1i	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	Yes	L1e L2e	L1i L2i	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	Yes	L1e L2e	L1i	
1.A.3.b Road Transportation	CO ₂	Yes	L1e L2e	L1i L2i	
1.A.3.b Road Transportation	N ₂ O	Yes	L2e		
1.A.4 Other Sectors - Biomass	CH ₄	Yes	L1e L2e	L1i L2i	
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	Yes	L1e	L1i	
1.A.4 Other Sectors - Liquid Fuels	CO ₂	Yes	L1e L2e	L1i L2i	
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	Yes	L2e	L2i	
1.A.4 Other Sectors - Solid Fuels	CO ₂	Yes	L1e	L1i	
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	Yes	L2e	L2i	
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	Yes	L1e L2e	L1i L2i	
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	Yes	L2e		
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	Yes	L1e L2e	L1i L2i	
2. Industrial processes and product use					
2.A.1 Cement Production	CO ₂	Yes	L1e L2e	L1i L2i	
2.B.1 Ammonia Production	CO ₂	Yes	L1e	L1i	
2.B.2 Nitric Acid Production	N ₂ O	Yes	L1e L2e	L1i L2i	
2.B.8 Petrochemical and Carbon Black Production	CO ₂	Yes	L1e	L1i	
2.C.2 Ferroalloys Production	CO ₂	Yes	L1e	L1i	
2.C.3 Aluminium Production	PFCs	Yes	L1e L2e	L1i L2i	
2.D Non-energy Products from Fuels and Solvent Use	CO ₂	Yes	L1e	L1i	
3. Agriculture					
3.A Enteric Fermentation	CH ₄	Yes	L1e L2e	L1i L2i	
3.B Manure Management	CH ₄	Yes	L1e	L1i	
3.B Manure Management	N ₂ O	Yes	L1e L2e	L1i L2i	
3.D.1 Direct N2O Emissions From Managed Soils	N ₂ O	Yes	L1e L2e	L1i L2i	
3.D.2 Indirect N2O Emissions From Managed Soils	N ₂ O	Yes	L1e L2e	L1i L2i	
4. Land use, land use change and forestry					
4.A.1 Forest Land Remaining Forest Land	CO ₂	Yes		L1i L2i	
4.B.1 Cropland Remaining Cropland	CO ₂	Yes		L2i	

4.D.2 Land Converted to Wetlands	CO ₂	Yes		L2i	
4.E.2 Land Converted to Settlements	CO ₂	Yes		L1i L2i	
4.G Harvested Wood Products	CO ₂	Yes		L1i L2i	
5. Waste					
5.A Solid Waste Disposal	CH ₄	Yes	L1e L2e	L1i L2i	
5.D Wastewater Treatment and Discharge	CH ₄	Yes	L1e L2e	L1i L2i	
5.D Wastewater Treatment and Discharge	N ₂ O	Yes	L2e		

L1e - Level excluding LULUCF Tier 1 L2e - Level excluding LULUCF Tier 2

L1i - Level including LULUCF Tier 1 L2i - Level including LULUCF Tier 2

Table A1.3-14: Source Analysis Summary (Croatian Inventory NID 2026, year t=2024)

Tier 1 and Tier 2 Analysis - Source Analysis Summary (Croatian Inventory, year = 2024)							
A	B	C	D				E
IPCC Source Categories	GHG	Key	If Column C is Yes, Criteria for Identification				Com .
1. Energy							
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O	Yes				T2e	
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	Yes	L1e L2e	T1i	L1i	T1e T2e	
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	Yes	L1e	T1i T2i	L1i	T1e T2e	
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	Yes	L1e	T1i	L1i	T1e	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	Yes	L1e L2e	T1i	L1i	T1e T2e	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	Yes	L1e L2e	T1i	L1i	T1e T2e	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂	Yes	L1e	T1i	L1i	T1e T2e	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	Yes	L1e	T1i T2i	L1i	T1e T2e	
1.A.3.b Road Transportation	CO ₂	Yes	L1e L2e	T1i T2i	L1i L2i	T1e T2e	
1.A.3.b Road Transportation	N ₂ O	Yes	L2e		L2i	T2e	
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	Yes	L1e		L1i		
1.A.4 Other Sectors - Biomass	CH ₄	Yes	L1e L2e		L1i L2i		
1.A.4 Other Sectors - Biomass	N ₂ O	Yes	L2e				
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	Yes	L1e L2e	T1i T2i	L1i	T1e T2e	
1.A.4 Other Sectors - Liquid Fuels	CO ₂	Yes	L1e L2e	T1i T2i	L1i	T1e T2e	
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	Yes	L2e				
1.A.4 Other Sectors - Solid Fuels	CO ₂	Yes		T1i		T1e	
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	Yes		T1i		T2e	
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	Yes		T1i T2i		T1e T2e	
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH ₄	Yes	L2e	T2i	L2i	T2e	
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO ₂	Yes	L1e L2e	T1i T2i	L1i L2i	T1e T2e	
2. Industrial processes and product use							
2.A.1 Cement Production	CO ₂	Yes	L1e	T1i	L1i	T1e	
2.B.1 Ammonia Production	CO ₂	Yes		T1i		T1e	
2.B.2 Nitric Acid Production	N ₂ O	Yes		T1i		T1e	
2.B.8 Petrochemical and Carbon Black Production	CO ₂	Yes		T1i		T1e	
2.C.2 Ferroalloys Production	CO ₂	Yes		T1i		T1e	
2.C.3 Aluminium Production	CO ₂	Yes		T1i			
2.C.3 Aluminium Production	PFCs	Yes		T1i		T1e	
2.D Non-energy Products from Fuels and Solvent Use	Aggregate F-gases	Yes		T1i T2i		T2e	

2.F.1 Refrigeration and Air conditioning - Aggregate F	ases	Yes	L1e L2e	T1i T2i	L1i L2i	T1e T2e	
3. Agriculture							
3.A Enteric Fermentation	CH ₄	Yes	L1e L2e	T1i T2i	L1i	T1e T2e	
3.B Manure Management	CH ₄	Yes	L1e L2e		L1i		
3.B Manure Management	N ₂ O	Yes	L2e	T1i T2i	L2i	T1e T2e	
3.D.1 Direct N ₂ O Emissions From Managed Soils	N ₂ O	Yes	L1e L2e	T2i	L1i L2i	T2e	
3.D.2 Indirect N ₂ O Emissions From Managed Soils	N ₂ O	Yes	L1e L2e		L1i L2i		
4. Land use, land use change and forestry							
4(III).Direct N ₂ O emissions from N mineralization/immobilization	N ₂ O	Yes		T2i			
4(V) Biomass Burning	CO ₂	Yes		T1i T2i	L1i		
4.A.1 Forest Land Remaining Forest Land	CO ₂	Yes		T1i T2i	L1i L2i		
4.A.2 Land Converted to Forest Land	CO ₂	Yes		T1i T2i	L1i L2i		
4.B.1 Cropland Remaining Cropland	CO ₂	Yes		T2i	L1i L2i		
4.B.2 Land Converted to Cropland	CO ₂	Yes		T2i	L2i		
4.C.2 Land Converted to Grassland	CO ₂	Yes		T1i T2i	L1i L2i		
4.D.2 Land Converted to Wetlands	CO ₂	Yes		T2i			
4.E.2 Land Converted to Settlements	CO ₂	Yes		T1i T2i	L1i L2i		
4.G Harvested Wood Products	CO ₂	Yes		T1i T2i	L1i L2i		
5. Waste							
5.A Solid Waste Disposal	CH ₄	Yes	L1e L2e	T1i T2i	L1i L2i	T1e T2e	
5.D Wastewater Treatment and Discharge	CH ₄	Yes	L1e L2e	T1i	L1i L2i	T1e T2e	
5.D Wastewater Treatment and Discharge	N ₂ O	Yes	L2e			T2e	

L1e - Level excluding LULUCF – Tier 1
 L2e - Level excluding LULUCF – Tier 2
 L1i - Level including LULUCF – Tier 1
 L2i - Level including LULUCF – Tier 2
 T1e - Trend excluding LULUCF – Tier 1
 T2e - Trend excluding LULUCF – Tier 2
 T1i - Trend including LULUCF – Tier 1
 T2i - Trend including LULUCF – Tier 2

Annex 2: Assessment of uncertainty

Annex 2: Assessment of uncertainty

2.1. Description of methodology used for identifying uncertainties

Uncertainty estimates are calculated using Approach 2 (Monte Carlo simulation). Approach 2 follows definition from the IPCC's General Guidance and Reporting: 2006 IPCC Guidelines for National Greenhouse gas Inventories (2006 Guidelines).

The Monte Carlo method was reviewed and revised in this submission, taking into account guidance from the 2006 Good Practice Guidance (IPCC, 2006). It will be discussed later in the chapter.

Uncertainty analysis using Approach 2 was calculated for every source. For LULUCF categories and subcategories the analysis was performed in the way of uncertainty determination of all input data and variables; which implies the determination of appropriate distribution for every input parameter needed for calculation of emission factors (EF) and for activity data (AD, areas). For categories of other sectors PDFs were defined for ADs and EFs, respectively. Monte Carlo simulation was applied afterwards. Results can be found in Table 3.3 according to IPCC 2006 Guidelines.

Uncertainty estimates were calculated in Excel spreadsheet application. Data have been divided into five sectors according to modus how the inventory work is organized (Energy, Industrial Processes and Other Product Use, Agriculture, Land Use, Land-Use Change and Forestry and Waste).

Every sector has been divided into sources. Each source was evaluated regarding uncertainties (%) on activity data (AD), emission factors (EF) or direct emissions (EM).

2.2. Estimation of Uncertainty by Monte Carlo Simulation (Approach 2)

2.2.1. Overview of the method

The Monte Carlo analysis is suitable for detailed category-by-category assessment of uncertainty, particularly where uncertainties are large, distribution is non-normal, distribution functions are complex and/or there are correlations between some of the activity sets, emissions factors, or both.

The principle of Monte Carlo analysis is to select random values of emission factor, activity data and other estimation parameters from within their individual probability density functions, and to calculate the corresponding emission values.

This procedure is repeated many times, using a computer, and the results of each calculation run build up the overall emission probability density function.

Monte Carlo analysis can be performed at the category level, for aggregations of categories or for the inventory as a whole.

Detailed procedure:

- A probability distribution function (PDF) was allocated to each emission factor and activity data. The PDFs were mostly normal, log-normal or triangle. The parameters of the PDFs were set by analysing the available data on emission factors and activity data or by expert judgement.
- If there was a lack of data for some emission source, associated uncertainties were extracted from the IPCC guidelines which imply that default uncertainty parameters were set.
- Using the software tool @RISK 5.7, each PDF was sampled 10,000 times and the emission calculations performed to produce a converged output distribution.
- The uncertainty in the trend between 1990 and the latest reported year, according to gas, was also estimated.

2.2.2. Uncertainty distributions and correlations for activity data and emission factors

Distributions:

- All of the input parameters in inventory are modelled using normal (95%), log-normal and triangle (some inputs in LULUCF) distributions.

Correlations:

- The Monte Carlo model contains a number of correlations. Omitting these correlations would lead to the uncertainties being underestimated. The trend uncertainty in the Monte Carlo model is particularly sensitive to some correlations.

Activity data and emission factor uncertainty:

- If activity data or emission factor for uncertainty are default value from IPCC guidance was used, average value from range of given uncertainty was set.

2.2.3. Uncertainty excluding LULUCF sector

2.2.3.1. Uncertainty in the emissions excluding LULUCF

The estimations of CO₂-eq emissions were 25,275.42 kt CO₂-eq for the year 2024. and 31,446.33 kt CO₂-eq for the year 1990. without removals from LULUCF.

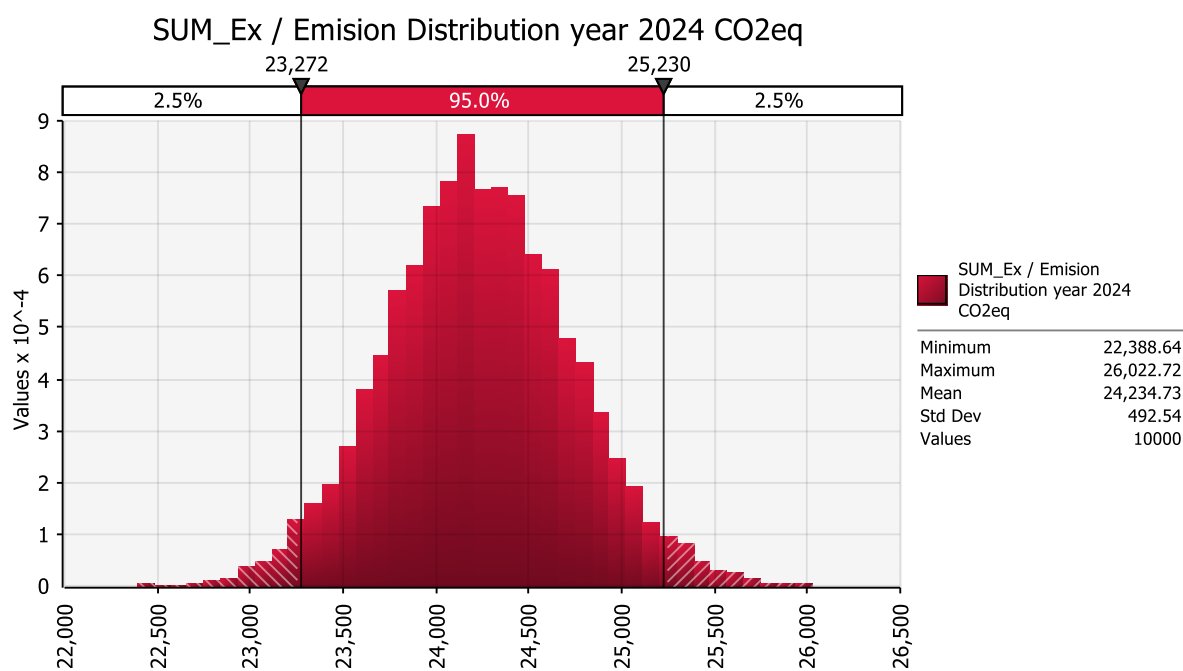


Figure A2.2-1: Distribution of the total CO₂ emissions for year 2024. excluding LULUCF

Monte Carlo analysis shows that with a certainty of 95% total emissions of all categories for the year 2024 (24,234.73 kt CO₂eq) according to simulation varies between 23,272 kt CO₂-eq (2.5 percentile) and 25,230 kt CO₂eq (97.5 percentile). Figure A2.2-1 shows the distribution of total CO₂ emission for year 2024.

Monte Carlo analysis shows that with a certainty of 95% total simulated emissions of all categories excluding LULUCF for the year 1990 (30,494.52 kt CO₂-eq) varies between 29,109 kt CO₂eq (2.5 percentile) and 32,016 kt CO₂eq (97.5 percentile).

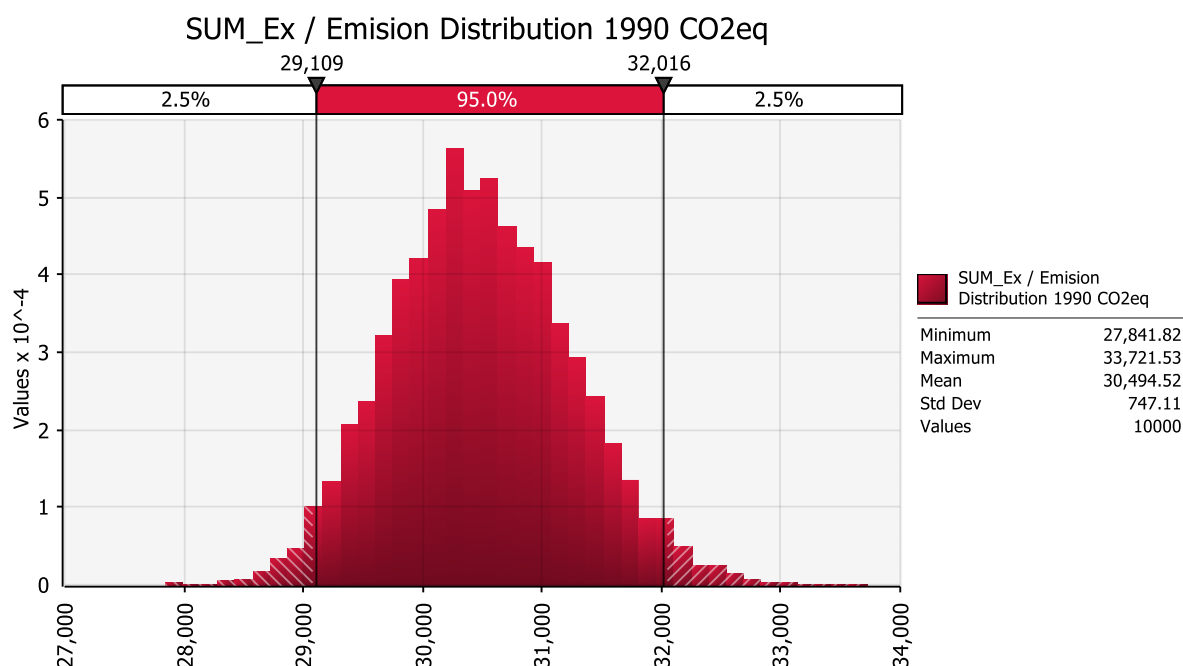


Figure A2.2-2: Distribution of total CO₂ emission for year 1990 excluding LULUCF

Figure A2.2-2 shows the distribution of total CO₂ emission for year 1990 with a corresponding probability density function (red line) that best matches the simulation results.

2.2.3.2. Uncertainty in the trend excluding LULUCF

The trend in the inventory is estimated for each category and for the total summary emission (all categories included) with the following formula:

$$\text{Mean Trend (\%)} = \left(\frac{\text{Year } t \text{ emissions} - \text{Base year emissions}}{\text{Base year emissions}} \right) \cdot 100$$

The Inventory trend excluding LULUCF is -19.62%, simulated trend is -20.48% and the 95% probability range of the trend is -25.38% (2.5 percentile) to -15.55% (97.5 percentile).

Figure A2.2-3: Distribution of trend for year 2024 with the respect to year 1990

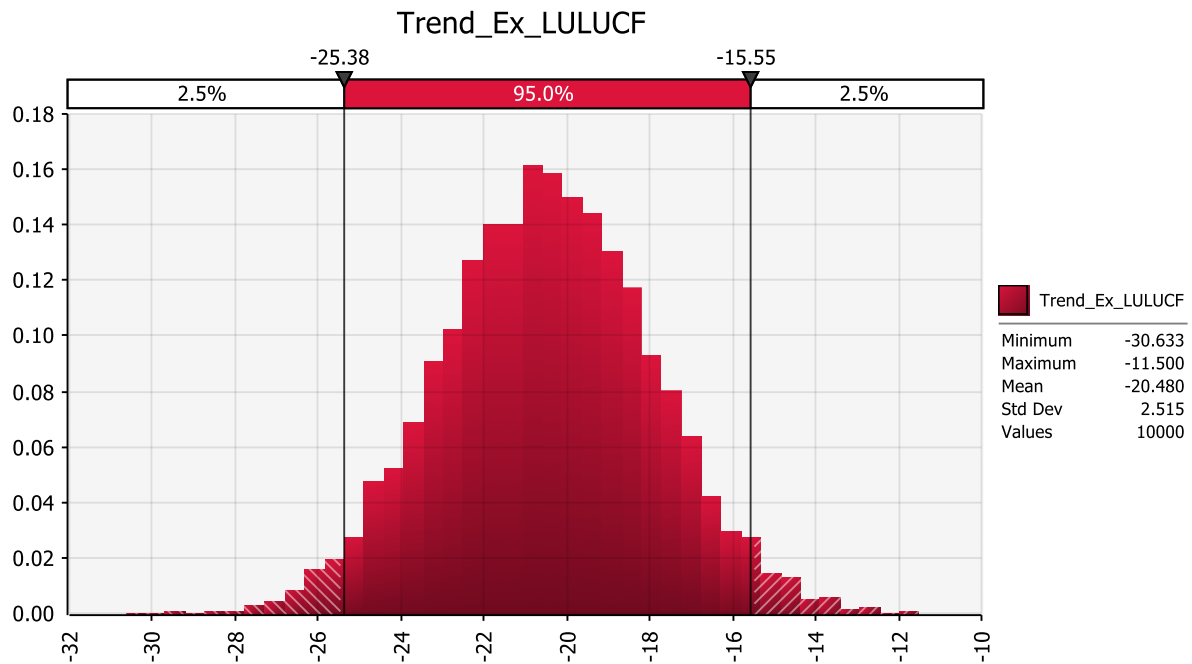


Figure A2.2-3: shows the distribution of trend for year 2024. respect to year 1990.

2.2.4. Uncertainty including LULUCF sector

2.2.4.1. Uncertainty in the emissions including LULUCF

The estimations of CO₂-eq emissions were 20,869.89 kt CO₂-eq for the year 2024 and 25,098.29 kt CO₂-eq for the year 1990.

Monte Carlo analysis shows that with a certainty of 95% total emissions of categories for the year 2024 (21,704.85 kt CO₂eq) according to simulation varies between 16,469 kt CO₂eq (2.5 percentile) and 27,540 kt CO₂eq (97.5 percentile).

Figure A2.2-4 shows the distribution of total CO₂ emission including LULUCF for year 2024. with a corresponding probability density function (red line) that best matches the simulation results.

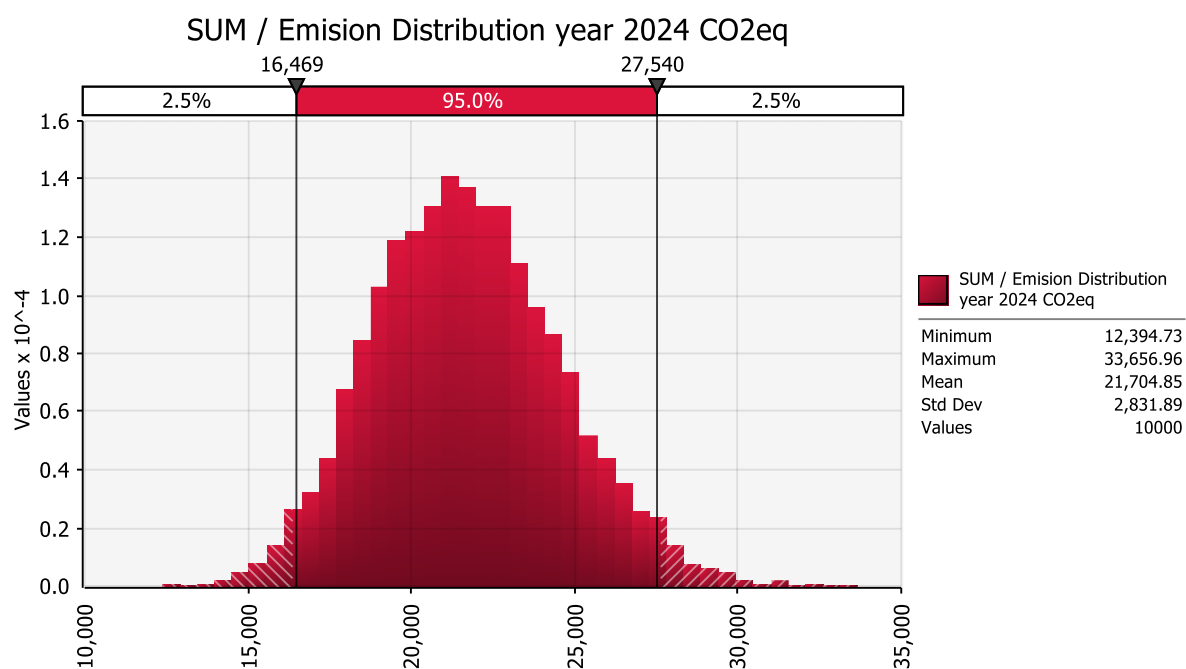


Figure A2.2-4: Distribution of total CO₂ emission for year 2024 including LULUCF

Monte Carlo analysis shows that with a certainty of 95% total simulated emissions of all categories including LULUCF for the year 1990 (26,749.03 kt CO₂eq) varies between 22,075 kt CO₂-eq (2.5 percentile) and 31,884 kt CO₂eq (97.5 percentile).

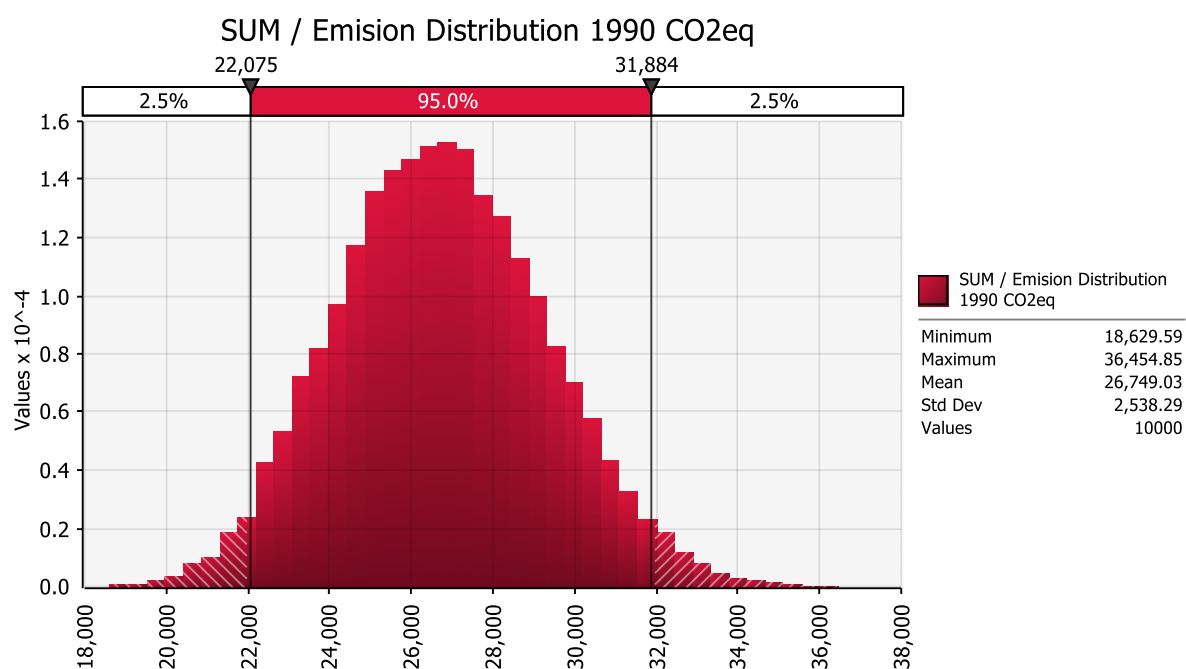


Figure A2.2-5: Distribution of total CO₂ emission for year 1990 including LULUCF

2.2.4.2. Uncertainty in the trend including LULUCF

The trend in the inventory is estimated for each category and for the total summary emission (all categories included) with the following formula:

$$Mean Trend (\%) = \left(\frac{Year t emissions - Base year emissions}{Base year emissions} \right) \bullet 100 .$$

The Inventory trend including LULUCF is -16.85%, simulated trend is -17.79% and the 95% probability range of the trend is -41.3% (2.5 percentile) to 10.7% (97.5 percentile).

Figure A2.2-6: shows the distribution of trend for year 2024 respect to year 1990 with a corresponding probability density function (red line) that best matches the simulation results, including LULUCF.

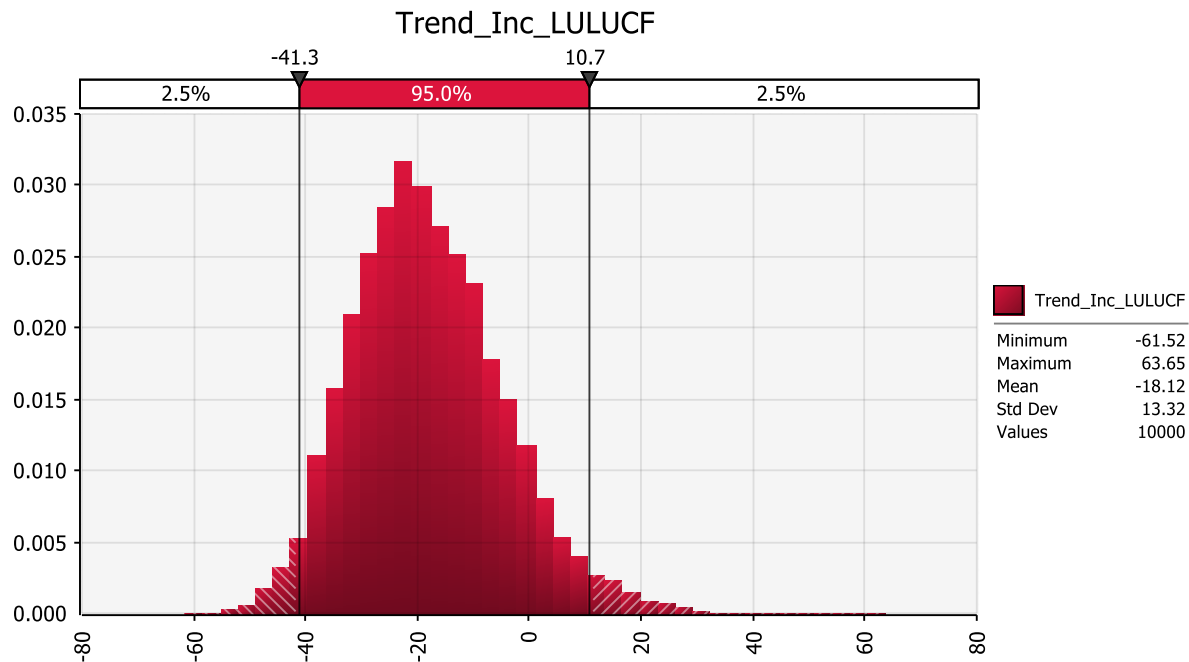


Figure A2.2-6: Distribution of trend for year 2024 with the respect to year 1990 including LULUCF

2.3. Table 3.3 of Volume 1 of the 2006 IPCC Guidelines

Table A2:3-1: Uncertainty estimates from the Monte Carlo simulation for the year t=2024 (IPCC 2006 Table 3.3)

TABLE 3.3 GENERAL REPORTING TABLE FOR UNCERTAINTY														
A	B	C	D	E		F		G		H	I	J		K
IPCC category	Gas	Base year emissions/removals	Year t emissions/removals	Activity data uncertainty		Emission factor/estimation parameter uncertainty (combined if more than one estimation parameter is used)		Combined uncertainty		Contribution to variance in Year t	Inventory trend in national emissions for year t increase with respect to base year	Uncertainty introduced into the trend in total national emissions with respect to base year		Approach and Comments
		Gg CO ₂ equivalent	Gg CO ₂ equivalent	(-) %	(+) %	(-) %	(+) %	(-) %	(+) %	(fraction)	(% of base year)	(-) %	(+) %	
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO ₂	4,590.624	366.988	-5	5	-5	5	-7.01	7.12	0.000022	-92.01	-0.75	0.84	
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH ₄	4.139	0.188	-5	5	-50	50	-50.02	50.69	0.000000	-95.46	-2.49	5.55	
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N ₂ O	7.839	0.453	-5	5	200	200	-91.72	207.45	0.000000	-94.22	-5.43	80.93	
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO ₂	595.119	663.612	-5	5	-1.5	1.5	-5.22	5.29	0.000039	11.51	-7.90	8.46	

1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH ₄	0.179	0.197	-5	5	-50	50	-49.99	50.42	0.000000	10.33	-60.79	134.01	
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N ₂ O	2.535	2.797	-5	5	-	200	-91.79	208.18	0.000001	10.33	-103.35	1725.01	
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO ₂	1,880.045	2,107.448	-5	5	-	5	1.65	-5.20	5.31	0.000401	12.10	-8.23	8.82
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH ₄	1.762	2.589	-5	5	-50	50	-50.20	50.36	0.000000	46.93	-79.91	181.54	
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N ₂ O	5.102	7.308	-5	5	-	200	-91.71	207.22	0.000004	43.24	-134.17	2037.19	
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄		12.792	-5	5	-50	50	-50.15	50.76	0.000001				2
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O		16.115	-5	5	-	200	-91.74	208.05	0.000021				2
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CO ₂	1,990.850	939.680	-5	5	-5	5	-7.01	7.29	0.000144	-52.80	-4.42	5.00	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	CH ₄	2.156	0.967	-5	5	-50	50	-50.19	50.43	0.000000	-55.17	-24.30	54.24	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Liquid Fuels	N ₂ O	4.060	1.821	-5	5	-	200	-91.57	207.76	0.000000	-55.15	-42.02	661.96	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CO ₂	1,536.292	271.086	-5	5	-5	5	-7.04	7.13	0.000012	-82.35	-1.71	1.89	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	CH ₄	4.263	0.766	-5	5	-50	50	-50.18	50.72	0.000000	-82.02	-9.91	22.20	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Solid Fuels	N ₂ O	6.052	1.088	-5	5	-	200	-91.73	208.44	0.000000	-82.02	-16.92	276.03	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CO ₂	1,575.900	806.659	-5	5	-5	5	-7.01	7.02	0.000105	-48.81	-4.88	5.45	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	CH ₄	0.787	0.403	-5	5	-50	50	-49.95	49.98	0.000000	-48.85	-28.16	62.05	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Gaseous Fuels	N ₂ O	0.745	0.381	-5	5	-	200	-91.66	207.13	0.000000	-48.85	-48.03	810.13	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CO ₂		501.859	-5	5	-5	5	-6.87	7.03	0.000040				2

1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	CH ₄		2.948	-5	5	-50	50	-50.40	49.79	0.000000				2
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Other Fossil Fuels	N ₂ O		3.720	-5	5	-	200	-91.84	207.49	0.000001				2
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	CH ₄	3.024	3.973	-5	5	-50	50	-50.48	50.47	0.000000	31.37	-72.03	156.46	
1.A.2 Fuel combustion - Manufacturing Industries and Construction - Biomass	N ₂ O	3.816	5.013	-5	5	-	200	-91.68	209.24	0.000002	31.37	-122.75	1806.58	
1.A.3.a Domestic Aviation	CO ₂	6.601	30.794	-5	5	-5	5	-6.96	7.20	0.000000	366.5 1	-44.25	48.68	
1.A.3.a Domestic Aviation	CH ₄	0.001	0.006	-5	5	-50	50	-50.18	50.63	0.000000	366.2 2	-254.94	570.44	
1.A.3.a Domestic Aviation	N ₂ O	0.049	0.228	-5	5	-	200	-91.70	208.14	0.000000	366.2 2	-436.53	6917.25	
1.A.3.b Road Transportation	CO ₂	3,505.880	8,059.646	-5	5	-5	5	-6.89	7.09	0.010471	129.8 9	-22.40	24.41	
1.A.3.b Road Transportation	CH ₄	46.028	9.797	-5	5	-50	50	-49.94	50.42	0.000001	-78.72	-11.70	25.61	
1.A.3.b Road Transportation	N ₂ O	52.208	69.389	-5	5	-	200	-91.73	208.42	0.000392	32.91	-124.00	2134.82	
1.A.3.c Railways	CO ₂	140.079	54.118	-5	5	-5	5	-7.01	7.16	0.000000	-61.37	-3.60	4.04	
1.A.3.c Railways	CH ₄	0.195	0.068	-5	5	-50	50	-49.97	50.33	0.000000	-65.22	-19.17	42.15	
1.A.3.c Railways	N ₂ O	11.781	5.535	-5	5	-	200	-91.68	208.42	0.000002	-53.01	-44.24	730.03	
1.A.3.d Domestic Navigation - Liquid Fuels	CO ₂	134.498	154.556	-5	5	-5	5	-7.04	7.19	0.000004	14.91	-10.98	12.36	
1.A.3.d Domestic Navigation - Liquid Fuels	CH ₄	0.355	0.409	-5	5	-50	50	-50.10	50.23	0.000000	15.13	-63.53	146.95	
1.A.3.d Domestic Navigation - Liquid Fuels	N ₂ O	0.961	1.106	-5	5	-	200	-91.76	207.93	0.000000	15.13	-107.75	1702.01	
1.A.4 Other Sectors - Liquid Fuels	CO ₂	2,450.506	1,043.582	-5	5	-5	5	-7.08	7.27	0.000177	-57.41	-3.98	4.48	

1.A.4 Other Sectors - Liquid Fuels	CH ₄	7.091	2.310	-5	5	-50	50	-50.19	50.75	0.000000	-67.43	-17.94	40.89	
1.A.4 Other Sectors - Liquid Fuels	N ₂ O	78.389	66.754	-5	5	-	200	200	-91.72	207.85	0.000363	-14.84	-79.88	1237.86
1.A.4 Other Sectors - Solid Fuels	CO ₂	524.388	4.482	-5	5	-5	5	-7.01	7.22	0.000000	-99.15	-0.08	0.09	
1.A.4 Other Sectors - Solid Fuels	CH ₄	37.398	0.380	-5	5	-50	50	-49.94	50.30	0.000000	-98.98	-0.56	1.25	
1.A.4 Other Sectors - Solid Fuels	N ₂ O	2.114	0.018	-5	5	-	200	200	-91.62	207.88	0.000000	-99.15	-0.80	12.24
1.A.4 Other Sectors - Gaseous Fuels	CO ₂	744.057	1,621.122	-5	5	-5	5	-6.97	7.23	0.000429	117.8 8	-20.98	22.77	
1.A.4 Other Sectors - Gaseous Fuels	CH ₄	1.870	4.046	-5	5	-50	50	-49.86	50.45	0.000000	116.3 0	-121.00	271.82	
1.A.4 Other Sectors - Gaseous Fuels	N ₂ O	0.497	0.766	-5	5	-	200	200	-91.67	208.57	0.000000	54.00	-144.16	2419.65
1.A.4 Other Sectors - Biomass	CH ₄	354.228	326.952	-5	5	-50	50	-50.05	50.22	0.000877	-7.70	-50.33	111.56	
1.A.4 Other Sectors - Biomass	N ₂ O	44.700	41.259	-5	5	-	200	200	-91.71	208.20	0.000138	-7.70	-86.54	1326.75
1.B.1 Fugitive emissions from Solid Fuels	CO ₂													2
1.B.1 Fugitive emissions from Solid Fuels	CH ₄	66.802												2
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CO ₂	157.786	30.884											
1. Exploration	CO ₂	28.536	5.585	-5	5	-50	50	-50.18	50.18	0.000000	-80.43	-10.93	24.77	
2. Production(7)	CO ₂	129.245	25.296	-5	5	-50	50	-50.43	50.73	0.000005	-80.43	-10.70	23.21	
3. Transport	CO ₂	0.005	0.003	-5	5	-50	50	-49.95	50.22	0.000000	-31.66	-37.02	82.52	
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	CH ₄	246.878	49.500											
1. Exploration	CH ₄	17.030	3.333	-5	5	-	100	100	-84.31	100.11	0.000000	-80.43	-16.71	117.34

2. Production(7)	CH ₄	223.474	43.738	-5	5	-	100	100	-84.31	100.90	0.000055	-80.43	-16.60	112.33	
3. Transport	CH ₄	1.504	1.028	-5	5	-	100	100	-84.26	100.67	0.000000	-31.66	-58.25	389.32	
4. Refining/storage	CH ₄	4.870	1.400	-5	5	-	100	100	-84.26	100.80	0.000000	-71.24	-24.47	160.22	
1.B.2.a Fugitive Emissions from Fuels - Oil and Natural Gas - Oil	N₂O	0.056	0.011	-5	5	-10	100	0	-100.00	-100.00	0.000000	-80.43	-19.57	-19.57	
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CO₂	424.729	211.930												
1. Exploration	CO ₂														
2. Production(7)	CO ₂	418.423	209.819	-5	5	-	100	100	-84.31	100.82	0.001265	-49.85	-42.91	289.16	
3. Processing	CO ₂	6.276	2.061	-5	5	-	100	100	-84.37	101.92	0.000000	-67.15	-28.05	184.40	
4. Transmission and storage	CO ₂	0.011	0.010	-5	5	-	100	100	-84.34	101.04	0.000000	-11.93	-75.44	520.36	
5. Distribution	CO ₂	0.019	0.040	-5	5	-20	500	-88.93	545.02	0.000000	105.9 1	-196.78	4696.30		
1.B.2.b Fugitive Emissions from Fuels - Oil and Natural Gas - Natural Gas	CH₄	155.067	91.091												
1. Exploration	CH ₄														
2. Production(7)	CH ₄	74.418	24.443	-5	5	-	100	100	-84.29	100.45	0.000017	-67.15	-27.88	188.31	
3. Processing	CH ₄	32.859	10.793	-5	5	-	100	100	-84.31	101.53	0.000003	-67.15	-28.25	190.46	
4. Transmission and storage	CH ₄	36.108	31.800	-5	5	-	100	100	-84.43	100.77	0.000029	-11.93	-74.46	553.67	
5. Distribution	CH ₄	11.682	24.055	-5	5	-20	500	-88.91	545.41	0.000215	105.9 1	-196.60	4231.78		
1.B.2.c. Venting and flaring	CO₂	0.002	0.000												
1. Venting - Oil	CO ₂	0.002	0.000	-5	5	-	100	100	-84.16	101.04	0.000000	-96.80	-2.74	18.33	
1.B.2.c. Venting and flaring	CH₄	0.660	0.021												

1. Venting - Oil	CH ₄	0.660	0.021	-5	5	-	100	100	-84.31	100.37	0.000000	-96.80	-2.71	19.08	
1.B.2.c. Venting and flaring	N₂O	0.560	0.108												
2. Flaring - Oil	N ₂ O	0.532	0.104	-5	5	-	100	100	-84.27	101.10	0.000000	-80.43	-16.75	111.57	
2. Flaring - Gas	N ₂ O	0.028	0.004	-5	5	-	100	100	-84.34	100.57	0.000000	-87.23	-10.89	75.34	
2.A.1 Cement Production	CO₂	1,086.203	994.573	-2	2	-2	2	2	-2.85	2.87	0.000026	-8.44	-21.57	39.37	
2.A.2 Lime Production	CO₂	156.820	96.085	-2	2	-2	2	2	-2.83	2.85	0.000000	-38.73	-2.41	2.46	
2.A.3 Glass Production	CO₂	43.216	22.054	-2	2	-2	2	2	-2.76	2.83	0.000000	-48.97	-1.99	2.05	
2.A.4 Other Process Uses of Carbonates	CO₂	11.322	12.878												
2.A.4.a Ceramics	CO ₂	9.146	2.760	-2	2	-3	3	3	-3.55	3.60	0.000000	-69.82	-1.48	1.57	
2.A.4.b Other uses of Soda Ash	CO ₂														
2.A.4.d Other	CO ₂	2.176	10.118	-2	2	-3	3	3	-3.65	3.59	0.000000	364.9 5	-22.64	24.13	
2.B.1 Ammonia Production	CO₂	558.672	128.271	-2	2	-2	2	2	-2.76	2.86	0.000000	-77.04	-0.88	0.95	5
2.B.1 Ammonia Production	CH₄														
2.B.1 Ammonia Production	N₂O														
2.B.2 Nitric Acid Production	N₂O	670.739	13.342	-2	2	-2	2	2	-2.78	2.88	0.000000	-98.01	-0.34	0.50	
2.B.8 Petrochemical and Carbon Black Production	CO₂	192.426	-												
2.B.8.a Methanol	CO ₂														2
2.B.8.b Ethylene	CO ₂	125.652													
2.B.8.c Ethylene Dichloride and Vinyl Chloride Monomer	CO ₂	0.414													2

2.B.8.f Carbon Black	CO ₂	66.360												2
2.B.8 Petrochemical and Carbon Black Production	CH₄	6.101												
2.B.8.a Methanol	CH ₄													2
2.B.8.b Ethylene	CH ₄	6.101												
2.B.8.c Ethylene Dichloride and Vinyl Chloride Monomer	CH ₄													2
2.B.8.f Carbon Black	CH ₄													2
2.C.1 Iron and Steel Production	CO₂	43.808	11.678											
2.C.1.a Steel	CO ₂	19.505	11.678	-5	5	-5	5	-7.06	7.28	0.000000	-40.13	-8.57	10.46	
2.C.2 Ferroalloys Production	CO ₂	173.798												
2.C.2 Ferroalloys Production	CH ₄	4.366												
2.C.2 Ferroalloys Production	CO₂	173.798												2
2.C.2 Ferroalloys Production	CH₄	4.366												2
2.C.3 Aluminium Production	CO₂	118.797												
2.C.3.a CO2 Emissions	CO ₂	118.797												2
2.C.3 Aluminium Production	PFCs	1,117.284												
2.C.3.b By-Product Emission\CF4	PFCs	787.623												2
2.C.3.b By-Product Emission\C2F6	PFCs	329.661												2
2.D Non-energy Products from Fuels and Solvent Use	CO₂	192.246	61.867											
2.D Non-energy Products from Fuels and Solvent Use\2.D.1 Lubricant Use	CO ₂	31.217	19.197	-5	5	-50	50	-92.37	-76.85	0.000000	-38.51	-48.62	1.01	

2.D Non-energy Products from Fuels and Solvent Use\2. Paraffin wax use	CO ₂	10.374	2.948	-5	5	-50	50	-100.00	-100.00	0.000000	-71.58			
2.D Non-energy Products from Fuels and Solvent Use\2.D.3 Other\Solvent use	CO ₂	150.631	30.313	N A	NA	-50	50	-40.78	58.45	0.000007	-79.88	-10.13	20.73	4
2.D Non-energy Products from Fuels and Solvent Use\2.D.3 Other\Road paving with asphalt	CO ₂	0.015	0.072	-10	10	-50	50	-86.05	-57.42	0.000000	388.1 0	-391.42	-0.83	
2.D Non-energy Products from Fuels and Solvent Use\2.D.3 Other\ Other\Urea based CC	CO ₂	0.009	0.020	-5	5	-5	5	-100.00	-100.00	0.000000	115.5 4			
2.D Non-energy Products from Fuels and Solvent Use\2.D.3 Other\ Asphalt roofing	CO ₂		9.318	-10	10	-50	50	-100.00	-100.00	0.000000				
2.F.1 Refrigeration and Air conditioning	Aggregate F-gases		2,018.328											
2.F.1.a Commercial Refrigeration\HFC-143a	HFC-143a	-	163.160	-50	50	-50	50	-64.81	65.36	0.000373				2
2.F.1.a Commercial Refrigeration\HFC-125	HFC-125	-	91.176	-50	50	-50	50	-66.19	63.57	0.000116				2
2.F.1.a Commercial Refrigeration\HFC-134a	HFC-134a	-	78.745	-50	50	-50	50	-70.66	36.13	0.000059				2
2.F.1.a Commercial Refrigeration\HFC-32	HFC-32	-	-	0	0	0	0	#VALUE!	#VALUE!	0.000000				2
2.F.1.b Domestic Refrigeration\HFC-134a	HFC-134a	-	10.359	-30	30	-25	25	-99.19	-98.20	0.000000				2
2.F.1.c Industrial Refrigeration\HFC-23	HFC-23	-	0.081	-50	50	-50	50	-62.22	80.10	0.000000				2
2.F.1.c Industrial Refrigeration\HFC-134a	HFC-134a	-	3.343	-50	50	-50	50	-62.61	77.41	0.000000				2
2.F.1.c Industrial Refrigeration\HFC-125	HFC-125	-	34.737	-50	50	-50	50	-62.17	76.85	0.000020				2
2.F.1.c Industrial Refrigeration\HFC-143a	HFC-143a	-	53.158	-50	50	-50	50	-62.75	79.97	0.000047				2
2.F.1.c Industrial Refrigeration\HFC-32	HFC-32	-	0.638	-50	50	-50	50	-62.57	80.03	0.000000				2
2.F.1.c Industrial Refrigeration\C2F6	PFC-116	-	-	-50	50	-50	50	#VALUE!	#VALUE!					2

2.F.1.d Transport Refrigeration\HFC-134a	HFC-134a	-	9.459	-25	25	-25	25	-79.94	-58.87	0.000000				2
2.F.1.d Transport Refrigeration\HFC-125	HFC-125	-	20.006	-25	25	-25	25	-91.35	-82.23	0.000000				2
2.F.1.d Transport Refrigeration\HFC-143a	HFC-143a	-	35.800	-25	25	-25	25	-91.46	-82.25	0.000000				2
2.F.1.e Mobile Air-Conditioning\HFC-134a	HFC-134a	-	465.082	-25	25	-25	25	-39.95	23.96	0.000721				2
2.F.1.f Stationary Air-Conditioning\HFC-32	HFC-32	-	257.747	-50	50	-50	50	-62.49	75.77	0.001054				2
2.F.1.f Stationary Air-Conditioning\HFC-125	HFC-125	-	732.314	-50	50	-50	50	-64.58	71.85	0.008089				2
2.F.1.f Stationary Air-Conditioning\HFC-134a	HFC-134a	-	62.522	-50	50	-50	50	-81.56	-11.10	0.000016				2
2.F.1.f Stationary Air-Conditioning\HFC-143a	HFC-143a	-	-	0	0	0	0	#VALUE!	#VALUE!	0.000000				2
2.F.1.f Stationary Air-Conditioning\HFC-152a	HFC-152a	-	-	0	0	0	0	#VALUE!	#VALUE!	0.000000				2
2.F.2 Foam blowing agents	Aggregate F-gases	-	14.580											
2.F.2 Foam blowing agents\Closed cells\HFC-134a	HFC-134a	-	13.291	-50	50	-25	25	-52.20	60.19	0.000002				2
2.F.2 Foam blowing agents\Closed cells\HFC-152a	HFC-152a	-	-	0	0	0	0	#VALUE!	#VALUE!	0.000000				2
2.F.2 Foam blowing agents\Closed cells\HFC-227ea	HFC-227ea	-	0.495	-50	50	-25	25	-53.02	59.56	0.000000				2
2.F.2 Foam blowing agents\Closed cells\HFC-365mfc	HFC-365mfc	-	0.795	-50	50	-25	25	0.00	0.00	0.000000				2
2.F.3 Fire Protection	Aggregate F-gases		5.504											
2.F.3 Fire Protection\HFC-125	HFC-125	-	0.790	-25	25	-10	10	-26.46	27.71	0.000000				2
2.F.3 Fire Protection\HFC-227ea	HFC-227ea	-	2.271	-25	25	-10	10	-26.27	27.70	0.000000				2
2.F.3 Fire Protection\HFC-236fa	HFC-236fa	-	2.443	-25	25	-10	10	-82.99	-70.54	0.000000				2

2.F.4 Aerosols	Aggregate F-gases		9.253											
2.F.4 Aerosols\2.F.4.a Metered Dose Inhalers\HFC-134a	HFC-134a	-	8.760	-10	10	0	0	-10.01	9.99	0.000000				2
2.F.4 Aerosols\2.F.4.a Metered Dose Inhalers\HFC-227ea	HFC-227ea	-	0.493	-10	10	0	0	-10.00	9.99	0.000000				2
2.G Other Product Manufacture and Use	N₂O	32.648	17.502											
2.G.3 N2O from Product Uses\2.G.3.a Medical Applications	N ₂ O	32.118	17.502	-20	20	-10	10	-100.00	-100.00	0.000000	-45.51			
2.G.3 N2O from Product Uses\2.G.3.b Other\Propellant for pressure and aerosol products	N ₂ O	0.530												2
2.G Other Product Manufacture and Use	Aggregate F-gases	11.055	10.774											
2.G.1 Electrical Equipment\SF6	SF ₆	11.055	10.774	-25	25	-30	30	-87.23	-71.71	0.000000	-2.55	40.95	327.57	
3.A Enteric Fermentation	CH₄	2,336.027	979.017											
Mature dairy cattle	CH ₄	1,427.140	257.842	-	3.4	3.4	-21	21	-21.30	21.25	0.000098	-81.93	-4.82	6.44
Other mature cattle	CH ₄	87.596	148.031	-2	2	-21	21	-21.05	21.08	0.000032	68.99	-44.16	59.79	
Growing cattle	CH ₄	537.468	382.807	-1	1	-11	11	-11.01	11.07	0.000058	-28.78	-10.37	12.03	
Sheep	CH ₄	168.224	123.806	-10	10	-40	40	-40.44	41.33	0.000085	-26.40	-33.97	63.75	
Market swine	CH ₄	56.322	32.829	-6	6	-40	40	-40.27	40.31	0.000006	-41.71	-26.48	50.03	
Breeding swine	CH ₄	9.744	3.865	-6	6	-40	40	-40.14	40.74	0.000000	-60.34	-18.27	33.31	
Goats	CH ₄	24.080	9.535	-10	10	-40	40	-40.48	42.10	0.000001	-60.40	-18.49	34.16	
Horses	CH ₄	19.656	18.104	-36	36	-40	40	-48.27	59.21	0.000003	-7.90	-51.01	115.80	

Mules and Asses	CH ₄	4.760	2.098	-5	5	-40	40	-40.15	40.41	0.000000	-55.93	-20.24	37.28	
Poultry	CH ₄													
Rabbits	CH ₄	1.037	0.100	-30	30	-20	20	-34.04	38.16	0.000000	-90.33	-3.98	6.83	
3.B Manure Management	CH₄	407.781	314.443											
Mature dairy cattle	CH ₄	162.106	72.248	-2	2	-38	38	-38.06	38.17	0.000025	-55.43	-19.53	34.06	
Other mature cattle	CH ₄	6.524	24.138	-2	2	-34	34	-33.84	34.08	0.000002	270.0 2	-146.60	243.74	
Growing cattle	CH ₄	47.608	76.081	-1	1	-21	21	-21.03	21.05	0.000008	59.81	-42.15	55.88	
Sheep	CH ₄	4.494	3.402	-10	10	-44	44	-44.25	46.01	0.000000	-24.31	-37.44	75.83	
Market swine	CH ₄	133.796	108.432	-7	7	-29	29	-29.76	30.21	0.000034	-18.96	-28.82	44.38	
Breeding swine	CH ₄	24.539	17.209	-7	7	-29	29	-29.29	30.55	0.000001	-29.87	-24.84	38.38	
Goats	CH ₄	0.655	0.284	-10	10	-30	30	-31.31	32.64	0.000000	-56.64	-15.83	25.45	
Horses	CH ₄	2.218	2.033	-36	36	-58	58	-61.67	75.92	0.000000	-8.37	-61.42	186.41	
Mules and Asses	CH ₄	0.397	0.175	-5	5	-43	43	-43.12	43.17	0.000000	-55.93	-21.22	41.00	
Poultry	CH ₄	24.405	10.342	-5	5	-44	44	-43.96	44.40	0.000001	-57.62	-21.13	41.00	
Rabbits	CH ₄	1.037	0.100	-30	30	-20	20	-34.48	38.01	0.000000	-90.33	-3.99	6.66	
3.B Manure Management	N₂O	268.166	89.470											
Mature dairy cattle	N ₂ O	65.915	4.547	-	3.4	-50	153	-90.75	157.44	0.000001	-93.10	-6.35	80.46	
Other mature cattle	N ₂ O	4.323	4.963	-2	2	-50	153	-90.71	156.15	0.000001	14.81	-104.91	1328.20	

Growing cattle	N ₂ O	9.522	5.228	-1	1	-50	153	-90.73	156.60	0.000001	-45.10	-50.84	668.43	
Sheep	N ₂ O	3.529	3.163	-10	10	-50	100	-84.37	102.12	0.000000	-10.38	-76.37	511.04	
Market swine	N ₂ O	16.216	1.364	-7	7	-50	153	-90.73	157.86	0.000000	-91.59	-7.79	102.25	
Breeding swine	N ₂ O	8.375	0.811	-7	7	-50	153	-90.63	157.97	0.000000	-90.31	-8.93	109.14	
Goats	N ₂ O	0.193	0.145	-10	10	-50	100	-84.43	103.50	0.000000	-25.21	-63.71	445.48	
Horses	N ₂ O	0.872	0.785	-36	36	-50	100	-84.77	118.61	0.000000	-9.94	-78.03	579.05	
Mules and Asses	N ₂ O	0.044	0.019	-5	5	-50	100	-84.32	101.50	0.000000	-55.93	-37.81	254.53	
Poultry	N ₂ O	4.065	2.200	-5	5	-50	100	-84.17	99.97	0.000000	-45.88	-46.19	315.70	
Rabbits	N ₂ O	7.810	0.755	-30	30	-50	100	-84.51	110.68	0.000000	-90.33	-8.34	61.30	
<i>Indirect N₂O emission</i>	<i>N₂O</i>	<i>147.302</i>	<i>65.490</i>											
Total N volatilised as NH ₃ and NO _x	N ₂ O	147.302	65.490	-34	34	400	400	-94.23	249.34	0.000460	-55.54	-42.47	903.34	
3.D.1 Direct N₂O Emissions From Managed Soils	N₂O	952.308	698.579											
Inorganic N fertilizers	N ₂ O	447.300	378.475	-20	20	-70	200	-99.99	-99.69	0.000000	-15.39	-79.30	1328.43	
Organic N fertilizers	N ₂ O	209.915	87.602	-10	10	-30	30	-99.93	-99.87	0.000000	-58.27	-29.24	456.07	
Urine and dung deposited by grazing animals	N ₂ O	119.511	43.992	-10	10	-50	150	-99.99	-99.74	0.000000	-63.19	-33.88	426.57	
Crop residues	N ₂ O	166.476	170.555	-20	20	-70	200	-99.99	-99.68	0.000000	2.45	-96.00	1576.76	
Mineralization/immobilization associated with loss/gain of soil organic matter	N ₂ O	0.160	9.009	-20	20	-30	30	-99.93	-99.86	0.000000	5535.03	-	62858.37	
Cultivation of organic soils	N ₂ O	8.947	8.947	-10	10	500	500	-89.00	546.12	0.000030	0.00	-95.44	1918.12	

3.D.2 Indirect N2O Emissions From Managed Soils	N₂O	309.662	217.897											
Atmospheric deposition	N ₂ O	104.399	63.489	-20	20	-	250	-99.99	-99.63	0.000000	-39.19	-57.44	1076.06	
Nitrogen leaching and run-off	N ₂ O	205.263	154.409	-34	34	-	400	-99.99	-99.45	0.000000	-24.78	-71.80	1510.89	
3.G Liming	CO₂		14.428	-50	50	-50	50	-61.91	80.55	0.000004				
3.H Urea Application	CO₂	50.020	42.943	-20	20	-50	0	-20.01	20.00	0.000002	-14.15	-21.67	28.26	
4.A.1 Forest Land Remaining Forest Land	CO₂	- 6,483.136	- 4,537.548					-91.53	142.96	0.936335	-30.01			1, 3
4.A.2 Land Converted to Forest Land	CO₂	- 32.717	- 328.485					-42.91	130.39	0.000671	904.0 3			1, 3
4.B.1 Cropland Remaining Cropland	CO₂	88.941	143.643					-238.81	525.97	0.009432	61.50			1, 3
4.B.2 Land Converted to Cropland	CO₂	21.470	88.960					-466.78	385.45	0.004394	314.3 4			1, 3
4.C.1 Grassland Remaining Grassland	CO₂	2.069	2.069					-208.09	-191.91	0.000000	0.00			1, 3
4.C.2 Land Converted to Grassland	CO₂	- 8.426	- 232.810					-272.50	106.11	0.006430	2662. 88			1, 3
4.D.1.1 Peat Extraction Remaining Peat Extraction	CO₂													
4.D.1.2 Flooded Land Remaining Flooded Land	CO₂													
4.D.1.3 Other Wetlands Remaining Other Wetlands	CO₂													
4.D.2 Land Converted to Wetlands	CO₂	76.564	13.363					-67.41	182.29	0.000010	-82.55			1, 3
4.E.1 Settlements Remaining Settlements	CO₂													
4.E.2 Land Converted to Settlements	CO₂	242.513	520.104					-32.75	250.91	0.010765	114.4 6			1, 3
4.F.1 Other Land Remaining Other Land	CO₂		-					#VALUE!	#VALUE!					
4.F.2 Land Converted to Other Land	CO₂													

4.G Harvested Wood Products	CO ₂	- 317.852	- 387.736					-17.05	83.64	0.001238	21.99			1, 3
4(I). Direct N₂O emissions from N inputs to managed soils	N ₂ O													
4(III).Direct N₂O emissions from N mineralization/immobilization	N ₂ O	43.570	118.620					-87.82	-10.53	0.000068	172.2 5			1, 3
4(IV) Indirect N₂O Emissions from Managed Soils	N ₂ O													
4(V) Biomass Burning	CO ₂	16.107	162.593					-21.94	57.05	0.000139	909.4 7			1, 3
4(V) Biomass Burning	CH ₄	1.851	20.211					-92.47	-46.55	0.000001	991.9 2			1, 3
4(V) Biomass Burning	N ₂ O	1.011	11.483					-92.50	4.55	0.000001	1036. 30			1, 3
5.A Solid Waste Disposal	CH ₄	552.642	1,352.063											
5.A.1 Managed Waste Disposal Sites\5.A.1.a Anaerobic	CH ₄	523.133	1,352.063	-10	10	-20	20	-19.00	26.98	0.003203	158.4 5	-65.91	107.12	
5.A.2 Unmanaged Waste Disposal Sites	CH ₄	29.509												
5.B Biological Treatment of Soild Waste	CH ₄		32.951											
5.B Biological Treatment of Soild Waste\5.B.1 Composting	CH ₄		15.977	-10	10	-	100	-84.40	102.30	0.000007				2
5.B Biological Treatment of Soild Waste\5.B.2 Anaerobic Digestion at Biogas Facilities	CH ₄		16.974	-10	10	-	100	-84.10	101.69	0.000008				2
5.B Biological Treatment of Soild Waste	N ₂ O		9.073											
5.B Biological Treatment of Soild Waste\5.B.1 Composting	N ₂ O		9.073	-10	10	-	110	-86.72	111.59	0.000003				2
5.C Incineration and Open Burning of Waste	CO ₂	0.536												
5.C.1 Waste Incineration\5.C.1.2 Non-biogenic\5.C.1.2.b Other\Clinical Waste	CO ₂	0.123												

5.C.1 Waste Incineration\5.C.1.2 Non-biogenic\5.C.1.2.b Other\Industrial Solid Wastes	CO ₂	0.413												2
5.C Incineration and Open Burning of Waste	N₂O	0.007												
5.C.1 Waste Incineration\5.C.1.2 Non-biogenic\5.C.1.2.b Other\Industrial Solid Wastes	N ₂ O	0.007												2
5.C Incineration and Open Burning of Waste	N ₂ O	4.193	1.283							0.000000				
5.C.2 Open burning waste\5.C.2.1 Biogenic\5.C.2.1.a Municipal Solid Wastes	N ₂ O	4.193	1.283	-30	30	100	100	-85.17	111.51		-69.40			
5.C Incineration and Open Burning of Waste	CH ₄	19.200	5.875							0.000001				
5.C.2 Open burning waste\5.C.2.1 Biogenic\5.C.2.1.a Municipal Solid Wastes	CH ₄	19.200	5.875	-30	30	100	100	-84.88	113.87	0.000001	-69.40			
5.D Wastewater Treatment and Discharge	CH₄	655.100	402.881											
5.D.1 Domestic wastewater	CH ₄	547.002	300.085	-30	30	-30	30	-39.24	46.18	0.000542	-45.14	-25.52	47.71	
5.D.2 Industrial wastewater	CH ₄	108.098	102.796	-30	30	-30	30	-38.97	46.30	0.000063	-4.91	-43.86	81.19	
5.D Wastewater Treatment and Discharge	N₂O	59.478	96.110											
5.D.1 Domestic wastewater	N ₂ O	59.478	96.110	-50	50	-50	50	-76.37	15.35	0.000063	61.59	-141.47	25.72	
TOTAL	CO₂eq	25,098.290	20,835.060					-20.86	31.51	1.000003	-16.85	-24.71	27.34	

Approach and Comments:

1 - A more complex method for estimation of uncertainties is used, and therefore activity data and emission factor uncertainties are left blank. Only combined uncertainty and trend uncertainty is shown in model.

2 - Trend not calculated, when base year or year t emissions are zero or included elsewhere.

3 - Combined uncertainty was used through Monte Carlo simulation for LULUCF sector

4 - Different units of AD

5 - Recovery included in estimation of GHG emissions

Annex 3: Detailed methodological descriptions for individual source or sink categories

3.1. Energy sector

Table A3-1: 1A1ai - activity data NCV and emission factors

ACTIVITY DATA		1990	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Fuel consumption	UNIT												
Hard coal	1000 t	253.70	919.00	872.90	973.90	526.90	492.10	579.80	434.60	528.20	550.40	476.70	291.30
Fuel oil	1000 t	570.40	1.60	10.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light heating oil	1000 t	0.30	1.00	2.10	1.10	1.20	0.90	0.80	1.10	0.40	9.90	1.40	1.20
Natural gas	1000000 m3	201.70	0.60	52.50	66.10	5.30	0.50	0.50	5.60	4.30	7.60	6.20	0.10
Coke oven gas	1000000 m3	24.50											
Biogas	PJ		0.39	0.25	0.26	0.31	0.31	0.35	0.37	0.36	0.34	0.35	0.57
Other biomass	PJ		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.24	7.61
Net calorific values													
NCV for hard coal	MJ/kg	25.14	24.64	25.00	24.95	24.85	25.00	24.28	24.572	24.292	24.79	24.45	24.16
NCV for fuel oil	MJ/kg	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
NCV for light heating oil	MJ/kg	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
NCV for natural gas	MJ/m3	34.00	34.60	34.60	34.80	34.70	34.64	34.64	34.77	35.00	35.30	37.00	37.00
NCV for coke oven gas	MJ/kg	17.91											
NCV for biogas	TJ/PJ	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00
NCV for other biomass													
EMISSION FACTORS		1990	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
EF CO2 t/TJ	t/TJ												
EF CO2 -Hard coal	t/TJ	93.31	93.96	92.69	93.39	92.76	92.70	92.75	92.39	93.10	92.88	92.85	94.31
EF CO2 - Fuel oil	t/TJ	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - Light heating oil	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - Natural gas	t/TJ	55.28	55.10	55.56	55.43	55.32	55.41	55.49	55.34	55.46	56.01	55.80	55.41
EF CO2 - Gas coke	t/TJ	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - Biogass	t/TJ	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60
EF CO2 - Other biomass	t/TJ	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
EF CH4 kg/TJ	kg/TJ												
EF CH4 -Hard coal	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Fuel oil	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - Light heating oil	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - Natural gas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Gas coke	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Biogas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Other biomass	kg/TJ	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
EF N2O kg/TJ	kg/TJ												
EF N2O -Hard coal	kg/TJ	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - Fuel oil	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - Light heating oil	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - Natural gas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF N2O - Gas coke	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - Biogass	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - Other biomass	kg/TJ	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Table A3-2: 1A1a ii - activity data NCV and emission factors

ACTIVITY DATA		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption	UNIT										
Hard coal	1000 t										
Fuel oil	1000 t	118.00	108.60	162.00	108.30	35.80	0.00	0.00	0.00	0.00	0.00
Light heating oil	1000 t	0.00	0.90	1.50	0.10	0.00	0.00	0.00	5.40	0.00	0.10
Natural gas	1000000 m3	315.50	363.40	479.00	649.90	343.70	783.50	736.40	833.30	890.30	675.75
Coke oven gas	1000000 m3										
Biogas	PJ				0.14	1.07	2.97	3.64	3.31	2.89	2.52
Other biomass	TJ				1.90	2189.00	9524.20	11187.50	13289.30	12916.90	13073.20
Net calorific values											
NCV for hard coal	MJ/kg	25.14	25.58	25.10	24.13	25.00	24.57	24.29	24.79	24.45	24.16
NCV for fuel oil	MJ/kg	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
NCV for light heating oil	MJ/kg	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
NCV for natural gas	MJ/m3	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
NCV for coke oven gas	MJ/kg	17.91									
NCV for biogas	TJ/PT	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00
NCV for other biomass		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EMISSION FACTORS		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
EF CO2 t/TJ	t/TJ										
EF CO2 - Hard coal	t/TJ	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60
EF CO2 - Fuel oil	t/TJ	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - Light heating oil	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - Natural gas	t/TJ	55.26	55.26	55.26	55.26	55.25	55.41	55.35	55.25	55.30	55.25
EF CO2 - Gas coke	t/TJ	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - Biogas	t/TJ	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60
EF CO2 - Other biomass	t/TJ	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
EF CH4 kg/TJ	kg/TJ										
EF CH4 - Hard coal	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Fuel oil	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - Light heating oil	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - Natural gas	kg/TJ	3.67	2.73	2.87	3.67	2.42	3.70	3.58	2.58	2.65	3.18
EF CH4 - Gas coke	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Biogas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Other biomass	kg/TJ	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
EF N2O kg/TJ	kg/TJ										
EF N2O - Hard coal	kg/TJ	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - Fuel oil	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - Light heating oil	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - Natural gas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF N2O - Gas coke	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - Biogas	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - Other biomass	kg/TJ	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Table A3-3: 1A1a-iii - activity data NCV and emission factors

ACTIVITY DATA		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption	UNIT										
Hard coal	1000 t				0.00						
Fuel oil	1000 t	0.00	37.00	39.00	23.20	3.70	1.20	0.50	0.60	1.30	0.60
Light heating oil	1000 t	0.00	4.40	6.70	4.90	3.90	1.90	3.50	4.30	2.20	1.70
Natural gas	1000000 m3	0.00	53.00	71.30	86.50	72.40	53.00	53.60	45.20	43.70	38.34
Coke oven gas	1000000 m3										
Biogas	PJ				0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
Other biomass	PJ				0.00	0.00	0.0214	0.0230	0.0170	0.1027	2.0520
Gas works gas	1000000 m3			1.46							
Liquified petroleum gas	1000 t	0.00									
Net calorific values											
NCV for hard coal	MJ/kg	25.14	25.58	25.10	24.13		24.57	24.29	24.79	24.45	24.16
NCV for fuel oil	MJ/kg	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
NCV for light heating oil	MJ/kg	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
NCV for natural gas	MJ/m3	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
NCV for coke oven gas	MJ/kg	17.91									
NCV for biogas	TJ/PJ				1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00
NCV for other biomass	TJ/PJ				1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00
NCV for gas works gas	MJ/m3			21.47							
NCV for LPG	MJ/kg	46.89									
EMISSION FACTORS		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
EF CO2 t/TJ	t/TJ										
EF CO2 -Hard coal	t/TJ	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60
EF CO2 - Fuel oil	t/TJ	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - Light heating oil	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - Natural gas	t/TJ	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
EF CO2 - Gas coke	t/TJ	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 -Biogas	t/TJ	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60
EF CO2 - Other biomass	t/TJ	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
EF CO2 - Gas works gas	t/TJ	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - LPG	t/TJ	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CH4 kg/TJ	kg/TJ										
EF CH4 -Hard coal	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Fuel oil	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - Light heating oil	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - Natural gas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Gas coke	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Biogas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - Other biomass	kg/TJ	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
EF CH4 - Gas works gas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - LPG	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF N2O kg/TJ	kg/TJ										
EF N2O -Hard coal	kg/TJ	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - Fuel oil	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - Light heating oil	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - Natural gas	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF N2O - Gas coke	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - Biogas	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - Other biomass	kg/TJ	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
EF N2O - Gas works gas	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - LPG	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Table A3-4: 1Ab - activity data NCV and emission factors

Refining - transformation		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption											
Fuel oil (1000 t)	1000 t	355.04	239.40	254.00	244.30	134.10	23.00	25.50	59.10	27.80	9.30
NCV for fuel oil (MJ/kg)	MJ/kg	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
LPG I Gas/diesel oil (1000 t)	1000 t	0.79	2.20	9.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NCV for gas/diesel oil (MJ/kg)	MJ/kg	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89
Petroleum coke (1000 t)	1000 t	53.69	63.00	70.70	55.90	31.30	21.70	22.50	19.70	20.50	20.30
NCV for petroleum coke (MJ/kg)	MJ/kg	29.31	29.31	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00
Refinery gas (1000 t)	1000 t	405.94	262.40	241.10	161.50	208.10	114.20	98.50	87.60	94.80	105.70
NCV for refinery gas (MJ/kg)	MJ/kg	48.57	48.57	48.57	48.57	42.60	42.60	42.60	42.60	42.60	42.60
Natural gas (1000000 m3)	1000 t	7.31	0.20	1.20	27.10	183.30	211.10	178.10	116.70	159.10	167.30
NCV for natural gas (MJ/m3)	MJ/kg	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
Total fuel consumption (TJ)	TJ	35844.4	24322.7	24596.4	20316.8	21567.0	13801.9	12151.9	10837.2	11678.0	11696.0
Emission factors											
EF CO2 - fuel oil (t/TJ)	t/TJ	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - LPG (t/TJ)	t/TJ	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - petroleum coke (t/TJ)	t/TJ	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00
EF CO2 - refinery gas (t/TJ)	t/TJ	57.60	57.60	57.60	57.60	57.60	57.60	57.60	57.60	57.60	57.60
EF CO2 - natural gas (t/TJ)	t/TJ	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
CO2 Emission (Gg)	Gg	2,424.74	1,683.27	1,729.54	1,448.87	1,387.39	835.52	745.35	695.24	717.34	702.89
EF CH4 - fuel oil (kg/TJ)	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - LPG (kg/TJ)	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - petroleum coke (kg/TJ)	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - refinery gas (kg/TJ)	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - natural gas (kg/TJ)	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CH4 Emission (Mg)	Mg	64.38	43.57	45.01	39.95	32.35	15.65	14.20	15.59	13.91	12.44
EF N2O - fuel oil (kg/TJ)	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - LPG (kg/TJ)	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - petroleum coke (kg/TJ)	kg/TJ	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - refinery gas (kg/TJ)	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - natural gas (kg/TJ)	kg/TJ	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
N2O Emission (Mg)	Mg	12.92	9.83	10.63	9.37	6.21	2.78	2.70	3.13	2.62	2.24

Table A3-5: 1Aci - activity data NCV and emission factors

Manufacture of solid fuels and other energy industries	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption										
LPG (1000 t)										
NCV for LPG (MJ/kg)										
Gas Coke (1000000 m3)	107.40									
NCV for gas coke (MJ/m3)	17.91									
Light heating oil (1000 t)										
NCV for light heating oil (MJ/kg)										
Natural gas (1000000 m3)										
NCV for natural gas (MJ/m3)										
Other Kerosene prod (petrolej) (1000 t)										
NCV for petroleum (MJ/m3)										
Total fuel consumption (TJ)	1,923.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions										
EF CO2 - LPG (t/TJ)	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - gas coke (t/TJ)	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - light heating oil (t/TJ)	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - natural gas (t/TJ)	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
CO2 Emission (Gg)	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EF CH4 - LPG (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - gas coke (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - light heating oil (kg/TJ)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - natural gas (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CH4 Emission (Mg)	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EF N2O - LPG (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - gas coke (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - light heating oil (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - natural gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
N2O Emission (Mg)	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A3-6: I Acii - activity data NCV and emission factors

Manufacture of solid fuels and other energy industries	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption										
LPG (1000 t)	11.87	1.00								
NCV for LPG (MJ/kg)	46.89	46.89								
Gas Coke (1000000 m3)										
NCV for gas coke (MJ/m3)										
Light heating oil (1000 t)	0.75	7.10	5.50							
NCV for light heating oil (MJ/kg)	42.71	42.71	42.71							
Natural gas (1000000 m3)	413.80	164.50	175.50	241.70	121.30	103.60	120.70	154.80	151.40	144.06
NCV for natural gas (MJ/m3)	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
Other Kerosene prod (petrolej) (1000 t)										
NCV for petroleum (MJ/m3)										
Total fuel consumption (TJ)	14,657.46	5,943.13	6,201.91	8,217.80	4,196.98	3,602.17	4,224.50	5,464.44	5,601.80	5,330.22
Emissions										
EF CO2 - LPG (t/TJ)	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - gas coke (t/TJ)	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00
EF CO2 - light heating oil (t/TJ)	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - natural gas (t/TJ)	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
CO2 Emission (Gg)	826.75	339.20	352.16	461.02	235.45	202.08	236.99	306.56	314.26	299.03
EF CH4 - LPG (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - gas coke (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - light heating oil (kg/TJ)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - natural gas (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CH4 Emission (Mg)	14.72	6.55	6.67	8.22	4.20	3.60	4.22	5.46	5.60	5.33
EF N2O - LPG (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - gas coke (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - light heating oil (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - natural gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
N2O Emission (Mg)	1.48	0.75	0.74	0.82	0.42	0.36	0.42	0.55	0.56	0.53

Table A3-7: 1Aciii - activity data NCV and emission factors

Manufacture of solid fuels and other energy industries	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption										
LPG (1000 t)										
NCV for LPG (MJ/kg)										
Gas Coke (1000000 m3)										
NCV for gas coke (MJ/m3)										
Light heating oil (1000 t)		0.40								
NCV for light heating oil (MJ/kg)		42.71								
Natural gas (1000000 m3)		0.50								
NCV for natural gas (MJ/m3)		34.00								
Other Kerosene prod (petrolej) (1000 t)										
NCV for petroleum (MJ/m3)										
Biogas					26.54	19.79082	40.58	44.34	37.63	1.70
NCV for biogas (TJ/TJ)					1.00	1.00	1.00	1.00	1.00	1.00
Total fuel consumption (TJ)	0.00	34.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions										
EF CO2 - LPG (t/TJ)	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - gas coke (t/TJ)	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00
EF CO2 - light heating oil (t/TJ)	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - natural gas (t/TJ)	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
EF CO2 - other kp (t/TJ)	71.15	71.15	71.15	71.15	71.15	71.15	71.15	71.15	71.15	71.15
EF CO2 - biogas (t/TJ)	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60
CO2 Emission (Gg)	0.00	2.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EF CH4 - LPG (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - gas coke (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - light heating oil (kg/TJ)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - natural gas (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - other kp (kg/TJ)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - biogas (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CH4 Emission (Mg)	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EF N2O - LPG (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - gas coke (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - light heating oil (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - natural gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - biogas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
N2O Emission (Mg)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A3-8: 1A2a-g – fuel consumption

1A2a Iron and Steel											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	7.474	0	0	0.6	0.9	0.9	3.7	4.3	4.7	3.2
Coking coal (kameni ugljen)	10 ³ t	0	0	1	0	1.8	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	18.248	0	0	0	0	0	0	0	0	0
Lignite	10 ³ t	9.349	0	0	0	0	0	0	0	0	0
Natural gas	10 ⁶ m ³	119.957	25.2	22.9	35	17.5	13.5	19.6	20.2	16.9	12.5
Wood	10 ³ m ³	0	0		0.8	0.5	0.2	0.2	0.1	0.1	0.2
Biogas	TJ	0	0		0	0	0	0	0		
Wood waste	TJ	0	0	0	0	0	1.8	3.5	3.9	53.7	1481.8
Briketi ugljena	10 ³ t	0	0				0				
Coke oven coke	10 ³ t	179.937	11.8	4.3	3.7	0.6	0.3	0.2	0.2	0.2	0.2
Liquified petroleum gas	10 ³ t	3.554	2.1	4.2	1.4	0.8	0.7	0.7	2.3	2.1	1.8
Motor Gasoline	10 ³ t	0	0		0	0	0.1	0	0	0	0
Petroleum	10 ³ t					0	0	0	0	0	0
Diesel	10 ³ t	0	0	0	0	0	0.2	0.3	0.3	0.3	0.4
Gas/Diesel oil	10 ³ t	12.907	4	2.7	0.9	0.6	0.6	0.7	1	0.8	0.6
Residual fuel oil	10 ³ t	42.516	1.5	2.7	1.2	1.1	0	0	0	0	0
Petroleum coke	10 ³ t	8.602	0	0	0.7	0.3	0	0.8	0	0	0
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivates	10 ³ t	0	0		0	0	0	0	0	0	0
Visokopećni plin	10 ⁶ m ³	418.079	0				0				
Koksni plin	10 ³ m ³	0	0								
Gas works gas	10 ³ m ³	0	0	0.031	0	0	0	0	0	0	0

1A2b Non-Ferrous metals											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	0	0	0.1	0	0	0	0	0	0	0
Coking coal (kameni ugljen)	10 ³ t	0	0	0	0	0	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	0.2	0	0	0	0	0	0	0	0	0
Lignite	10 ³ t	0	0	0	0	0	0	0	0	0	0
Natural gas	10 ⁶ m ³	0	5	1	0.4	2.6	11.7	13.9	13.6	11.9	13.3
Wood	10 ³ m ³	0	0		0.6	0.2	0.3	0	0	0	0
Biogas	TJ	0	0		0	0	0	0	0		
Wood waste	TJ	0	0	0	0	0	0	0	0	0	0
Briketi ugljena	10 ³ t	0	0				0				
Coke oven coke	10 ³ t	0	0	0	0	0	0	0	0	0	0
Liquified petroleum gas	10 ³ t	1.534	1.1	2.1	3.1	0.8	0.7	0.8	0.8	0.9	0.6
Motor Gasoline	10 ³ t	0	0		0	0	0	0	0	0	0
Petroleum	10 ³ t					0.2	0	0	0	0	0
Diesel	10 ³ t	0	0	0	0	0	0.2	0.2	0.2	0.2	0.2
Gas/Diesel oil	10 ³ t	2.818	1	0.2	0.1	0.9	0.2	0.2	0.4	0.4	0.2
Residual fuel oil	10 ³ t	1.077	0.3	4	1.2	0	0	0	0	0	0
Petroleum coke	10 ³ t	0	0	0	0	0	0	0	0.1	0.3	0.4
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivates	10 ³ t	0	0		0	0	0	0	0	0	0
Visokopećni plin	10 ⁶ m ³	0	0								
Koksni plin	10 ³ m ³	0	0								
Gas works gas	10 ⁶ m ³	0	0	0	0	0	0	0	0	0	0

Table A3-8: 1A2a-g – fuel consumption

1A2c Chemicals											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	0	0	0.2	0	0	0	0	0	0	0
Coking coal (kameni ugljen)	10 ³ t	0	0	0	1.2	0	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	43.77	1.2	0	0	0	0	0	0.5	0.1	0
Lignite	10 ³ t	27.507	0.6	0	0	0	0	0	0	0	0
Natural gas	10 ⁹ m ³	181.214	186.5	183.1	227.6	146.9	169.1	115.6	33.1	51.1	47.2
Wood	10 ³ m ³	0	0		0.1	0	0	0	0	0.21	0.02
Biogas	TJ	0	0		0	0	0	0	0		
Wood waste	TJ	0	0	0	0	0	0.2	0.2	0.3	0.2	0.1
Briketi ugljena	10 ³ t	0	0				0				
Coke oven coke	10 ³ t	0	0	0	0	0	0	0	0	0	0
Liquified petroleum gas	10 ³ t	0.724	6.9	0	0.1	0	0	0	0	0	0
Motor Gasoline	10 ³ t	0	0		0	0	0	0	0	0	0
Petroleum	10 ³ t					2.4	1.5	1.8	1	1.1	0.9
Diesel	10 ³ t	0	0	0	0	0	0	0	0	0	0
Gas/Diesel oil	10 ³ t	3.868	2	0.5	0.4	0.5	0.4	0.4	0.9	1.7	0.8
Residual fuel oil	10 ³ t	89.079	102.8	73	3.6	0	0.1	0.1	0	0	0
Petroleum coke	10 ³ t	0	0	0.7	0	0	0	0	0	0	0
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivatives	10 ³ t	0	0		0	0	0	0	0	0	0
Visokopećni plin	10 ⁹ m ³	0	0								
Koksni plin	10 ⁹ m ³	0	0								
Gas works gas	10 ⁹ m ³	0	0	0	0	0	0	0	0	0	0

1A2d Pulp, paper and print											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	0	0	0	0	0	0	0	0	0	0
Coking coal (kameni ugljen)	10 ³ t	0	0	0	0	0	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	42.51	0	0	0	0	0	0	0	0	0
Lignite	10 ³ t	0	0	0	0	0	0	0	0	0	0
Natural gas	10 ⁹ m ³	92.536	75	69.2	68.8	27.6	57.9	60.4	58.1	53.4	55.4
Wood	10 ⁹ m ³	0	0		13.2	0.1	0	0.7	4.3	3.7	2.7
Biogas	TJ	0	0		0	0	0	0	0		
Wood waste	TJ	81.9	1.4	169.4	151.8	20	192.2	87.1	73.2	53.5	43.6
Briketi ugljena	10 ³ t	0	0				0				
Coke oven coke	10 ³ t	0	0	0	0	0	0	0	0	0	0
Liquified petroleum gas	10 ³ t	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
Motor Gasoline	10 ³ t	0	0		0	0	0	0	0	0	0
Petroleum	10 ³ t					0	0	0	0	0	0
Diesel	10 ³ t	0	0	0	0	0	0	0	0	0	0
Gas/Diesel oil	10 ³ t	0.405	0.9	1.6	0.1	0	0	0	0.1	0	0
Residual fuel oil	10 ³ t	18.364	2.4	11.9	9.5	5.2	0.7	0.8	0.8	0.8	0.7
Petroleum coke	10 ³ t	0	0	0	0	0	0	0	0	0	0
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivatives	10 ³ t	0	0		0	0	0	0	0	0	0
Visokopećni plin	10 ⁹ m ³	0	0								
Koksni plin	10 ⁹ m ³	0	0								
Gas works gas	10 ⁹ m ³	0	0	0.031	0	0	0	0	0	0	0

Table A3-8: 1A2a-g – fuel consumption

1A2e Food Processing, Beverages and Tobacco											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	0	0	0	0.7	0	0	0	0.1	0	0
Coking coal (kameni ugljen)	10 ³ t	0.426	0	0	0	0	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	89.92	23.9	47.7	39.9	34	11.9	0	0	0	0
Lignite	10 ³ t	35.745	11.2	0	0	0	0	0	0.6	0	0
Natural gas	10 ⁶ m ³	92.34	101.6	173	166.6	114.7	112.1	97.5	122	113.1	106.82
Wood	10 ³ m ³	0	0	0	0.5	13.5	1.5	1.6	1.9	1.6	1.7
Biogas	TJ	0	0	0	0	0	0	0	0	0	0
Wood waste	TJ	0	0	0	0	0	290.6	362.1	313.5	255.9	259.8
Briketi ugljena	10 ³ t	0.16	0	0	0	0	0	0	0	0	0
Coke oven coke	10 ³ t	6.841	2.3	9.6	6.4	4	3.6	1.9	2.3	2.2	2.5
Liquified petroleum gas	10 ³ t	1.09	0.8	1.6	1.3	1.4	1	1.2	1.3	1.3	1.3
Motor Gasoline	10 ³ t	0	0	0	0	0	0	0	0	0	0
Petroleum	10 ³ t	0	0	0	0	0	0	0	0	0	0
Diesel	10 ³ t	0	0	0	0	0	0.3	0.2	0.2	0.3	0.4
Gas/Diesel oil	10 ³ t	36.196	15.2	13.3	10	8.7	5.3	6	10.3	9.9	9.2
Residual fuel oil	10 ³ t	72.165	40.3	32.4	22.9	9.1	7.7	7.1	9.1	8.6	8.2
Petroleum coke	10 ³ t	0	0	0	0	0	0	0	0	0	0
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivatives	10 ³ t	0	0	0	0	0	0	0	0	0	0
Visokopećni plin	10 ⁶ m ³	0	0	0	0	0	0	0	0	0	0
Koksni plin	10 ³ m ³	0	0	0	0	0	0	0	0	0	0
Gas works gas	10 ⁶ m ³	6.1	0	0.1099	0	0	0	0	0	0	0

1A2f Non-Metallic Minerals											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	0	0	0.1	0	0	0	0	0	0	0
Coking coal (kameni ugljen)	10 ³ t	0	0	0	0	0	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	0	0	0	0	0	0	0	0	0	0
Lignite	10 ³ t	0	0	0	0	0	0	0	0	0	0
Natural gas	10 ⁶ m ³	121.384	52.6	73.4	56.4	41.8	45.7	51.9	51.9	48.1	44.4
Wood	10 ³ m ³	0	0	0	0	0	0	0	0	0	0
Biogas	TJ	0	0	0	0	0	0	0	0	0	0
Wood waste	TJ	0	0	0	0	0	0.3	1.6	0.5	0.7	0.7
Briketi ugljena	10 ³ t	0	0	0	0	0	0	0	0	0	0
Coke oven coke	10 ³ t	6.804	7.2	7.7	0.1	0	0	0	0	0	0
Liquified petroleum gas	10 ³ t	6.567	3	2.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2
Motor Gasoline	10 ³ t	0	0	0	0	0	0	0	0	0	0
Petroleum	10 ³ t	0	0	0	0	0	0	0	0	0	0
Diesel	10 ³ t	0	0	0.1	0	0	0.1	0.1	0.1	0.1	0.2
Gas/Diesel oil	10 ³ t	1.627	0.4	2.7	0	0	0	0	0	0	0
Residual fuel oil	10 ³ t	6.093	2.3	3.8	2.2	0	0	0	0	0	0
Petroleum coke	10 ³ t	0	0	0	0	0	0	1.8	0	0	0
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivatives	10 ³ t	0	0	0	0	0	0	0	0	0	0
Visokopećni plin	10 ⁶ m ³	0	0	0	0	0	0	0	0	0	0
Koksni plin	10 ³ m ³	0	0	0	0	0	0	0	0	0	0
Gas works gas	10 ⁶ m ³	0	3.3	0.923	0	0	0	0	0	0	0

Table A3-8: 1A2a-g – fuel consumption

1A2g v Construction											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	99.727	0	0	0	0	0	0	0	0	0
Coking coal (kameni ugljen)	10 ³ t	40.732	53.2	168.3	193.4	74.7	119.8	132.8	81.2	68.9	63
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	18.129	3	5	1.1	2.7	0	0.1	2.6	1.6	0
Lignite	10 ³ t	0.065	2.5	0	0	0	0	0	0	0	0
Natural gas	10 ⁶ m ³	137.217	178.9	124.4	76.4	40.7	53.4	62.4	62.5	63.2	67.1
Wood	10 ³ m ³	0	0		0.3	0.9	6.6	6.9	5.7	1.3	6.2
Biogas	TJ	0	0		0	0	0	0	0		
Wood waste	TJ	0	57.8	0	370.6	289	138.5	67	89.5	2208.2	2305.1
Briketi ugljena	10 ³ t	2.829	0				0				
Coke oven coke	10 ³ t	3.64	16.1	0	17.3	20.6	26.3	27.4	30.2	26	29.8
Liquified petroleum gas	10 ³ t	0	3.3	4.6	3.2	1.6	0.5	1.2	0.6	0.4	0.4
Motor Gasoline	10 ³ t	0	0		0		0	0.1	0.2	0.1	0.1
Petroleum	10 ³ t					0	0	0	0	0	0
Diesel	10 ³ t	0	0	15	14.3	11.1	6.9	6.7	7.5	7.8	11.6
Gas/Diesel oil	10 ³ t	17.142	34	7	4.3	2.7	4	4.6	5	4.1	4.4
Residual fuel oil	10 ³ t	127.115	135	53.1	7.3	3.9	2.1	1.7	2.5	2.5	1.8
Petroleum coke	10 ³ t	0	0	171.6	115.3	167.2	100.7	88	109.8	145.6	101.4
Refinery gas	10 ³ t	0	0	0	0	0	0	0		0	0
Other oil derivates	10 ³ t	0	0		0	0	0	0	0	0	0
Visokopećni plin	10 ⁶ m ³	0	0								
Koksni plin	10 ³ m ³	0	0								
Gas works gas	10 ⁶ m ³	0	0	0	0	0	0	0	0	0	0
Industrial waste-non ren.	TJ				319.1	390	1630.3	1875	1929	2019.5	2031.3

1A2g viii Other industry (analiza industrije+Opća potrošnja-Građevinarstvo)											
Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	10 ³ t	0	0	0	0	0	0	0	0	0	0
Coking coal (kameni ugljen)	10 ³ t	0.794	0	0	0	0	0	0	0	0	0
Sub-Bituminous Coal (Mrki ugljen)	10 ³ t	48.369	0.1	4.2	0	0	0	0	0	0	0
Lignite	10 ³ t	0.431	0.1	0.2	0	0	0	0	0	0	0
Natural gas	10 ⁶ m ³	79.309	55	65.3	54.4	44.2	45.5	50.2	50	43.3	41.9
Wood	10 ³ m ³	0	0		39.4	27.4	21.9	21	21.8	24.3	22.3
Biogas	TJ	0	0		0	0	0	0	0		
Wood waste	TJ	3518.1	2224.4	2087.5	1456.677	579	584.9	524.8	395.9	347.5	340.3
Briketi ugljena	10 ³ t	0.311	0				0				
Coke oven coke	10 ³ t	2.549	0.3	1	0.1	0	0	0	0	0	0
Liquified petroleum gas	10 ³ t	3.317	3.2	8	6.8	5.7	5.3	6.7	3.7	2.9	2.5
Motor Gasoline	10 ³ t	0	0	6.9	5.1	4	0.1	3.5	3.5	0.1	0.1
Petroleum	10 ³ t					0	0	0	0	0	0
Diesel	10 ³ t	0	0	110.6	102.2	79.2	92.7	106.2	114.5	1.8	1.6
Gas/Diesel oil	10 ³ t	17.87	7.6	23	12.2	8.7	4.4	9.6	10.1	5.1	4.1
Residual fuel oil	10 ³ t	59.519	19.4	17.7	8.4	3.8	1.8	2.1	1.9	2.1	1.9
Petroleum coke	10 ³ t	0	0	0	0	0	0	0	0	0	0
Refinery gas	10 ³ t	0	0	0	0	0	0	0	0	0	0
Other oil derivates	10 ³ t	0	0		0	0	0	0	0	0	0
Visokopećni plin	10 ⁶ m ³	0	0								
Koksni plin	10 ³ m ³	0	0								
Gas works gas	10 ⁶ m ³	0	3.5	2.456	0	0	0	0	0	0	0

Fuel consumption	Unit	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Motorni benzin	TJ	477.113	169.442	236.327	245.245	191.737	169.442	164.983	160.5240000	187.2780000	249.7040000
Dizelsko gorivo	TJ	3993.385	2861.57	4856.127	4527.26	3562.014	4288.084	4856.127	5244.7880000	5911.0640000	6620.0500000

Table A3-8: 1A2a-g – NCV

Net Calorific Value		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Anthracite	MJ/kg	29.29	29.31	29.31	29.31	29.31	29.31	29.31	29.31	29.31	29.31
Coking coal (kameni ugljen)	MJ/kg	25.14	26.15	25.1	24.77332	26.7	27	26.48	26.78	25.92	26.84
Sub-Bituminous Coal (Mrki ugljen)	MJ/kg	16.74	17.8	18.5	17.6	17	18.43	18.5	18.5	15.70	-
Lignite	MJ/kg	10.9	12	12.1		0	11.2	0	0		
Natural gas	MJ/m ³	34	34	34.0	34.0	34.6	34.77	35	35.3	37.0	37.0
Wood	GJ/m ³	9	9	9.0	9.0	9	9	9	9	9.0	9.0
Biogas	TJ/TJ	1	1	1.0	1.0	1	1	1	1	1.0	1.0
Wood waste	TJ/TJ	1	1	1.0	1.0	1	1	1	1	1.0	1.0
Briketi ugljena	MJ/kg	16.74									
Coke oven coke	MJ/kg	29.31	29.31	29.3	29.3	29.31	29.31	29.31	29.31	29.3	29.3
Liquified petroleum gas	MJ/kg	46.89	46.89	46.9	46.9	46.89	46.89	46.89	46.89	46.9	46.9
Motor Gasoline	MJ/kg	44.59	44.59	44.6	44.6	44.59	44.59	44.59	44.59	44.6	44.6
Petroleum	MJ/kg	43.94	43.96			43.96	43.96	43.96	43.96	44.0	44.0
Diesel	MJ/kg	42.71	42.71	42.7	42.7	42.71	42.71	42.71	42.71	42.7	42.7
Gas/Diesel oil	MJ/kg	42.71	42.71	42.7	42.7	42.71	42.71	42.71	42.71	42.7	42.7
Residual fuel oil	MJ/kg	40.19	40.19	40.2	40.2	40.19	40.19	40.19	40.19	40.2	40.2
Petroleum coke	MJ/kg	29.31	31	31.0	31.0	31	31	31	31	31.0	31.0
Refinery gas	MJ/kg					0	42.6	0	0		
Other oil derivates	MJ/kg					0	40.19	0	0		
Visokopećni plin	MJ/m ³										
Koksni plin	MJ/m ³	17.91									
Gas works gas	MJ/m ³	15.82	15.8	21.47		0		0	0		
Industrial waste-non ren.	TJ/TJ	1.0	1.0	1.0	1.0	1	1	1	1	1	1

Table A3-9: 1A2a-g –emission factors

Fuel type	EF CO ₂ , t/TJ	EF CH ₄ , kg/TJ	EF N ₂ O, kg/TJ
Anthracite	98.3	10	1.5
Coking coal (kameni ugljen)	94.6	10	1.5
Sub-Bituminous Coal (Mrki ugljen)	96.1	10	1.5
Lignite	101	10	1.5
Natural gas	56.1	1	0.1
Wood	112	30	4
Biogas	79.6	3	0.6
Wood waste	100	30	4
Coke oven coke	107	10	1.5
Liquified petroleum gas	63.1	1	0.1
Motor Gasoline	69.3	3	0.6
Diesel	74.1	3	0.6
Gas/Diesel oil	74.1	3	0.6
Residual fuel oil	77.4	3	0.6
Petroleum coke	97.5	3	0.6
Refinery gas	57.6	1	0.1
Other oil derivates	0	3	0.6
Gas works gas	44.4	1	0.1
Industrial waste-non ren.	143	30	4

Table A3-11: 1A3a – fuel consumption, NCV and emission factors

		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Domestic aviation											
Fuel consumption											
Aviation gasoline	1000 t	0.00	0.00	1.00	1.00	0.30	0.40	0.50	0.40	0.50	0.40
NCV for gasoline	MJ/kg	44.59	44.59	44.59	44.59	44.59	44.59	44.59	44.59	44.59	44.59
Jet kerosene	1000 t	2.00	8.00	11.00	9.00	9.50	4.90	6.60	7.80	9.10	9.40
NCV for jet kerosene	MJ/kg	44.00	43.96	43.96	43.96	43.96	43.96	43.96	43.96	43.96	43.96
Motor gasoline	1000 t	0.10	0.10								
NCV motor gasoline	MJ/kg	44.59	44.59								
Total fuel consumption	TJ	92.46	356.14	528.15	440.23	431.00	233.24	312.43	360.72	422.33	431.06
Emissions											
EF CO ₂ - aviation gasoline	t/TJ	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
EF CO ₂ - jet kerosene	t/TJ	71.50	71.50	71.50	71.50	71.50	71.50	71.50	71.50	71.50	71.50
EF CO ₂ - motor gasoline	t/TJ	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30
CO₂ Emission	Gg	6.60	25.45	37.70	31.41	30.80	16.65	22.31	25.77	30.16	30.79
EF CH ₄ - gasoline	kg/TJ	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
EF CH ₄ - jet kerosene	kg/TJ	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
EF CH ₄ - motor gasoline	kg/TJ	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CH₄ Emission	Mg	0.05	0.18	0.26	0.22	0.22	0.12	0.16	0.18	0.21	0.22
EF N ₂ O - gasoline	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
EF N ₂ O - jet kerosene	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
EF N ₂ O - motor gasoline	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
N₂O Emission	Mg	0.18	0.71	1.06	0.88	0.86	0.47	0.62	0.72	0.84	0.86

Table A3-12: 1A3b – fuel consumption, NCV and emission factors

1A3bi	CARS		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
	FUEL CONSUMPTION											
	Gasoline	TJ	31889.08	32292.86	29259.62	26732.34	21817.61	16082.50	18016.03	19327.90	21575.94	23428.15
	Diesel oil	TJ	1638.19	8880.71	19728.46	25322.92	32003.51	33384.62	36234.77	39065.64	44482.81	49614.86
	LPG	TJ	#DIV/0!	459.52	1036.27	2752.44	3141.63	2475.79	2593.02	2175.70	1988.14	1913.11
	CNG	TJ				2.34	3.62	12.84	12.228	10.311	12.323	8.962
	Biodiesel	TJ				59.130177	598.4200945	1702.05292	2367.61217	545.14	7.30	11.86
	NCV											
	Gasoline	MJ/kg	1	1	1	1	1	1	1	1	1	1
	Diesel oil	MJ/kg	1	1	1	1	1	1	1	1	1	1
	LPG	MJ/kg	1	1	1	1	1	1	1	1	1	1
	CNG	MJ/106m3	1	1	1	1	1	1	1	1	1	1
	Biodiesel	MJ/kg										
	EF CO2											
	EF CO2 - gasoline (t/TJ)	t/TJ	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
	EF CO2 - diesel (t/TJ)	t/TJ	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	EF CO2 -LPG (t/TJ)	t/TJ	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1
	EF CO2 - CNG(t/TJ)	t/TJ	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
	EF CO2 - Biodiesel (t/TJ)	t/TJ	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8

1A3bii	LIGHT DUTY TRUCKS		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
	FUEL CONSUMPTION											
	Gasoline	TJ	1394.4738	1040.8302	666.77447	421.99073	228.3064714	221.492924	234.429233	253.392775	285.728682	310.2573397
	Diesel oil	TJ	3357.0545	5345.5403	9130.0068	7984.733	5372.147924	6774.61926	8264.92243	9487.83389	11099.32044	12379.86511
	LPG	TJ	0	0	0	0	0	0	0	0	0	0
	CNG	TJ										
	Biodiesel	TJ				23.550799	131.6868794	336.435199	467.99254	107.755508	1.442751569	2.3444713
	NCV											
	Gasoline	MJ/kg	1	1	1	1	1	1	1	1	1	1
	Diesel oil	MJ/kg	1	1	1	1	1	1	1	1	1	1
	LPG	MJ/kg	1	1	1	1	1	1	1	1	1	1
	CNG	MJ/106m3	1	1	1	1	1	1	1	1	1	1
	Biodiesel	MJ/kg										
	EF CO2											
	EF CO2 - gasoline (t/TJ)	t/TJ	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
	EF CO2 - diesel (t/TJ)	t/TJ	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	EF CO2 -LPG (t/TJ)	t/TJ	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1
	EF CO2 - CNG(t/TJ)	t/TJ	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
	EF CO2 - Biodiesel (t/TJ)	t/TJ	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8

1A3biii	HEAVY DUTY TRUCKS+BUSSES		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
	FUEL CONSUMPTION											
	Gasoline	TJ	149.5810	54.2238	53.9165	26.2786	30.4085	9.8617	4.9062	5.2771	4.5676	4.9598
	Diesel oil	TJ	10645.1605	9597.3914	11955.2053	13673.2825	14636.2389	16234.2970	15613.6958	17013.8924	19269.9302	21493.1300
	LPG	TJ	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	CNG	TJ				86.0566	134.7824	115.8095	155.7717	141.4787	109.7769	79.8377
	Biodiesel	TJ				31.7089	290.0421	684.1301	951.6477	219.1173	2.9338	4.7674
	NCV											
	Gasoline	MJ/kg	1	1	1	1	1	1	1	1	1	1
	Diesel oil	MJ/kg	1	1	1	1	1	1	1	1	1	1
	LPG	MJ/kg	1	1	1	1	1	1	1	1	1	1
	CNG	MJ/106m3	1	1	1	1	1	1	1	1	1	1
	Biodiesel	MJ/kg	0	0	1	1	1	1	1	1	1	1
	EF CO2											
	EF CO2 - gasoline (t/TJ)	t/TJ	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
	EF CO2 - diesel (t/TJ)	t/TJ	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	EF CO2 -LPG (t/TJ)	t/TJ	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1
	EF CO2 - CNG(t/TJ)	t/TJ	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
	EF CO2 - Biodiesel (t/TJ)	t/TJ	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8

1A3biv	MOTORCYCLES		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
	FUEL CONSUMPTION											
	Gasoline	TJ	432.971	687.760	942.854	1205.384	1110.474	902.343	1029.812	1107.647	1351.775	1467.819
	Diesel oil	TJ	0.000	0.000	0.000	0.063	0.344	0.745	0.941	1.024	1.485	1.656
	LPG	TJ										
	CNG	TJ										
	Biodiesel	TJ				0.0001431	0.006221066	21.9344675	30.5115732	7.02530442	0.094062653	0.152851812
	NCV											
	Gasoline	MJ/kg	1	1	1	1	1	1	1	1	1	1
	Diesel oil	MJ/kg	1	1	1	1	1	1	1	1	1	1
	LPG	MJ/kg	1	1	1	1	1	1	1	1	1	1
	CNG	MJ/106m3	1	1	1	1	1	1	1	1	1	1
	Biodiesel	MJ/kg	0	0	1	1	1	1	1	1	1	1
	EF CO2											
	EF CO2 - gasoline (t/TJ)	t/TJ	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
	EF CO2 - diesel (t/TJ)	t/TJ	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
	EF CO2 -LPG (t/TJ)	t/TJ	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1
	EF CO2 - CNG(t/TJ)	t/TJ	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
	EF CO2 - Biodiesel (t/TJ)	t/TJ	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8

Table A3-13: 1A3c– fuel consumption, NCV and emission factors

Rail transport		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption											
Gasoline (1000 t)	1000 t	0.10	0.10								
NCV for gasoline (MJ/kg)	MJ/kg	44.59	44.59								
Diesel (1000 t)	1000 t	36.10	27.20	30.50	28.50	17.50	13.30	14.30	14.70	12.10	17.10
NCV for diesel (MJ/kg)	MJ/kg	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
Fuel oil (1000 t)	1000 t	0.20									
NCV for fuel oil (MJ/kg)	MJ/kg	40.19									
Light heating oil (1000 t)	1000 t	1.10									
NCV for light heating oil (MJ/	MJ/kg	42.71									
Brown coal (1000 t)	1000 t	10.00									
NCV for brown coal (MJ/kg)	MJ/kg	16.74									
Lignite (1000 t)	1000 t	4.30									
NCV for lignite (MJ/kg)	MJ/kg	10.90									
Jet Kerosene (1000 t)	1000 t	0.10									
NCV for jet kerosene (MJ/m3)	MJ/kg	43.94									
Total fuel consumption (TJ)	TJ	1,819.97	1,166.17	1,302.66	1,217.24	747.43	568.04	610.75	627.84	516.79	730.34
Emissions											
EF CO2 - gasoline (t/TJ)	t/TJ	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30
EF CO2 - diesel (t/TJ)	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - fuel oil (t/TJ)	t/TJ	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - light heating oil (t/TJ)	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - brown coal (t/TJ)	t/TJ	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10
EF CO2 - lignite (t/TJ)	t/TJ	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00	107.00
EF CO2 - jet kerosene (t/TJ)	t/TJ	71.50	71.50	71.50	71.50	71.50	71.50	71.50	71.50	71.50	71.50
EF CO2 - petroleum (t/TJ)	t/TJ										
CO2 Emission (Gg)	Gg	140.08	86.39	96.53	90.20	55.38	42.09	45.26	46.52	38.29	54.12
EF CH4 - gasoline (kg/TJ)	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - diesel (kg/TJ)	kg/TJ	4.15	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32
EF CH4 - fuel oil (kg/TJ)	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - light heating oil (kg/TJ)	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - brown coal (kg/TJ)	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
EF CH4 - lignite (kg/TJ)	kg/TJ	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EF CH4 - jet kerosene (t/TJ)	kg/TJ	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EF CH4 - petroleum (t/TJ)	kg/TJ										
CH4 Emission (Mg)	Mg	6.97	3.87	4.32	4.04	2.48	1.89	2.03	2.08	1.72	2.42
EF N2O - gasoline (kg/TJ)	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - diesel (kg/TJ)	kg/TJ	28.60	28.60	28.60	28.60	28.60	28.60	28.60	28.60	28.60	28.60
EF N2O - fuel oil (kg/TJ)	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - light heating oil (kg/TJ)	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - brown coal (kg/TJ)	kg/TJ	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - lignite (kg/TJ)	kg/TJ	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - jet kerosene (t/TJ)	kg/TJ	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - petroleum (t/TJ)	kg/TJ										
N2O Emission (Mg)	Mg	44.46	33.23	37.26	34.81	21.38	16.25	17.47	17.96	14.78	20.89

Table A3-14: 1A3d– fuel consumption, NCV and emission factors

National navigation		1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption											
Gasoline (1000 t)	1000 t	0.10	0.30								
NCV for gasoline (MJ/kg)	MJ/kg	44.59	44.59								
Diesel (1000 t)	1000 t	38.70	25.70	31.80	34.80	41.20	40.20	46.90	48.30	46.70	48.80
NCV for diesel (MJ/kg)	MJ/kg	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
Fuel oil (1000 t)	1000 t	2.10	1.40		2.00						
NCV for fuel oil (MJ/kg)	MJ/kg	40.19	40.19		40.19						
Light heating oil (1000 t)	1000 t	1.60									
NCV for light heating oil (MJ/kg)	MJ/kg	42.71									
Total fuel consumption (TJ)		1,810.07	1,167.29	1,358.18	1,566.69	1,759.65	1,716.94	2,003.10	2,062.89	1,994.56	2,084.25
Emissions											
EF CO2 - gasoline (t/TJ)	t/TJ	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30
EF CO2 - diesel (t/TJ)	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - fuel oil (t/TJ)	t/TJ	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - light heating oil (t/TJ)	t/TJ	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
CO2 Emission (Gg)	Gg	134.38	86.62	100.64	116.36	130.39	127.23	148.43	152.86	147.80	154.44
EF CH4 - gasoline (kg/TJ)	kg/TJ	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
EF CH4 - diesel (kg/TJ)	kg/TJ	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
EF CH4 - fuel oil (kg/TJ)	kg/TJ	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
EF CH4 - light heating oil (kg/TJ)	kg/TJ	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
CH4 Emission (Mg)	Mg	12.67	8.17	9.51	10.97	12.32	12.02	14.02	14.44	13.96	14.59
EF N2O - gasoline (kg/TJ)	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
EF N2O - diesel (kg/TJ)	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
EF N2O - fuel oil (kg/TJ)	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
EF N2O - light heating oil (kg/TJ)	kg/TJ	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
N2O Emission (Mg)	Mg	3.48	2.33	2.72	3.13	3.52	3.43	4.01	4.13	3.99	4.17

Table A3-15: 1A4a– fuel consumption, NCV and emission factors

Commercial/Institutional	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption										
Petroleum (1000 t)	3.80									
NCV for jet kerosene (MJ/kg)	43.94									
Light heating oil (1000 t)	90.30	120.50	131.60	73.80	44.60	25.60	22.70	24.70	23.20	21.70
NCV for light heating oil (MJ/kg)	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
Fuel oil (1000 t)	67.60	3.90	6.60	8.00	2.70	0.00	0.00	0.00	0.00	0.00
NCV for fuel oil (MJ/kg)	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
LPG (1000 t)	4.30	13.90	20.10	12.90	12.30	10.00	11.70	8.60	6.70	6.80
NCV for LPG (MJ/kg)	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89
Anthracite (1000 t)										
NCV for anthracite (MJ/kg)										
Brown coal (1000 t) (MU)	24.50	9.50	0.20	2.20		0.00	0.00	0.00	0.00	0.00
NCV for brown coal (MJ/kg)	16.74	17.80	18.50	17.60	16.89	18.43	18.50	18.50	15.70	15.70
Lignite (1000 t)	40.00	1.20	0.60	0.30	0.10	0.00	0.00	0.00	0.00	0.00
NCV for lignite (MJ/kg)	10.90	12.00	12.10	11.60	10.50	11.20	11.50	11.50	11.50	11.50
Briquettes (1000 t)	2.90									
NCV for briquettes (MJ/kg)	16.74									
Gas work gas (1000000 m3)	4.90	1.50	3.43	2.84	0.39					
NCV for gas work gas (MJ/m3)	15.82	19.49	21.47	18.72	17.10					
Natural gas (1000000 m3)	124.30	98.20	151.20	192.70	204.80	235.90	278.70	232.00	193.90	198.60
NCV for natural gas (MJ/m3)	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
Gasoline (1000 t)										
NCV for gasoline (MJ/kg)										
Petroleum coke (1000 t)	1.50									
NCV for petroleum coke (MJ/kg)	33.57									
Anthracite (1000 t)										
NCV for anthracite (MJ/kg)										
Solid Biomass-Wood (TJ) + characoal	0.00	0.00	0.00	129.80	213.50	558.30	559.20	573.70	572.20	419.90
Bio gas (TJ)				102.26	116.59	120.39	107.74	113.78	96.39	49.48
Total fuel consumption (TJ)	12,190.9	9,506.6	12,053.9	10,957.7	10,014.1	10,443.2	11,939.6	10,335.3	9,147.9	9,063.2
Commercial/Institutional										
Emissions										
EF CO2 - petroleum (t/TJ)	73.30	73.30	73.30	73.30	73.30	73.30	73.30	73.30	73.30	73.30
EF CO2 - diesel (t/TJ)	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - fuel oil (t/TJ)	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - LPG (t/TJ)	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - anthracite (t/TJ)										
EF CO2 - brown coal (t/TJ)	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10
EF CO2 - lignite (t/TJ)	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
EF CO2 - briquettes (t/TJ)	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50
EF CO2 - gas works gas (t/TJ)	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - natural gas (t/TJ)	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
EF CO2 - gasoline (t/TJ)										
EF CO2 - sub bit coal (t/TJ)										
EF CO2 - petroleum coke (t/TJ)	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50
EF CO2 -anthracite (t/TJ)	98.30	98.30	98.30	98.30	98.30	98.30	98.30	98.30	98.30	98.30
EF CO2 - solid biomass wood (t/TJ)	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00
EF CO2 - landfill gas(t/TJ)	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60	54.60
CO2 Emission (Gg)	854.65	640.93	789.25	690.73	614.15	639.86	722.20	633.52	565.07	550.76

Table A3-15: 1A4a– fuel consumption, NCV and emission factors, cont

EF CH4 - petroleum (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - diesel (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - fuel oil (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - LPG (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - anthracite (kg/TJ)										
EF CH4 - brown coal (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - lignite (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - briquettes (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - gas work gas (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - natural gas (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - gasoline (kg/TJ)										
EF CH4 - sub bit coal(kg/TJ)										
EF CH4 - petroleum coke (t/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - anthracite (t/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 -solid biomass wood (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 - landfill gas (t/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
CH4 Emission (Mg)	99.38	74.97	89.75	110.66	123.12	222.38	229.51	226.19	219.49	173.82
EF N2O - petroleum (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - diesel (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - fuel oil (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - LPG (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - anthracite (kg/TJ)										
EF N2O - brown coal (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - lignite (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - briquettes (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - gas work gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - natural gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - gasoline (kg/TJ)										
EF N2O - sub bit coal(kg/TJ)										
EF N2O - petroleum coke (t/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - anthracite (t/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - solid biomass wood (kg/TJ)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
EF N2O - landfill gas (t/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
N2O Emission (Mg)	5.87	3.86	4.16	3.40	2.84	3.77	3.86	3.80	3.64	3.01

Table A3-16: 1A4b– fuel consumption, NCV and emission factors

Residential	1990	2000	2010	2011	2015	2020	2021	2022	2023	2024
Fuel consumption										
Fuel consumption - mobile										
Gasoline (1000 t)	4.00	12.10	8.20	8.20	7.50	7.60	7.80	7.50	7.90	8.30
NCV for gasoline (MJ/kg)	44.59	44.59	44.59	44.59	44.59	44.59	44.59	44.59	44.59	44.59
Fuel consumption - stationary										
Petroleum (1000 t)		1.60	0.90	1.00						
NCV for petroleum (MJ/kg)		43.96	43.96	43.96	43.96					
Light heating oil (1000 t)	215.90	231.50	138.80	122.00	84.50	58.20	42.30	56.10	52.80	52.90
NCV for light heating oil (MJ/kg)	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
Fuel oil (1000 t)	48.70	8.10	10.40	11.90	4.30	0.00	0.00	0.00	0.00	0.00
NCV for fuel oil (MJ/kg)	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
LPG (1000 t)	97.90	51.90	72.20	74.40	47.60	40.90	41.00	37.50	31.80	36.40
NCV for LPG (MJ/kg)	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89
Brown coal (1000 t)	123.10	12.00	6.10	2.30	1.20	1.70	1.50	1.10	1.00	1.20
NCV for brown coal (MJ/kg)	16.74	17.80	17.60	17.10	17.00	18.43	18.50	18.50	15.70	15.70
Lignite (1000 t)	207.30	15.00	9.40	9.00	7.00	4.30	4.00	3.10	2.30	2.30
NCV for lignite (MJ/kg)	10.90	12.00	11.60	11.60	10.50	11.20	11.50	11.50	11.50	11.50
Hard coal (1000 t)										
NCV for hard coal (MJ/kg)										
Anthracite (1000 t)										
NCV for anthracite (MJ/kg)										
Briquettes (1000 t)	6.10									
NCV for briquettes (MJ/kg)	16.74									
Gas work gas (1000000 m3)	24.40	9.90	7.20	4.98	0.19					
NCV for gas work gas (MJ/m3)	15.82	19.49	17.20	17.20	17.10					
Natural gas (1000000 m3)	230.00	496.60	732.90	670.20	540.00	584.80	627.00	580.20	542.80	553.70
NCV for natural gas (MJ/m3)	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
Solid Biomass-Wood (TJ)	42,170.0	39,690.0	49,539.0	48,344.0	48,622.7	42,763.0	46,453.4	42,071.6	40,726.4	38,502.1
Charcoal (TJ)	0.00	0.00	154.00	139.26						
Total fuel consumption (TJ)	70,745.6	70,417.3	85,088.7	81,086.5	73,752.1	67,918.4	72,549.1	67,097.5	64,950.6	63,370.5
Residential										
Emissions i+ii										
EF CO2 - gasoline (t/TJ)	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30
EF CO2 - petroleum (t/TJ)	73.30	73.30	73.30	73.30	73.30	73.30	73.30	73.30	73.30	73.30
EF CO2 - diesel (t/TJ)	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
EF CO2 - fuel oil (t/TJ)	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - LPG (t/TJ)	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - brown coal (t/TJ)-mrki	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10
EF CO2 - lignite (t/TJ)	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00	101.00
EF CO2 -hard coal (t/TJ)-kameni	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60	94.60
EF CO2 - anthracite (t/TJ)	98.30	98.30	98.30	98.30	98.30	98.30	98.30	98.30	98.30	98.30
EF CO2 - briquettes (t/TJ)	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50	97.50
EF CO2 - gas work gas (t/TJ)	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - natural gas (t/TJ)	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
EF CO2 - solid biomass wood (t/TJ)	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00
EF CO2 - Charcoal (t/TJ)	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00	112.00
CO2 Emission (Gg)	6,751.88	6,393.72	7,703.87	7,398.41	6,948.26	6,266.73	6,720.49	6,178.24	5,977.83	5,766.80

Table A3-16: 1A4b– fuel consumption, NCV and emission factors, cont.

EF CH4 - gasoline (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - petroleum (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - diesel (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - fuel oil (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - LPG (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - brown coal (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 - lignite (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 - hard coal (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 - anthracite (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 - briquettes (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 - gas work gas (t/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - natural gas (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 -solid biomass wood (kg/TJ)	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
EF CH4 -Charcoal (kg/TJ)	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
CH4 Emission (Mg)	14,155.3	12,230.9	15,167.1	14,767.0	14,760.7	12,992.2	14,099.0	12,776.8	12,364.5	11,701.5
EF N2O - gasoline (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - petroleum (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - diesel (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - fuel oil (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - LPG (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - brown coal (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - lignite (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - hard coal (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - anthracite (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - briquettes (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - gas work gas (kg/TJ)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
EF N2O - natural gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - solid biomass wood (kg/TJ)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
EF N2O - Charcoal (kg/TJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
N2O Emission (Mg)	183.95	168.07	205.70	200.15	199.20	175.09	189.60	172.23	166.69	157.87

Table A3-17: 1A4c– fuel consumption, NCV and emission factors

Agriculture/forestry/fishing	1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
Fuel consumption										
Other kerosene (1000 t)	0.10									
NCV for other kerosene (MJ/kg)	43.94									
Diesel + light heating oil (1000 t)	232.60	237.60	197.40	200.10	182.60	193.40	192.00	197.90	198.30	204.30
NCV for diesel (MJ/kg)	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71	42.71
Fuel consumption - mobile (TJ)	9,938.7	10,147.9	8,431.0	8,546.3	7,798.8	8,260.1	8,200.3	8,452.3	8,469.4	8,725.7
Fuel oil (1000 t)	12.30	13.40	4.70	4.40	2.10	0.00	0.00	0.00	0.00	0.00
NCV for fuel oil (MJ/kg)	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19	40.19
LPG (1000 t)	4.40	2.60	2.70	2.70	2.50	2.70	2.70	2.30	2.40	2.50
NCV for LPG (MJ/kg)	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89	46.89
Gas work gas (1000000 m3)										
NCV for gas work gas (MJ/m3)										
Natural gas (1000000 m3)	25.00	14.50	23.20	22.20	21.40	30.30	36.30	30.30	25.00	28.70
NCV for natural gas (MJ/m3)	34.00	34.00	34.00	34.00	34.60	34.77	35.00	35.30	37.00	37.00
Fuel consumption - stationary (TJ)	1,550.7	1,153.5	1,104.3	1,058.2	942.1	1,180.1	1,397.1	1,177.4	1,037.5	1,179.1
Total fuel consumption (TJ)	11,489.4	11,301.4	9,535.3	9,604.5	8,740.9	9,440.2	9,597.4	9,629.7	9,506.9	9,904.8
Agriculture/forestry/fishing										
Emissions										
EF CO2 - gasoline (t/TJ)	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30	69.30
EF CO2 - other kerosene (t/TJ)	71.90	71.90	71.90	71.90	71.90	71.90	71.90	71.90	71.90	71.90
EF CO2 - diesel (t/TJ)	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10	74.10
CO2 emission (Gg) - mobile	736.45	751.96	624.73	633.28	577.89	612.07	607.64	626.32	627.58	646.57
EF CO2 - fuel oil (t/TJ)	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40	77.40
EF CO2 - LPG (t/TJ)	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10	63.10
EF CO2 - gas work gas (t/TJ)	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40
EF CO2 - natural gas (t/TJ)	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10	56.10
CO2 emission (Gg) - stationary	98.97	77.03	66.86	64.02	55.47	67.09	79.26	66.81	58.99	66.97
Total CO2 emission (Gg)	835.42	828.99	691.59	697.30	633.36	679.17	686.91	693.13	686.58	713.54
EF CH4 - gasoline (kg/TJ)	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
EF CH4 - other kerosene (kg/TJ)	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
EF CH4 - diesel (kg/TJ)	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
CH4 emission (Mg) - mobile	41.84	42.11	34.99	35.47	32.37	34.28	34.03	35.08	35.15	36.21
EF CH4 - fuel oil (kg/TJ)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
EF CH4 - LPG (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - gas work gas (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
EF CH4 - natural gas (kg/TJ)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
CH4 emission (Mg) - stationary	10.22	8.46	6.47	6.18	5.13	5.90	6.99	5.89	5.19	5.90
Total CH4 emission (Mg)	52.07	50.57	41.45	41.64	37.50	40.18	41.02	40.96	40.34	42.11
EF N2O - gasoline (kg/TJ)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
EF N2O - other kerosene (kg/TJ)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
EF N2O - diesel (kg/TJ)	28.60	28.60	28.60	28.60	28.60	28.60	28.60	28.60	28.60	28.60
N2O emission (Mg) - mobile	284.12	290.23	241.13	244.42	223.05	236.24	234.53	241.74	242.22	249.55
EF N2O - fuel oil (kg/TJ)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
EF N2O - LPG (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - gas work gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
EF N2O - natural gas (kg/TJ)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
N2O emission (Mg) - stationary	0.40	0.38	0.20	0.19	0.14	0.12	0.14	0.12	0.10	0.12
Total N2O emission (Mg)	284.53	290.61	241.33	244.62	223.18	236.36	234.67	241.85	242.33	249.67

Table A3-18: 1B1 –coal production data and CH4 emissions

		STEP 1										
		A	B	C	D	E						
		Amount of Coal	Emission Factor	Methane	Conversion	Methane						
		Produced		Emissions	Factors	Emissions						
		(millions t)	(m ³ CH ₄ / t)	(millions m ³)	(0.67 Gg CH ₄ /million m ³)	(Gg CH ₄)						
				C=(AxB)		E=(Cx D)						
Underground Mines	Mining	0.1737	18	3.13	0.67	2.09						
	Post-Mining	0.1737	2.5	0.43	0.67	0.29						
Surface Mines	Mining			0.00	0.67	0.00						
	Post-Mining			0.00	0.67	0.00						
		Total				2.39						
ZA CRF		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Fuel produced	Mt	0.173700000	0.154797	0.120274	0.1151	0.103205	0.0822	0.0663	0.0485	0.0508	0.0153	NO
Emission												
CH ₄ , Gg	Mining	2.094822	1.86685182	1.45050444	1.388106	1.2446523	0.991332	0.799578	0.58491	0.612648	0.184518	NO
	Post-Mining	0.2909475	0.25928498	0.20145895	0.1927925	0.17286838	0.137685	0.111053	0.081238	0.08509	0.025628	NO
	TOTAL	2.3857695	2.1261368	1.65196339	1.5808985	1.41752068	1.129017	0.910631	0.666148	0.697738	0.210146	NO

Table A3-19: 1B2a –activity data and emission factors for oil

1. B. 2. a. Oil				1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
1. Exploration	Unit	Emission source	IPCC Code										
ACTIVITY DATA													
Well Drilling	10 ³ m ³ total oil production		1.B.2.a.ii	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
Well Testing	10 ³ m ³ total oil production		1.B.2.a.ii	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
Well Servicing	10 ³ m ³ total oil production		1.B.2.a.ii	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
EMISSION FACTOR													
CO2													
Well Drilling	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04
Well Testing	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	9.00E-03	9.00E-03	9.00E-03	9.00E-03	9.00E-03	9.00E-03	9.00E-03	9.00E-03	9.00E-03	9.00E-03
Well Servicing	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	1.90E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06
CH4													
Well Drilling	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	3.30E-05	3.30E-05	3.30E-05	3.30E-05	3.30E-05	3.30E-05	3.30E-05	3.30E-05	3.30E-05	3.30E-05
Well Testing	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05
Well Servicing	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.10E-04
N2O													
Well Drilling	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Well Testing	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	6.80E-08	6.80E-08	6.80E-08	6.80E-08	6.80E-08	6.80E-08	6.80E-08	6.80E-08	6.80E-08	6.80E-08
Well Servicing	Gg/10 ³ m ³ total oil production	Flaring and Venting	1.B.2.a.ii	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2. Production													
ACTIVITY DATA													
Conventional oil	10 ³ m ³ total oil production	Fugitives (Onshore)	1.B.2.a.iii.2	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
Conventional oil	10 ³ m ³ total oil production	Venting	1.B.2.a.i	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
Conventional oil	10 ³ m ³ total oil production	Flaring	1.B.2.a.ii	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
EMISSION FACTOR													
CO2													
Conventional oil	Gg/10 ³ m ³ total oil production	Fugitives (Onshore)	1.B.2.a.iii.2	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04
Conventional oil	Gg/10 ³ m ³ total oil production	Venting	1.B.2.a.i	9.50E-05	9.50E-05	9.50E-05	9.50E-05	9.50E-05	9.50E-05	9.50E-05	9.50E-05	9.50E-05	9.50E-05
Conventional oil	Gg/10 ³ m ³ total oil production	Flaring	1.B.2.a.ii	4.10E-02	4.10E-02	4.10E-02	4.10E-02	4.10E-02	4.10E-02	4.10E-02	4.10E-02	4.10E-02	4.10E-02
CH4													
Conventional oil	Gg/10 ³ m ³ total oil production	Fugitives (Onshore)	1.B.2.a.iii.2	1.80E-03	1.80E-03	1.80E-03	1.80E-03	1.80E-03	1.80E-03	1.80E-03	1.80E-03	1.80E-03	1.80E-03
Conventional oil	Gg/10 ³ m ³ total oil production	Venting	1.B.2.a.i	7.20E-04	7.20E-04	7.20E-04	7.20E-04	7.20E-04	7.20E-04	7.20E-04	7.20E-04	7.20E-04	7.20E-04
Conventional oil	Gg/10 ³ m ³ total oil production	Flaring	1.B.2.a.ii	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05
N2O													
Conventional oil	Gg/10 ³ m ³ total oil production	Fugitives (Onshore)	1.B.2.a.iii.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conventional oil	Gg/10 ³ m ³ total oil production	Venting	1.B.2.a.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conventional oil	Gg/10 ³ m ³ total oil production	Flaring	1.B.2.a.ii	6.4E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07
3. Transport													
ACTIVITY DATA													
Pipelines	10 ³ m ³ total oil transported by pipelines	All	1.B.2.a.iii.3	9948.84	5552.33	8244.19	10390.70	9490.70	10759.30	10648.84	10726.74	7345.24	6799.18
Tanker Trucks and Rail	10 ³ m ³ total oil transported by tanker...	Venting	1.B.2.a.i	943.49	275.30	273.51	124.13	50.01066	54.994852	28.874954	40.512385	3.00	28.13
Natural gas liquids transport-LPG	10 ³ m ³ LPG	All	1.B.2.a.iii.3										
EMISSION FACTOR													
CO2													
Pipelines	Gg/10 ³ m ³ total oil transported	All	1.B.2.a.iii.3	4.90E-07	4.90E-07	4.90E-07	4.90E-07	4.90E-07	4.90E-07	4.90E-07	4.90E-07	4.90E-07	4.90E-07
Tanker Trucks and Rail	Gg/10 ³ m ³ total oil transported	Venting	1.B.2.a.i	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06
CH4													
Pipelines	Gg/10 ³ m ³ total oil transported	All	1.B.2.a.iii.3	5.40E-06	5.40E-06	5.40E-06	5.40E-06	5.40E-06	5.40E-06	5.40E-06	5.40E-06	5.40E-06	5.40E-06
Tanker Trucks and Rail	Gg/10 ³ m ³ total oil transported	Venting	1.B.2.a.i	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05
N2O													
Pipelines	Gg/10 ³ m ³ total oil transported	All	1.B.2.a.iii.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tanker Trucks and Rail	Gg/10 ³ m ³ total oil transported	Venting	1.B.2.a.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Refining/Storage													
ACTIVITY DATA													
Oil Refining	10 ³ m ³ oil refined	All	1.B.2.a.iii.4	7977.5581	6120.6977	5803.6047	3769.186	3328.372	2311.5116	2164.535	2043.953	1923.140	2293.953
EMISSION FACTOR													
CO2													
Oil Refining	Gg/10 ³ m ³ total oil refined	All	1.B.2.a.iii.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CH4													
Oil Refining	Gg/10 ³ m ³ total oil refined	All	1.B.2.a.iii.4	2.18E-05	2.18E-05	2.18E-05	2.18E-05	2.18E-05	2.18E-05	2.18E-05	2.18E-05	2.18E-05	2.18E-05
N2O													
Oil Refining	Gg/10 ³ m ³ total oil refined	All	1.B.2.a.iii.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table A3-20: 1B2b –activity data and emission factors for natural gas

1. B. 2. b. Natural Gas				1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
1. Exploration	Unit	Emission source	IPCC Code										
ACTIVITY DATA													
Well Drilling	10 ⁶ m ³ total natural gas production		1.B.2.a.ii	1982.30	1638.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
Well Testing	10 ⁶ m ³ total natural gas production		1.B.2.a.ii	1982.30	1638.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
Well Servicing	10 ⁶ m ³ total natural gas production		1.B.2.a.ii	1982.30	1638.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
EMISSION FACTOR													
CO ₂													
Well Drilling	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Well Testing	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Well Servicing	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
CH ₄													
Well Drilling	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Well Testing	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Well Servicing	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
N ₂ O													
Well Drilling	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Well Testing	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
Well Servicing	Gg/10 ⁶ m ³ total natural gas production	Flaring and Venting	1.B.2.a.ii	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2. Production													
ACTIVITY DATA													
Gas production	10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.2	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
Gas production	10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
EMISSION FACTOR													
CO ₂													
Gas production	Gg/10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.2	4.80E-05	4.80E-05	4.80E-05	4.80E-05	4.80E-05	4.80E-05	4.80E-05	4.80E-05	4.80E-05	4.80E-05
Gas production	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03
CH ₄													
Gas production	Gg/10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.2	1.34E-03	1.34E-03	1.34E-03	1.34E-03	1.34E-03	1.34E-03	1.34E-03	1.34E-03	1.34E-03	1.34E-03
Gas production	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	7.60E-07	7.60E-07	7.60E-07	7.60E-07	7.60E-07	7.60E-07	7.60E-07	7.60E-07	7.60E-07	7.60E-07
N ₂ O													
Gas production	Gg/10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gas production	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	2.1E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08
3. Processing													
ACTIVITY DATA													
Default weighted total	10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.3	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
Default weighted total	10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
Default weighted total	10 ⁶ m ³ gas produced	Raw CO ₂ venting	1.B.2.b.i	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
EMISSION FACTOR													
CO ₂													
Default weighted total	Gg/10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.3	1.66E-04	1.66E-04	1.66E-04	1.66E-04	1.66E-04	1.66E-04	1.66E-04	1.66E-04	1.66E-04	1.66E-04
Default weighted total	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Default weighted total	Gg/10 ⁶ m ³ gas produced	Raw CO ₂ venting	1.B.2.b.i	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CH ₄													
Default weighted total	Gg/10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.3	5.90E-04	5.90E-04	5.90E-04	5.90E-04	5.90E-04	5.90E-04	5.90E-04	5.90E-04	5.90E-04	5.90E-04
Default weighted total	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	2.00E-06	2.00E-06	2.00E-06	2.00E-06	2.00E-06	2.00E-06	2.00E-06	2.00E-06	2.00E-06	2.00E-06
Default weighted total	Gg/10 ⁶ m ³ gas produced	Raw CO ₂ venting	1.B.2.b.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N ₂ O													
Default weighted total	Gg/10 ⁶ m ³ gas produced	Fugitives	1.B.2.b.iii.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Default weighted total	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	3.3E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08
Default weighted total	Gg/10 ⁶ m ³ gas produced	Raw CO ₂ venting	1.B.2.b.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Transmission and storage													
ACTIVITY DATA													
Transmission	10 ⁶ m ³ marketable gas	Fugitives	1.B.2.b.iii.4	2686.6	2704.8	2909.9	3241.5	2519.2	3040.7	2905.9	2529.7	2589.9	2366.1
Transmission	10 ⁶ m ³ marketable gas	Venting	1.B.2.b.i	2686.6	2704.8	2909.9	3241.5	2519.2	3040.7	2905.9	2529.7	2589.9	2366.1
Storage	10 ⁶ m ³ marketable gas	All	1.B.2.b.iii.4	2686.6	2704.8	2909.9	3241.5	2519.2	3040.7	2905.9	2529.7	2589.9	2366.1
EMISSION FACTOR													
CO ₂													
Transmission	Gg/10 ⁶ m ³ marketable gas	Fugitives	1.B.2.b.iii.4	8.80E-07	8.80E-07	8.80E-07	8.80E-07	8.80E-07	8.80E-07	8.80E-07	8.80E-07	8.80E-07	8.80E-07
Transmission	Gg/10 ⁶ m ³ marketable gas	Venting	1.B.2.b.i	3.10E-06	3.10E-06	3.10E-06	3.10E-06	3.10E-06	3.10E-06	3.10E-06	3.10E-06	3.10E-06	3.10E-06
Storage	Gg/10 ⁶ m ³ marketable gas	All	1.B.2.b.iii.4	1.10E-07	1.10E-07	1.10E-07	1.10E-07	1.10E-07	1.10E-07	1.10E-07	1.10E-07	1.10E-07	1.10E-07
CH ₄													
Transmission	Gg/10 ⁶ m ³ marketable gas	Fugitives	1.B.2.b.iii.4	2.73E-04	2.73E-04	2.73E-04	2.73E-04	2.73E-04	2.73E-04	2.73E-04	2.73E-04	2.73E-04	2.73E-04
Transmission	Gg/10 ⁶ m ³ marketable gas	Venting	1.B.2.b.i	1.82E-04	1.82E-04	1.82E-04	1.82E-04	1.82E-04	1.82E-04	1.82E-04	1.82E-04	1.82E-04	1.82E-04
Storage	Gg/10 ⁶ m ³ marketable gas	All	1.B.2.b.iii.4	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05
N ₂ O													
Transmission	Gg/10 ⁶ m ³ marketable gas	Fugitives	1.B.2.b.iii.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Transmission	Gg/10 ⁶ m ³ marketable gas	Venting	1.B.2.b.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Storage	Gg/10 ⁶ m ³ marketable gas	All	1.B.2.b.iii.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5. Distribution of Natural Gas													
ACTIVITY DATA													
Gas distribution	10 ⁶ m ³ of utility sales (consumption of natural gas in 1A4-Other sectors)	All	1.B.2.a.iii.5	379.3	609.3	862.2	944.6	766.2	851	942	842.5	761.7	781
EMISSION FACTOR													
CO ₂													
Gas distribution	Gg/10 ⁶ m ³ of utility sales	All	1.B.2.a.iii.5	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05	5.10E-05
CH ₄													
Gas distribution	Gg/10 ⁶ m ³ of utility sales	All	1.B.2.a.iii.5	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03
N ₂ O													
Gas distribution	Gg/10 ⁶ m ³ of utility sales	All	1.B.2.a.iii.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table A3-21: 1B2c –activity data and emission factors for venting and flaring

1. B. 2. a. Oil				1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
2. Production	Unit	mission source	IPCC Code										
ACTIVITY DATA													
Conventional oil	10 ³ m ³ total oil production	Flaring	1.B.2.a.ii	3135.12	1411.51	1100.00	837.67	779.30	734.65	702.91	679.07	657.79	613.60
EMISSION FACTOR													
N ₂ O													
Conventional oil	Gg/10 ³ m ³ total oil production	Fugitives (Onshore)	1.B.2.a.iii.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conventional oil	Gg/10 ³ m ³ total oil production	Venting	1.B.2.a.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conventional oil	Gg/10 ³ m ³ total oil production	Flaring	1.B.2.a.ii	6.4E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07	6.40E-07
N ₂ O													
Conventional oil	Gg	Fugitives (Onshore)	1.B.2.a.iii.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conventional oil	Gg	Venting	1.B.2.a.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conventional oil	Gg	Flaring	1.B.2.a.ii	0.002	0.001	0.001	0.001	0.000	0.000	0.0004499	0.0004346	0.0004210	0.0003927
TOTAL N ₂ O	Gg	Flaring	1.B.2.a.ii	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
3. Transport									2020	2021	2022	2023	2023
ACTIVITY DATA													
Pipelines	10 ³ m ³ total oil transported by pipelines	All	1.B.2.a.iii.3	9948.84	5552.33	8244.19	10390.70	9490.70	10759.30	10648.84	10726.74	7345.24	6799.18
Tanker Trucks and Rail Cars	10 ³ m ³ total oil transported by tanker...	Venting	1.B.2.a.i	943.49	275.30	273.51	124.13	50.01	54.99	28.87	40.51	30.15	28.13
Natural gas liquids transport-LPG	10 ³ m ³ LPG	All	1.B.2.a.iii.3										
EMISSION FACTOR													
CO ₂													
Tanker Trucks and Rail Cars	Gg/10 ³ m ³ total oil transported	Venting	1.B.2.a.i	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06
CH ₄													
Tanker Trucks and Rail Cars	Gg/10 ³ m ³ total oil transported	Venting	1.B.2.a.i	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05
N ₂ O													
Tanker Trucks and Rail Cars	Gg/10 ³ m ³ total oil transported	Venting	1.B.2.a.i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

1. B. 2. c. 2 ii Venting and Flaring - Gas				1990	2000	2005	2010	2015	2020	2021	2022	2023	2024
2. Production	Unit	mission source	IPCC Code										
ACTIVITY DATA													
Gas production	10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
EMISSION FACTOR													
Gas production	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	2.1E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08	2.10E-08
3. Processing													
ACTIVITY DATA													
Default weighted total	10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	1982.30	1658.50	2283.40	2727.20	1780.50	849.00	745.90	745.00	691.30	651.10
EMISSION FACTOR													
N ₂ O													
Default weighted total	Gg/10 ⁶ m ³ gas produced	Flaring	1.B.2.b.ii	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08	3.30E-08
4. Transmission and storage													
ACTIVITY DATA													
Transmission	10 ⁶ m ³ marketable gas	Fugitives	1.B.2.b.iii.4	2686.6	2704.8	2909.9	3241.5	2519.2	3040.7	2905.9	2529.7	2589.9	2366.1
EMISSION FACTOR													
N ₂ O													
Transmission	Gg/10 ⁶ m ³ marketable gas	Fugitives	1.B.2.b.iii.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Distribution of Natural Gas													
ACTIVITY DATA													
Gas distribution	10 ⁶ m ³ of utility sales (consumption of natural gas in 1A4-Other sectors)	All	1.B.2.a.iii.5	379.3	609.3	862.2	944.6	766.2	851	942	842.5	761.7	781
EMISSION FACTOR													
N ₂ O													
Gas distribution	Gg/10 ⁶ m ³ of utility sales	All	1.B.2.a.iii.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

3.2. LULUCF sector - List of implemented and planned projects

Table A3.2-1: Implemented and planned projects in LUULCF sector

Project	Status	Main objectives
Improving Croatian reporting in Land use, Land Use change and Forestry (LULUCF) sector in the First commitment period of the Kyoto Protocol (abbreviated: LULUCF 1).	Implemented (2014-2015)	The objective of the project was to comply with requirements set in the Saturday paper in 2012 regarding the traceability and identification of lands that were subject of forest activities (lands under the Article 3.3 and Article 3.4 of the KP). The main tasks of the project were: (i) identification of areas where an increase of forests occurred prior to 1990, which were a result of man's decision to support the natural spread of forests on the categories of land that haven't been forests before; (ii) identification of areas where an increase of forests occurred after 1990, which were a result of man's decision to support the natural spread of forests on the categories of land that haven't been forests before; (iii) identification of areas where an increase of forests occurred after the 1990, which were not the result of a man's decision to support the natural spread of forests to categories of land that haven't been forests before; (iv) identification of land that were subject of deforestation in period 1990-2014; The main outcome was the application of Approach 3 to identify and trace lands that are converted to and from forest lands. Registration system of LUC to/from forest land has been kept after the end of the project.
Upgrading the Croatian National System for the reporting of greenhouse gas emissions for the implementation of the Decision No 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land-use change and forestry and on information concerning actions relating to those activities (abbreviated: LULUCF 2)	Implemented (2014-2015)	The main objective of the project was to improve national NIR reporting estimates of the emissions/removals from LULUCF sector. Project activities referred to the setting the preconditions for the development of a future land cover and land use information system as well as improvements in reporting system procedures.
The analysis of the national forest inventory data for fulfilling obligations under the UN Framework Convention on Climate Change and the Kyoto Protocol.	Implemented (2016)	The objective of the project was to analyse and discuss the importance and usability of data collected during National Forest Inventories (NFI) in fulfilment of national obligations set under the UN Framework Convention on climate change, Kyoto Protocol and according to the Decision No 529/2013/EU of the European Parliament and of the Council. One of the main outcomes was the international workshop that had been organized to exchange information, experience and knowledge among experts from EU member states on these data issues for the purpose of future planning in forestry sector and reporting from LULUCF sector.
Calculation of greenhouse gas emissions due to natural disturbances under the provisions of Decision 2/CMP.7	Implemented (2016-2017)	The main goal of the project was to determine types of the natural disturbances for the forests in Croatia and to define background level (BL) and margin level (ML) in areas under the forest management activity (FM) and afforestation activity (A).
Application of the IPCC Tier 2 method for the estimation of the carbon stock change in dead wood pool on the deforested areas in Republic of Croatia.	Implemented (2018)	The use of data from the national forest inventory databases (abbreviated: CRONFI) to perform the estimation of carbon stock changes in the deadwood pool using a higher level (Tier 2) of the IPCC methodology for the forest land areas that had been converted to perennial cropland and settlements (areas subject of deforestation).

Project	Status	Main objectives
Application of the IPCC Tier 2 method for the estimation of the greenhouse gases emissions from forest fires.	Implemented (2019-2020)	The assessment of the biomass structure on the burnt areas in order to develop national specific values of the M_B and C_f factors for the application of a higher level (Tier 2) of the IPCC methodology for calculating GHG emissions as a result of biomass burning in Croatia.
Croatian Land Information System (abbreviated: CROLIS).	Ongoing (2020-2026)	The aim of the project is a development of harmonized land monitoring system that enables integration and processing of Land Cover (LC), Land Use (LU) and land management data from different data sources and its use for a variety of purposes.
New uncertainty estimates in LULUCF sector	Implemented (2021-2022)	The aim of the project was to perform new uncertainty estimates in LULUCF sector.
Defining preconditions for applying IPCC higher Tiers in the estimation of GHG removals/emissions in Land use, land use change and forestry (LULUCF) sector (abbreviated: LULUCF 3)	Implemented (2020-2022)	The aim of the project was an examination and the review of the existing systems for determining the content of carbon stocks in biomass in the category of Forest land as well as in the categories of land that have been converted into forest land (Cropland and Grassland). Also, it is envisaged to define preconditions for the development of the appropriate models on national level for the future reporting.
Strengthening the capacity to make projections in the LULUCF sector (LULUCF projections project).	Implemented (2021-2023)	The aim of the project was to define the basic settings and preconditions on national level for the preparation of projections of emissions / removals by sink in the LULUCF sector (period up to 2030, 2050) and related activities.
Determining the deadwood pool carbon stocks based on new surveys at 2006 deadwood sampling sites.	Implemented (2022-2024)	Through this project the carbon stock change in dead wood pool in category Forest land remaining Forest land needs to be determined.
Conducting analysis to determine the possibility of increasing removals by sinks and reducing emissions in LULUCF sector.	Implemented (2021-2024)	Defining management practices that will contribute to reducing emissions/increasing removals in Forest land, Grassland and Cropland categories of land.
Develop country-specific factors for BEFs.	Planned (in the long-term)	Develop country specific BEFs for Forest land category.
Establishing a reporting system for hard wood products (HWP) (abbreviated: CRO-WOODS).	Implemented (2022-2025)	The aim of the project is to define preconditions for the development of an information system on wood products (monitoring of the entire production cycle, final product production, export) and to define the national factors needed to calculate carbon stock changes in wood products using the Tier 3 level of IPCC methodology for the NIR report purposes in the part related to the calculation for HWPs.
Tier 3 application for CSC in dead wood in deforested areas.	Planned (in the long-term)	The aim of this project is to develop model to apply Tier 3 in estimating CSC in DW pool on deforested areas in Croatia using the CRONFI data.

3.3. QA/QC checks conducted by EEA

Below is evidence of the QA / QC actions carried out at EU level by the EEA after the NIR has been submitted to EK.

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Posted automatically on:	15 Mar 2021 09:35
Task:	Automatic quality assessment
Referred file:	HRV_2021_1_04032021_1525494777527459380447287.xml
Attached files:	qa-output download
Feedback status:	WARNING
Feedback message:	This XML file generated non-blocking warnings

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Posted automatically on: 15 Mar 2021 09:30

Task: Automatic quality assessment

Referred file: [HRV_2021_1_04032021_1525494777527459380447287.xml](#)

Feedback status: INFO

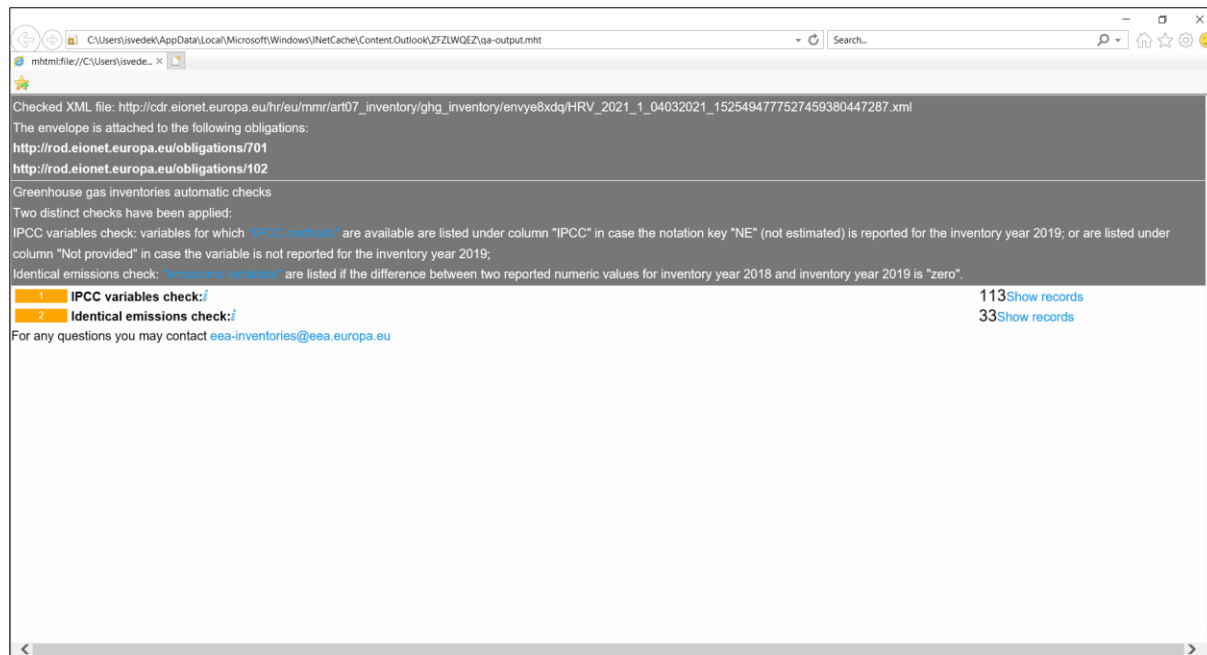
Feedback message: XML Schema validation passed without errors.

XML Schema validation

XML Schema validation passed without errors.

The file was validated against http://schemas.unfccc.int/inventoryreporting/simple1_9.xsd

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Annex 4: The national energy balance for the most recent inventory year

Table A4-1: National Energy balance for 2024, natural units

ENERGY BALANCE 2024 natural units	Anthracite	Hard coal	Brown coal	Lignite	Crude oil	Natural gas
	103 t	103 t	103 t	103 t	103 t	106 m³
Production					327.5	401.1
Import	3.2	272.4	1.2	2.3	1807.2	2556.1
Export					195.4	918.1
Import processing						
Export processing						
Stock change		81.9			-131.6	77.0
Drawers						
Energy supplied	3.2	354.3	1.2	2.3	2007.9	2366.1
Production						
Hydro power plants						
- small HPP						
Wind power plants						
Solar power plants						
Geothermal power plants						
thermal power plants						
public cogeneration plants						
public heating plants						
industrial cogeneration plants						
- in refineries						
- in gas production						
industrial heating plants						
Petroleum refineries						
NCL plant						
Coke plant						
Gas works						
Total production						
Transformation sector						
Hydro power plants						
- small HPP						
Wind power plants						
Solar power plants						
Geothermal power plants						
thermal power plants		291.3				0.1
public cogeneration plants						679.8
public heating plants						38.3
industrial cogeneration plants						179.2
- in refineries						49.7
- in gas production						51.7
industrial heating plants						60.0
Petroleum refineries					1972.8	69.4
NCL plant					35.1	4.9
Coke plant						
Gas works						
Total transformation sector		291.3			2007.9	1028.5
Energy sector own use						
Oil and gas extraction						43.2
Coal production						
Electric energy supply industry						
Hydro power plants						
thermal power plants						
public cogeneration plants						
industrial cogeneration plants						
Wind power						
Petroleum refineries						43.6
NCL plant						49.2
Gas works						
Total energy sector own use						138.0
Losses						64.3
Total energy demand	3.2	63.0	1.2	2.3	0.0	1138.3
Non energy use						109.2
Energy sector						
Petrochemical industry						109.2
Other industry						
Construction						
Transport						
Agriculture						
Energy consumption	3.2	63.0	1.2	2.3	0.0	1029.1
Industry	3.2	63.0				242.6
Iron and steel	3.2					12.3
Non-ferrous metals						13.5
Non-metallic minerals						44.1
Chemical						15.1
Construction materials		63.0				67.1
Pulp and paper						7.6
Food production						45.6
Not elsewhere specified						37.5
Transport						2.8
Rail						
Road						0.1
Air						
- international						
- domestic						
Sea and River						
Public transport						2.4
Not elsewhere specified						
Other sectors			1.2	2.3		781.0
Households			1.2	2.3		553.7
Services						198.6
Agriculture						28.7
Construction						

ENERGY BALANCE 2024 national units	Hydro energy	Biofuels wood	Wind energy	Solar energy	Geothermal energy	Coal/ oil gas	Biofuels	Other biomass
	TJ	103 m3	TJ	TJ	TJ	103 m3	103 t	TJ
Production	62131.5	4449.4	23274.4	8113.3	172.8	164901.4	0.6	24107.5
Import		89.2					4.7	2995.0
Export		426.7					3.1	5009.9
Import/processing								
Export/processing							-1.4	-76.8
Stock change								
Reserves								
Energy supplied	62131.5	4111.9	23274.4	8113.3	172.8	164901.4	0.5	21769.4
Production								
hydro power plants								
- small HPP								
Wind power plants								
Solar power plants								
Geothermal power plants								
thermal power plants								
public cogeneration plants								
public heating plants								
industrial cogeneration plants								
- in refineries								
- in gas production								
industrial heating plants								
Petroleum refineries								
NGL plant								
Coke plant								
Gas works								
Total production								
Transformation sector								
hydro power plants	62131.5							
- small HPP	1326.0							
Wind power plants			23274.4					
Solar power plants				7407.0				
Geothermal power plants								
thermal power plants						26059.4		
public cogeneration plants						132196.0		13073.2
public heating plants								2052.0
industrial cogeneration plants						2686.0		
- in refineries								
- in gas production								
industrial heating plants								103.6
Petroleum refineries								
NGL plant								
Coke plant								
Gas works								
Total transformation sector	62131.5		23274.4	7407.0		164901.4		15228.8
Energy sector own use								
Oil and gas extraction								
Coal production								
Electric energy supply industry								
hydro power plants								
thermal power plants								
public cogeneration plants								
industrial cogeneration plants								
Wind power								
Petroleum refineries								
NGL plant								
Gas works								
Total energy sector own use								
Losses								
Final energy demand		4111.9		706.3	172.8		0.5	6540.6
Non energy use								
Energy sector								
Petrochemical industry								
Other industry								
Construction								
Transport								
Agriculture								
Energy consumption		4111.9		706.3	172.8		0.5	6540.6
Industry		35.1					0.0	4327.8
Iron and steel		0.2						1481.8
Non-ferrous metals								
Non-metallic minerals								0.7
Chemical							0.0	0.1
Construction materials		6.2						2305.1
Pulp and paper		2.7						43.6
Food production		1.7						193.4
Not elsewhere specified		22.5						305.1
Transport							0.5	
Rail								
Road							0.5	
Air								
- international								
- domestic								
Sea and River								
Public transport								
Not elsewhere specified								
Other sectors		4078.8		706.3	172.8			2312.8
Households		4066.7		494.4				1901.8
Services		12.1		211.9	93.2			311.0
Agriculture					79.6			
Construction								

ENERGY BALANCE 2024	Coke oven	Liquefied	Unloaded	Standard	Petroleum	Jet fuel	Diesel oil	Light	Low sulphur	Standard
internal units	coke	petroleum	metals	metals				heating oil	fuel oil	fuel oil
	103 t	103 t	103 t	103 t	103 t	103 t	103 t	103 t	103 t	103 t
Production		155.7	606.1			197.1	922.1	107.7	118.8	123.1
Import	29.9	127.3	321.0	0.4	0.9	53.2	2533.5	30.7	4.7	6.5
Export		180.1	334.5			12.5	1030.7	21.7	112.9	110.8
Import-processing										
Export-processing										
Stock change	2.6	-5.6	-13.3			5.3	-43.3	0.2		-1.8
Drawdowns							13.8		4.9	
Energy supplied	32.5	97.3	579.3	0.4	0.9	243.1	2367.8	116.9	5.7	17.0
Production										
hydro power plants										
- small HPP										
Wind power plants										
Solar power plants										
Geothermal power plants										
thermal power plants										
public cogeneration plants										
public heating plants										
industrial cogeneration plants										
- in refineries										
- in gas production										
industrial heating plants										
Petroleum refineries		127.1	606.1			197.1	922.1	107.7	118.8	123.1
NGL plant		28.6								
Coke plant										
Gas works										
Total production		155.7	606.1			197.1	922.1	107.7	118.8	123.1
Transformation sector										
hydro power plants										
- small HPP										
Wind power plants										
Solar power plants										
Geothermal power plants										
thermal power plants								1.2		
public cogeneration plants								0.1		
public heating plants								1.7	0.6	
industrial cogeneration plants										8.8
- in refineries										8.8
- in gas production										
industrial heating plants										6.6
Petroleum refineries										
NGL plant										
Coke plant										
Gas works										
Total transformation sector								3.0	0.6	15.4
Energy sector own use										
Oil and gas extraction										
Coal production										
Electric energy supply industry										
hydro power plants										
thermal power plants										
public cogeneration plants										
industrial cogeneration plants										
Wind power										
Petroleum refineries										0.5
NGL plant										
Gas works										
Total energy sector own use										0.5
Losses										
Final energy demand	32.5	97.3	579.3	0.4	0.9	243.1	2367.8	113.9	5.1	1.1
Non energy use										
Energy sector										
Petrochemical industry										
Other industry										
Construction										
Transport										
Agriculture										
Energy consumption	32.5	97.3	579.3	0.4	0.9	243.1	2367.8	113.9	5.1	1.1
Industry	32.5	7.1	0.2		0.9		14.4	18.3	5.1	1.1
Iron and steel	0.2	1.8					0.4	0.6		
Non-ferrous metals	0.6						0.2	0.2		
Non-metallic minerals	0.2						0.2			
Chemical					0.9			0.8	0.1	
Construction materials	29.8	0.4	0.1				11.6	4.4	1.3	0.5
Pulp and paper		0.3								
Food production	2.5	1.3					0.4	9.2	3.6	0.6
Not elsewhere specified		2.5	0.1				1.6	4.1	0.1	
Transport	40.8	565.4	0.4			243.1	2020.7			
Rail							17.1			
Road	40.8	565.4					1933.4			
Air			0.4			243.1				
- international						233.7				
- domestic			0.4			9.4				
Sea and River							48.8			
Public transport							21.4			
Not elsewhere specified										
Other sectors	49.4	13.7					332.7	94.6		
Households	36.4							52.9		
Services	6.8							21.7		
Agriculture	2.5	8.3					192.1	12.2		
Construction	3.7	5.4					140.6	7.8		

ENERGY BALANCE 2024	in million units									
	Naphtha	White spirit	Bitumen	Other oils	Lubricants	Petroleum coke	Slur	Other derivatives	Refinery gas	
	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1
Production	31.2				7.5		20.5		115.1	105.7
Import		6.2	146.9	50.2	4.4		101.6		5.1	
Export	23.7	2.6	3.1	18.1	0.4				84.8	
Import-processing										
Export-processing										
Stock change	1.3			-0.1					-35.4	
Drawdowns										
Energy supplied	8.8	3.6	143.8	39.5	6.0	122.1		0.0		105.7
Production										
hydro power plants										
- small HPP										
Wind power plants										
Solar power plants										
Geothermal power plants										
thermal power plants										
public cogeneration plants										
public heating plants										
industrial cogeneration plants										
- in refineries										
- in gas production										
industrial heating plants										
Petroleum refineries	15.1			7.5			20.5		115.1	105.7
NGL plant	16.1									
Coke plant										
Gas works										
Total production	31.2			7.5			20.5		115.1	105.7
Transformation sector										
hydro power plants										
- small HPP										
Wind power plants										
Solar power plants										
Geothermal power plants										
thermal power plants										
public cogeneration plants										
public heating plants										
industrial cogeneration plants										17.2
- in refineries										17.2
- in gas production										
industrial heating plants										
Petroleum refineries	8.8									
NGL plant										
Coke plant										
Gas works										
Total transformation sector	8.8									17.2
Energy sector own use										
Oil and gas extraction										
Coal production										
Electric energy supply industry										
hydro power plants										
thermal power plants										
public cogeneration plants										
industrial cogeneration plants										
Wind power										
Petroleum refineries							20.3			88.5
NGL plant										
Gas works										
Total energy sector own use							20.3			88.5
Losses										
Final energy demand	0.0	3.6	143.8	39.5	6.0	101.8		0.0		
Non energy use		3.6	143.8	39.2	6.0					
Energy sector				2.0						
Petrochemical industry					0.1					
Other industry		3.6	18.1	10.1	5.9					
Construction			125.7	1.6						
Transport				24.4						
Agriculture				1.1						
Energy consumption	0.0			0.3		101.8		0.0		
Industry						101.8				
Iron and steel										
Non-ferrous metals							0.4			
Non-metallic minerals										
Chemical										
Construction materials						101.4				
Pulp and paper										
Food production										
Not elsewhere specified										
Transport				0.3						
Rail										
Road				0.2						
Air										
- international										
- domestic										
Sea and River				0.1						
Public transport										
Not elsewhere specified										
Other sectors										
Households										
Services										
Agriculture										
Construction										

ENERGY BALANCE 2024	Refinery	Gas works	Electricity	Steam and	Industrial waste,
national units	consumption	gas	GWh	hot water	non-renewable
	103 t	103 t	103 m3	TJ	TJ
Production			15360.4	22958.0	3509.5
Import	409.8	52.4	6209.8		
Export			1850.8		
Import-processing					
Export-processing					
Stock change	6.1	-4.2			
bunkers					
Energy supplied	415.9	48.2	19718.5	22958.0	3509.5
Production					
hydro power plants			6576.3		
- small HPP			146.8		
Wind power plants			2578.6		
Solar power plants			820.0		
Geothermal power plants					
thermal power plants			848.4		
public cogeneration plants			3847.7	12150.0	
public heating plants				1466.6	
industrial cogeneration plants			289.4	5506.7	
- in refineries			75.1	2939.8	
- in gas production			141.0	741.0	
industrial heating plants				3131.7	
Petroleum refineries					
NGL plant					
Coke plant					
Gas works					
Total production			15360.4	22255.0	
Transformation sector					
hydro power plants					
- small HPP					
Wind power plants					
Solar power plants					
Geothermal power plants					
thermal power plants					
public cogeneration plants					
public heating plants					
industrial cogeneration plants					
- in refineries					
- in gas production					
industrial heating plants					
Petroleum refineries	415.9	48.2			
NGL plant					
Coke plant					
Gas works					
Total transformation sector	415.9	48.2			
Energy sector own use					
Oil and gas extraction			187.8	443.0	
Coal production			14.7	519.6	
Electric energy supply industry					
hydro power plants			280.2		
thermal power plants			82.3		
public cogeneration plants			300.2	2106.3	
industrial cogeneration plants					
Wind power			14.7		
Petroleum refineries			242.8	3029.9	
NGL plant			0.5	208.0	
Gas works					
Total energy sector own use			1123.2	6396.8	
Losses			1848.0	1408.4	
Final energy demand	0.0		16747.3	14952.8	3509.5
Non energy use					
Energy sector					
Petrochemical industry					
Other industry					
Construction					
Transport					
Agriculture					
Energy consumption	0.0		16747.3	14952.8	3509.5
Industry			3325.2	7313.7	3489.0
Iron and steel			249.2	28.7	1479.2
Non-ferrous metals			106.3		
Non-metallic minerals			135.0	8.7	
Chemical			218.1	1158.9	
Construction materials			592.2	0.5	2031.3
Pulp and paper			233.4	1331.8	
Food production			642.7	2384.1	
Not elsewhere specified			1048.3	2401.0	
Transport			351.5		
Rail			175.4		
Road			31.0		
Air			39.0		
- international					
- domestic			39.0		
Sea and River			19.9		
Public transport			54.2		
Not elsewhere specified			32.0		
Other sectors			13070.6	7639.1	
Households			6863.5	5079.1	
Services			5904.3	2333.6	
Agriculture			154.7	226.4	
Construction			148.1		

Table A4-2: National Energy balance for 2024, energy units

EL	Anthracite	Hard coal	Brown coal	Lignite	Crude oil	Natural gas
Production					22 427	24 091
Import	0.094	6.710	0.019	0.026	76 806	94 576
Export					8 305	33 970
Import processing						
Export processing						
Stock change		2 017			-5 595	2 849
Residuals						
Energy supplied	0.094	6.727	0.019	0.026	85.336	87 546
Production						
Hydro power plants						
- small HPP						
Wind power plants						
Solar power plants						
Geothermal power plants						
thermal power plants						
public cogeneration plants						
public heating plants						
industrial cogeneration plants						
- in refineries						
- in gas production						
industrial heating plants						
Petroleum refineries						
NGL plant						
Coke plant						
Gas works						
Total production						
Gross production	0.094	6.727	0.019	0.026	85.336	87 546
Transformation sector						
Hydro power plants						
- small HPP						
Wind power plants						
Solar power plants						
Geothermal power plants						
thermal power plants		7.037				0.094
public cogeneration plants						25.003
public heating plants						1.419
industrial cogeneration plants						5.991
- in refineries						1.938
- in gas production						1.911
industrial heating plants						2.990
Petroleum refineries					83.844	2.567
NGL plant					1.492	0.180
Coke plant						
Gas works						
Total transformation sector		7.037			85.336	38.083
Energy sector own use						
Oil and gas extraction						1.598
Coal production						
Electric energy supply industry						
hydro power plants						
thermal power plants						
public cogeneration plants						
industrial cogeneration plants						
industrial heating plants						
Petroleum refineries						1.648
NGL plant						1.820
Gas works						
Total energy sector own use						5.107
Losses						2.379
Final energy demand	0.094	1.691	0.019	0.026		42.006
Non energy use						4.040
Energy sector						
Petrochemical industry						4.040
Other industry						
Construction						
Transport						
Agriculture						
Energy consumption	0.094	1.691	0.019	0.026		37.966
Industry	0.094	1.691				6.676
Iron and steel	0.094					0.455
Non-ferrous metals						0.492
Non-metallic minerals						1.632
Chemical						0.550
Construction materials		1.691				2.483
Pulp and paper						0.281
Food production						1.087
Not elsewhere specified						1.388
Transport						0.093
Rail						
Road						0.004
Air						
- international						
- domestic						
Sea and River						
Public transport						0.089
Not elsewhere specified						
Other sectors			0.019	0.026		28.897
Households			0.019	0.026		20.447
Services						7.346
Agriculture						1.062
Construction						

EU	Hydro energy	Fuel wood	Wind energy	Solar energy	Geothermal energy	Landfill gas	Biofuels	Other biomass
Production	62.132	40.045	23.274	8.113	0.175	3.142	0.014	24.108
Import		0.803					0.172	2.590
Export		3.840					0.114	5.010
Import processing								
Export processing								
Stock change							-0.053	0.077
Others								
Energy supplied	62.132	37.007	23.274	8.113	0.175	3.142	0.020	21.769
Production								
hydro power plants								
- small HPP								
Wind power plants								
Solar power plants								
Geothermal power plants								
thermal power plants								
public cogeneration plants								
public heating plants								
industrial cogeneration plants								
- in refineries								
- in gas production								
industrial heating plants								
Petroleum refineries								
NGL plant								
Coke plant								
Gas works								
Total production								
Gross production	62.132	37.007	23.274	8.113	0.175	3.142	0.020	21.769
Transformation sector								
hydro power plants	62.132							
- small HPP	1.326							
Wind power plants			23.274					
Solar power plants				7.407				
Geothermal power plants								
thermal power plants						0.572		
public cogeneration plants						2.519		13.073
public heating plants								2.052
industrial cogeneration plants						0.051		
- in refineries								
- in gas production								
industrial heating plants								0.104
Petroleum refineries								
NGL plant								
Coke plant								
Gas works								
Total transformation sector	62.132		23.274	7.407		3.142		15.229
Energy sector own use						571.581		
Oil and gas extraction								
Coal production								
Electric energy supply industry								
hydro power plants								
thermal power plants								
public cogeneration plants								
industrial cogeneration plants								
industrial heating plants								
Petroleum refineries								
NGL plant								
Gas works								
Total energy sector own use								
Losses								
Total energy demand		37.007		0.706	0.175	0.000	0.020	6.541
Non energy use								
Energy sector								
Petrochemical industry								
Other industry								
Construction								
Transport								
Agriculture								
Energy consumption		37.007		0.706	0.175	0.000	0.020	6.541
Industry		0.298					0.001	4.328
Iron and steel		0.002						1.452
Non-ferrous metals								
Non-metallic minerals								0.001
Chemical							0.001	0.000
Construction materials		0.056						2.305
Pulp and paper		0.024						0.044
Food production		0.015						0.193
Not elsewhere specified		0.201						0.303
Transport							0.019	
Rail								
Road							0.019	
Air								
- international								
- domestic								
Sea and River								
Public transport								
Not elsewhere specified								
Other sectors		36.709		0.706	0.175			2.213
Households		36.600		0.494				1.902
Services		0.109		0.212	0.093			0.311
Agriculture					0.080			
Construction								

EE	Coke oven coke	Liquefied petroleum gases	Unloaded motor gasoline	Standard motor gasoline	Petroleum	Jet fuel	Distill oil	Light heating oil	Low sulphur fuel oil	Standard fuel oil
Production										
Import	0.876	5.969	14.313	0.018	0.040	2.339	108.206	1.311	0.189	0.261
Export		8.445	14.915			0.550	44.021	0.927	4.537	4.453
Import processing										
Export processing										
Stock change	0.076	-0.263	-0.393			0.233	-1.849	0.009		-0.072
Shrinkage							0.589		0.197	
Energy supplied	0.953	-2.738	-1.195	0.018	0.040	2.022	61.746	0.393	-4.545	-4.264
Production										
hydro power plants										
- small HPP										
Wind power plants										
Solar power plants										
Geothermal power plants										
thermal power plants										
public cogeneration plants										
public heating plants										
industrial cogeneration plants										
- in refineries										
- in gas production										
industrial heating plants										
Petroleum refineries		5.960	27.026			8.665	39.383	4.600	4.775	4.947
NGL plant		1.341								
Coke plant										
Gas works										
Total production		7.301	27.026			8.665	39.383	4.600	4.775	4.947
Gross production	0.953	4.562	25.831	0.018	0.040	10.687	101.129	4.993	0.229	0.683
Transformation sector										
hydro power plants										
- small HPP										
Wind power plants										
Solar power plants										
Geothermal power plants										
thermal power plants								0.051		
public cogeneration plants								0.094		
public heating plants								0.075	0.024	
industrial cogeneration plants										0.354
- in refineries										0.354
- in gas production										
industrial heating plants										0.265
Petroleum refineries										
NGL plant										
Coke plant										
Gas works										
Total transformation sector								0.128	0.024	0.619
Energy sector own use										
CO and gas extraction										
Coal production										
Electric energy supply industry										
hydro power plants										
thermal power plants										
public cogeneration plants										
industrial cogeneration plants										
industrial heating plants										0.020
Petroleum refineries										
NGL plant										
Gas works										0.020
Total energy sector own use										0.020
Losses										
Total energy demand	0.953	4.562	25.831	0.018	0.040	10.687	101.129	4.865	0.205	0.664
Non energy use										
Energy sector										
Petrochemical industry										
Other industry										
Construction										
Transport										
Agriculture										
Energy consumption	0.953	4.562	25.831	0.018	0.040	10.687	101.129	4.865	0.205	0.664
Industry	0.953	0.333	0.009		0.040		0.615	0.824	0.205	0.664
Iron and steel	0.006	0.084					0.017	0.026		
Non-ferrous metals		0.028					0.009	0.009		
Non-metallic minerals		0.009					0.009			
Chemical				0.040				0.034	0.004	
Construction materials	0.873	0.019	0.004				0.495	0.188	0.052	0.020
Pulp and paper		0.014								
Food production	0.073	0.061					0.017	0.393	0.145	0.024
Not elsewhere specified		0.117	0.004				0.068	0.175	0.004	
Transport		1.913	25.211	0.018		10.687	86.384			
Rail							0.730			
Road		1.913	25.211				82.576			
Air			0.018			10.687				
- international						10.273				
- domestic				0.018		0.413				
Sea and River							2.084			
Public transport							0.914			
Not elsewhere specified										
Other sectors		2.316	0.611				14.210	4.040		
Households		1.707						2.259		
Services		0.310						0.927		
Agriculture		0.117	0.270				8.205	0.321		
Construction		0.173	0.241				6.005	0.333		

EU	Naphta	White spirit	Bitumen	Lubricants	Paraffin and wax	Petroleum coke	Resin	Other derivatives	Refinery gas
Production									
Import		0.208	4.921	1.682	0.214	3.150		0.205	
Export	1.057	0.097	0.104	0.606	0.013			3.408	
Import processing									
Export processing									
Stock change	0.058			-0.003				-1.623	
Drawdown									
Energy supplied	-0.999	0.121	4.817	1.672	0.201	3.150		-4.626	
Production									
hydro power plants									
- small HPP									
Wind power plants									
Solar power plants									
Geothermal power plants									
thermal power plants									
public cogeneration plants									
public heating plants									
industrial cogeneration plants									
- in refineries									
- in gas production									
industrial heating plants									
Petroleum refineries	0.673			0.251		0.636		4.626	4.503
NGL plant	0.718								
Coke plant									
Gas works									
Total production	1.391			0.251		0.636		4.626	4.503
Gross production	0.392	0.121	4.817	1.323	0.201	3.785			4.503
Transformation sector									
hydro power plants									
- small HPP									
Wind power plants									
Solar power plants									
Geothermal power plants									
thermal power plants									
public cogeneration plants									
public heating plants									0.733
industrial cogeneration plants									0.733
- in refineries									
- in gas production									
industrial heating plants									
Petroleum refineries	0.392								
NGL plant									
Coke plant									
Gas works									
Total transformation sector	0.392								0.733
Energy sector own use									
CO and gas extraction									
Coal production									
Electric energy supply industry									
hydro power plants									
thermal power plants									
public cogeneration plants									
industrial cogeneration plants									
industrial heating plants									
Petroleum refineries						0.629			3.770
NGL plant									
Gas works									
Total energy sector own use						0.629			3.770
Losses									
Total energy demand	0.000	0.121	4.817	1.323	0.201	3.156			0.000
Non energy use		0.121	4.817	1.313	0.201				
Energy sector				0.067					
Petrochemical industry					0.003				
Other industry		0.121	0.606	0.338	0.198				
Construction			4.211	0.014					
Transport				0.637					
Agriculture				0.037					
Energy consumption	0.000			0.010		3.156			0.000
Industry						3.156			
Iron and steel									
Non-ferrous metals						0.012			
Non-metallic minerals									
Chemical									
Construction materials						3.143			
Pulp and paper									
Food production									
Not elsewhere specified									
Transport				0.010					
Rail									
Road				0.007					
Air									
- international									
- domestic									
Sea and River				0.003					
Public transport									
Not elsewhere specified									
Other sectors									
Households									
Services									
Agriculture									
Construction									

II	Refinery consumption s	Additive	Gas works gas	Electricity	Steam and hot water	Industrial waste, non- renewable
Production					6.703	3.510
Import	17.500	2.237		22.352		
Export				6.663		
Import processing						
Export processing						
Stock change	0.260	-0.179				
Others						
Energy supplied	17.760	2.058		15.689	6.703	3.510
Production						
hydro power plants				24.762		
- small HPP				0.528		
Wind power plants				9.276		
Solar power plants				2.952		
Geothermal power plants						
thermal power plants				3.054		
public cogeneration plants				14.212	12.150	
public heating plants					1.467	
industrial cogeneration plants				1.042	5.507	
- in refineries				0.270	2.940	
- in gas production				0.508	0.741	
industrial heating plants					3.132	
Petroleum refineries						
NCA-plant						
Coke plant						
Gas works						
Total production				55.297	22.255	
Gross production	17.760	2.058		70.907	22.958	
Transformation sector						
hydro power plants						
- small HPP						
Wind power plants						
Solar power plants						
Geothermal power plants						
thermal power plants						
public cogeneration plants						
public heating plants						
industrial cogeneration plants						
- in refineries						
- in gas production						
industrial heating plants						
Petroleum refineries	17.760	2.058				
NCA-plant						
Coke plant						
Gas works						
Total transformation sector	17.760	2.058				
Energy sector own use						
CO and gas extraction				0.676	0.443	
Coal production					0.520	
Electric energy supply industry				0.053		
hydro power plants				1.009		
thermal power plants				0.296		
public cogeneration plants				1.081	2.106	
industrial cogeneration plants						
industrial heating plants				0.053		
Petroleum refineries				0.674	3.030	
NCA-plant				0.002	0.290	
Gas works						
Total energy sector own use				4.044	6.397	
Losses				6.653	1.605	
Final energy demand	0.000	0.000		40.290	14.953	3.510
Non energy use						
Energy sector						
Petrochemical industry						
Other industry						
Construction						
Transport						
Agriculture						
Others						
Energy consumption	0.000	0.000		40.290	14.953	3.510
Industry				11.971	7.314	3.510
Iron and steel				1.257	0.029	1.478
Non-ferrous metals				0.383		
Non-metallic minerals				0.486	0.009	
Chemical				0.785	1.159	
Construction materials				2.132	0.001	2.031
Pulp and paper				0.540	1.332	
Food production				2.314	2.384	
Not elsewhere specified				3.774	2.401	
Transport				1.265		
Rail				0.631		
Road				0.112		
Air				0.140		
- international						
- domestic				0.140		
Sea and River				0.072		
Public transport				0.195		
Not elsewhere specified				0.113		
Other sectors				47.054	7.639	
Households				24.709	5.079	
Services				21.255	2.334	
Agriculture				0.357	0.226	
Construction				0.533		

Table A4-3 Industry analysis balance for 2024, energy units, cont.

		Industrial cogenerations				Industrial heating plants	Own use (production of oil and gas)	Own use (refineries)	Own use (biogas production)	Industry										Commercial sector
ENERGY CONSUMPTION		Refineries	Oil and Gas production	Other sectors	Total					Total	Iron and Steel	Non-Ferrous metals	Non-Metalic Minerals	Chemicals	Constructi on	Paper	Food	Other		
Anthracite					0.0					3.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Coking coal	10 ³ t				0.0					63.0	0.0	0.0	0.0	0.0	63.0	0.0	0.0	0.0	0.0	
Sub-Bituminous Coal	10 ³ t				0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Lignite	10 ³ t				0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Natural Gas	10 ⁶ m ³				0.0		144.1	97.9		388.6	12.5	13.3	44.4	47.2	67.1	55.4	106.8	41.9	198.6	
Wood	10 ³ m ³				0.0					33.1	0.2	0.0	0.0	0.0	6.2	2.7	1.7	22.3	12.1	
Biogas	TJ				0.0				1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.5	
Solar Energy	TJ				0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	211.9	
Geothermal Energy	TJ				0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.2	
Biofuel	10 ³ t				0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other biomass	TJ				0.0					4431.4	1481.8	0.0	0.7	0.1	2305.1	43.6	259.8	340.3	311.0	
Industrial waste	TJ				0.0					3509.5	1478.2	0.0	0.0	0.0	2031.3	0.0	0.0	0.0	0.0	
Coke oven coke	10 ³ t				0.0					32.5	0.2	0.0	0.0	0.0	29.8	0.0	2.5	0.0	0.0	
LPG	10 ³ t				0.0			0.0		7.1	1.8	0.6	0.2	0.0	0.4	0.3	1.3	2.5	6.8	
Motor Gasoline	10 ³ t				0.0					0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	
Petrouleum	10 ³ t				0.0					0.9	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	
Diesel	10 ³ t				0.0					14.4	0.4	0.2	0.2	0.0	11.6	0.0	0.4	1.6	0.0	
Light Heating Oil	10 ³ t				0.0			0.0		19.3	0.6	0.2	0.0	0.8	4.4	0.0	9.2	4.1	21.7	
Residual Oil	10 ³ t				0.0			9.3		12.6	0.0	0.0	0.0	0.0	1.8	0.7	8.2	1.9	0.0	
Petroleum Coke	10 ³ t				0.0			20.3		101.8	0.0	0.4	0.0	0.0	101.4	0.0	0.0	0.0	0.0	
Refinery Gas	10 ³ t				0.0			105.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other Oil Derivates	10 ³ t				0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Gas Works Gas	10 ³ m ³				0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Electricity	GWh				0.0		47.3	167.7	0.0	3263.5	349.2	106.3	135.0	218.1	592.2	186.8	627.6	1048.3	5892.7	
Steam and Hot Water	TJ				0.0			90.1	517.9	2357.8	21.1	0.0	0.0	125.8	0.0	0.0	189.7	2021.2	2333.6	

Annex 5: Any additional information

Annex 5-1: Archiving, inventory data record sheet

5.1.1. Inventory data record sheet

Year: 2024

MODULE: ENERGY	
SUBMODULE: CO ₂ from Fuel Combustion by Source Categories	
WORKSHEET: 1_1A1A_PUBLIC_ELE_HEAT_199 0-2023	SHEET: 1A1ai, 1A1aii, 1A1aiii
STEP: 1, 2, 3, 4, 5, 6	PAGE: 1 of 1
DIRECT DATA SOURCE: A. ACTIVITY DATA: Institution/organization: Energy Institute "Hrvoje Požar" Publications: National Energy Balance for 2024; Annual Energy Report: "Energy in Croatia 2024" Contact person: dr.sc. Branko Vuk (phone: +385 1 6326 149, +385 1 6326 206) Data: Fuel consumption data and net calorific values B. METHODOLOGY/EMISSION FACTOR: Publications: IPCC (2006): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Energy Default values for carbon emission factors and fractions of carbon stored were used	
ORIGINAL DATA SOURCE: A. ACTIVITY DATA: Fuel consumption data and net calorific values for 1A1 sector were provided by National energy balance	
METHOD: Tier 1 method based on fuel consumption data and net calorific values Tier 2 method for 1A1ai (natural gas and hard coal) for CO ₂ emission calculation – country specific EF from verified reports are used Tier 2 method for 1A1aii (natural gas) for CO ₂ emission calculation – country specific EF from verified reports are used	
ADDITIONAL INTERCALCULATION: Not necessary	
DATA ARCHIVATION: Hard copy and electronic copy	
DATA GAPS:	
SUGGESTION FOR THE FUTURE:	
NOTES: Default value for carbon emission factor, fraction of carbon stored and fraction of carbon oxidized were used.	
RESPONSIBILITY: Iva Švedek EKONERG Ltd. address: Koranska 5, 10000 Zagreb tel.: +385 1 6000 111/214 fax.: +385 1 6171 560 e-mail: iva.svedek@ekonerg.hr	

Annex 5-2: GHG emission trend

Table A5.2-1: GHG emission in Croatia, Base year, for first commitment period

Croatia	CO ₂	CH ₄		N ₂ O		HFC,PFC,SF ₆	Total	Share
Base year	Gg	Gg	Gg CO ₂ eq	Gg	Gg CO ₂ eq	Gg CO ₂ eq	Gg CO ₂ eq	%
1. Energy	20582.79	69.13	1451.68	0.37	114.52	NO	22148.99	70.71
A. Fuel Comb (Sectoral Appr.)	20166.84	9.61	201.74	0.55	114.52	NO	20483.11	65.40
1. Energy Industries	7126.54	0.17	3.61	0.07	13.80	NO	7143.95	22.81
2. Man. Ind. and Constr.	5447.30	0.48	10.08	0.09	17.96	NO	5475.33	17.48
3. Transport	3987.25	1.55	32.56	0.24	50.17	NO	4069.97	12.99
4. Comm./Inst, Resid., Agric.	3605.76	7.40	155.50	0.16	32.59	NO	3793.85	12.11
5. Other	NO	NO	NO	NO	NO	NO	NO	NO
B. Fugitive Emissions from Fuels	415.95	59.52	1249.94	NO	NO	NO	1665.89	5.32
1. Solid Fuels	NO	NO	48.76	NO	NO	NO	48.76	NO
2. Oil and Natural Gas	415.95	57.20	1201.18	NO	NO	NO	1617.13	5.16
2. Industrial Processes	2417.36	0.78	16.45	2.59	804.08	947.58	4185.46	13.36
A. Mineral Products	1315.38	NE,NO	NE,NO	NE,NO	NE,NO	NO	1315.38	4.20
B. Chemical Industry	870.99	16.45	16.45	2.59	804.08	NO	1691.52	5.40
C. Metal Production	230.99	NE,NO	NE,NO	NO	NO	936.56	1167.56	3.73
D. Other Production	NE	NO	NO	NO	NO	NO	NE	NE
E. Prod. of Halocarbons & SF ₆	NO	NO	NO	NO	NO	NO	NO	NO
F. Cons. of Halocarbons & SF ₆	NO	NO	NO	NO	NO	11.01	11.01	0.04
G. Other	NO	NO	NO	NO	NO	NO	NO	NO
3. Solvent and Other Product Use	80.21	NO	NO	NE	NE	NO	80.21	0.26
4. Agriculture	NO	69.42	1457.81	9.26	2870.60	NO	4328.40	13.82
A. Enteric Fermentation	NO	58.54	1229.36	0.00	0.00	NO	1229.36	3.92
B. Manure Management	NO	10.88	228.44	1.22	378.74	NO	607.18	1.94
C. Rice Cultivation	NO	NO	NO	0.00	0.00	NO	NO	NO
D. Agricultural Soils	NO	NO	NO	8.04	2491.86	NO	2491.86	7.96
E. Burning of Savannas	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agr. Residues	NO	NE,NO	NE,NO	NE,NO	NE,NO	NO	NE,NO	NE,NO
G. Other	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry	-4184.93	0.00	0.01	0.00	0.00	NO	-4184.92	-13.36
A. Forest Land	-4184.93	0.00	0.01	0.00	0.00	NO	-4184.92	-13.36
B. Cropland	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NO	NE,NO	NO
C. Grassland	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NO	NE,NO	NO
D. Wetlands	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NO	NE,NO	NO
E. Settlements	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NO	NE,NO	NO
F. Other Land	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NO	NE,NO	NO
G. Other	NE	NE	NE	NE	NE	NO	NE	NE
6. Waste	0.09	23.81	499.94	0.25	78.69	NO	578.72	1.85
A. Solid Waste Disp. on Land	NE,NO	10.53	221.21	0.00	0.00	NO	221.21	0.71
B. Waste-water Handling	0.00	13.27	278.73	0.25	78.69	NO	357.42	1.14
C. Waste Incineration	0.09	NE,NO	NE,NO	NE,NO	NE,NO	NO	0.09	0.00
D. Other	NO	NO	NO	NO	NO	NO	NO	NO
Total Em./Rem. with LUCF	18895.52	163.14	3425.89	12.48	3867.89	947.58	27136.87	86.64
Total Emissions without LUCF	23080.45	163.14	3425.89	12.48	3867.89	947.58	31321.79	100.0
Share of Gases in Total Em./Rem.	69.63		12.62		14.25		100.00	
Share of Gases in Total Emissions	73.69		10.94		12.35		100.00	
Memo Items:								
International Bunkers	451.83	0.01	0.20	0.01	3.28	NO	455.31	
Aviation	343.29	0.00	0.05	0.01	3.01	NO	346.35	
Marine	108.54	0.01	0.15	0.00	0.27	NO	108.96	
Multilateral Operations	C	C	C	C	C	NO	C	
CO₂ Emissions from Biomass	2,436.76	NO	NO	NO	NO	NO	2436.76	

Table A5.2-2: GHG emission in Croatia, 1990

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	16,490.75	4,915.95	2,563.25	NO	1,117.28	NO	11.06	NO	25,098.29
1. Energy	20,257.36	932.88	221.46						21,411.71
1.A. Fuel combustion	19,674.84	463.48	220.85						20,359.17
1.A.1. Energy industries	7,065.79	6.08	15.48						7,087.34
1.A.2. Manufacturing industries and construction	5,103.04	10.23	14.67						5,127.95
1.A.3. Transport	3,787.06	46.58	65.00						3,898.63
1.A.4. Other sectors	3,718.95	400.59	125.70						4,245.24
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	582.52	469.41	0.62						1,052.54
1.B.1. Solid fuels	NO	66.80	NA,NO						66.80
1.B.2. Oil and natural gas and other emissions from energy production	582.52	402.61	0.62						985.74
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,577.31	10.47	703.39	NO	1,117.28	NO	11.06	NO	4,419.50
2.A. Mineral industry	1,297.56	NO	NO						1,297.56
2.B. Chemical industry	751.10	6.10	670.74	NO	NO	NO	NO	NO	1,427.94
2.C. Metal industry	336.40	4.37	NO	NO	1,117.28	NO		NO	1,458.05
2.D. Non-energy products from fuels and solvent use	192.25	NA,NO	NA,NO						192.25
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				NO	NO	NO	NO	NO	NO
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	11.06	NO	43.70
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	50.02	2,743.81	1,530.14						4,323.96
3.A. Enteric fermentation		2,336.03							2,336.03
3.B. Manure management		407.78	268.17						675.95
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,261.97						1,261.97
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	50.02								50.02
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-6,394.47	1.85	44.58						-6,348.04
4.A. Forest land	-6,499.75	1.73	0.91						-6,497.11
4.B. Cropland	110.41	NO	2.96						113.37
4.C. Grassland	-6.36	0.12	1.30						-4.93
4.D. Wetlands	76.56	NO	9.79						86.35
4.E. Settlements	242.51	NO	29.62						272.14
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-317.85								-317.85
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,226.94	63.68						1,291.16
5.A. Solid waste disposal		552.64							552.64
5.B. Biological treatment of solid waste		NO	NO						NO
5.C. Incineration and open burning of waste	0.54	19.20	4.20						23.94
5.D. Waste water treatment and discharge		655.10	59.48						714.58
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	643.85	0.48	4.71						649.03
1.D.1.a. Aviation	496.62	0.10	3.68						500.39
1.D.1.b. Navigation	147.23	0.38	1.03						148.64
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,237.84								5,237.84
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	3,484.34								3,484.34
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									31,446.33
Total CO₂ equivalent emissions with LULUCF									25,098.29
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									31,446.33
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									25,098.29

Table A5.2-3: GHG emission in Croatia, 1991

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	9,423.31	4,760.17	2,429.41	NO	766.41	NO	10.93	NO	17,390.24
1. Energy	15,021.34	877.79	190.33						16,089.46
1.A. Fuel combustion	14,444.43	495.49	189.88						15,129.80
1.A.1. Energy industries	4,742.10	4.45	10.66						4,757.22
1.A.2. Manufacturing industries and construction	3,773.02	7.71	10.86						3,791.59
1.A.3. Transport	2,866.99	35.16	52.27						2,954.42
1.A.4. Other sectors	3,062.32	448.16	116.09						3,626.57
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	576.92	382.30	0.45						959.66
1.B.1. Solid fuels	NO	59.53	NA,NO						59.53
1.B.2. Oil and natural gas and other emissions from energy production	576.92	322.77	0.45						900.13
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,926.61	9.79	622.03	NO	766.41	NO	10.93	NO	3,335.78
2.A. Mineral industry	860.77	NO	NO						860.77
2.B. Chemical industry	665.95	5.62	589.39	NO	NO	NO	NO	NO	1,260.95
2.C. Metal industry	270.10	4.18	NO	NO	766.41	NO		NO	1,040.68
2.D. Non-energy products from fuels and solvent use	129.79	NA,NO	NA,NO						129.79
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				NO	NO	NO	NO	NO	NO
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	10.93	NO	43.58
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	50.95	2,622.87	1,511.26						4,185.08
3.A. Enteric fermentation		2,207.56							2,207.56
3.B. Manure management		415.31	258.20						673.51
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,253.06						1,253.06
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	50.95								50.95
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,576.12	4.83	45.56						-7,525.74
4.A. Forest land	-8,168.23	4.63	2.42						-8,161.17
4.B. Cropland	122.58	NO	3.24						125.83
4.C. Grassland	6.23	0.20	1.83						8.26
4.D. Wetlands	66.88	NO	9.36						76.23
4.E. Settlements	220.18	NO	28.70						248.88
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	176.24								176.24
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,244.89	60.23						1,305.65
5.A. Solid waste disposal		576.26							576.26
5.B. Biological treatment of solid waste		NO	NO						NO
5.C. Incineration and open burning of waste	0.54	18.14	3.97						22.64
5.D. Waste water treatment and discharge		650.49	56.26						706.75
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	94.29	0.02	0.70						95.01
1.D.1.a. Aviation	94.29	0.02	0.70						95.01
1.D.1.b. Navigation	NO	NO	NO						NO
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	6,091.91								6,091.91
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	3,666.07								3,666.07
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,915.97
Total CO ₂ equivalent emissions with LULUCF									17,390.24
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,915.97
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									17,390.24

Table A5.2-4: GHG emission in Croatia, 1992

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	8,693.03	4,281.83	2,453.31	NO	NO	NO	11.02	NO	15,439.18
1. Energy	14,350.80	917.30	171.47						15,439.57
1.A. Fuel combustion	13,763.01	422.32	171.07						14,356.40
1.A.1. Energy industries	5,342.75	5.05	13.58						5,361.38
1.A.2. Manufacturing industries and construction	3,083.15	6.09	8.53						3,097.77
1.A.3. Transport	2,776.79	31.12	45.70						2,853.60
1.A.4. Other sectors	2,560.33	380.07	103.26						3,043.65
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	587.79	494.97	0.41						1,083.17
1.B.1. Solid fuels	NO	46.25	NA,NO						46.25
1.B.2. Oil and natural gas and other emissions from energy production	587.79	448.72	0.41						1,036.91
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,962.32	8.48	802.06	NO	NO	NO	11.02	NO	2,783.88
2.A. Mineral industry	930.52	NO	NO						930.52
2.B. Chemical industry	832.68	5.74	769.41	NO	NO	NO	NO	NO	1,607.83
2.C. Metal industry	121.11	2.74	NO	NO	NO	NO		NO	123.85
2.D. Non-energy products from fuels and solvent use	78.01	NA,NO	NA,NO						78.01
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				NO	NO	NO	NO	NO	NO
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	11.02	NO	43.67
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	65.51	2,076.00	1,365.34						3,506.85
3.A. Enteric fermentation		1,742.71							1,742.71
3.B. Manure management		333.28	202.01						535.29
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,163.33						1,163.33
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	65.51								65.51
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,686.13	22.72	54.79						-7,608.62
4.A. Forest land	-8,342.84	21.03	11.01						-8,310.80
4.B. Cropland	123.89	NO	3.52						127.42
4.C. Grassland	2.71	1.69	3.55						7.95
4.D. Wetlands	63.86	NO	8.93						72.79
4.E. Settlements	213.41	NO	27.78						241.19
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	252.83								252.83
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,257.33	59.64						1,317.51
5.A. Solid waste disposal		596.61							596.61
5.B. Biological treatment of solid waste		NO	NO						NO
5.C. Incineration and open burning of waste	0.54	13.91	3.05						17.49
5.D. Waste water treatment and discharge		646.81	56.60						703.40
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	72.29	0.01	0.54						72.84
1.D.1.a. Aviation	72.29	0.01	0.54						72.84
1.D.1.b. Navigation	NO	NO	NO						NO
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,308.28								5,308.28
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	3,836.51								3,836.51
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									23,047.81
Total CO₂ equivalent emissions with LULUCF									15,439.18
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									23,047.81
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									15,439.18

Table A5.2-5: GHG emission in Croatia, 1993

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	8,945.37	4,215.04	2,114.68	NO	NO	NO	11.14	NO	15,286.23
1. Energy	15,116.98	804.40	179.87						16,101.25
1.A. Fuel combustion	14,330.72	441.10	179.46						14,951.27
1.A.1. Energy industries	5,940.22	5.48	15.25						5,960.95
1.A.2. Manufacturing industries and construction	2,916.99	5.75	8.03						2,930.77
1.A.3. Transport	2,925.16	30.91	49.06						3,005.14
1.A.4. Other sectors	2,548.34	398.96	107.12						3,054.42
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	786.27	363.30	0.41						1,149.97
1.B.1. Solid fuels	NO	44.27	NA,NO						44.27
1.B.2. Oil and natural gas and other emissions from energy production	786.27	319.03	0.41						1,105.71
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,641.38	7.00	612.64	NO	NO	NO	11.14	NO	2,272.15
2.A. Mineral industry	794.62	NO	NO						794.62
2.B. Chemical industry	715.96	5.77	579.99	NO	NO	NO	NO	NO	1,301.72
2.C. Metal industry	57.46	1.23	NO	NO	NO	NO		NO	58.69
2.D. Non-energy products from fuels and solvent use	73.33	NA,NO	NA,NO						73.33
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				NO	NO	NO	NO	NO	NO
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	11.14	NO	43.79
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	52.14	2,084.41	1,192.70						3,329.25
3.A. Enteric fermentation		1,733.21							1,733.21
3.B. Manure management		351.21	200.51						551.72
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	992.19						992.19
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	52.14								52.14
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,865.67	52.35	69.76						-7,743.55
4.A. Forest land	-8,325.19	50.58	26.48						-8,248.13
4.B. Cropland	125.20	NO	3.80						129.00
4.C. Grassland	0.44	1.77	4.12						6.32
4.D. Wetlands	60.85	NO	8.50						69.35
4.E. Settlements	206.64	NO	26.86						233.50
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	66.40								66.40
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,266.88	59.71						1,327.13
5.A. Solid waste disposal		609.47							609.47
5.B. Biological treatment of solid waste		NO	NO						NO
5.C. Incineration and open burning of waste	0.54	13.37	2.93						16.83
5.D. Waste water treatment and discharge		644.04	56.79						700.83
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	182.30	0.04	1.35						183.69
1.D.1.a. Aviation	182.30	0.04	1.35						183.69
1.D.1.b. Navigation	NO	NO	NO						NO
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,583.98								5,583.98
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	4,023.82								4,023.82
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									23,029.78
Total CO₂ equivalent emissions with LULUCF									15,286.23
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									23,029.78
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									15,286.23

Table A5.2-6: GHG emission in Croatia, 1994

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	7,938.19	3,977.32	2,136.19	NO	NO	NO	11.96	NO	14,063.66
1. Energy	14,179.84	732.52	174.38						15,086.74
1.A. Fuel combustion	13,474.77	403.71	174.01						14,052.49
1.A.1. Energy industries	4,658.42	3.69	10.74						4,672.85
1.A.2. Manufacturing industries and construction	3,077.43	5.33	7.53						3,090.28
1.A.3. Transport	3,102.93	33.82	50.34						3,187.09
1.A.4. Other sectors	2,635.99	360.89	105.40						3,102.27
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	705.07	328.81	0.37						1,034.25
1.B.1. Solid fuels	NO	39.69	NA,NO						39.69
1.B.2. Oil and natural gas and other emissions from energy production	705.07	289.12	0.37						994.56
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,826.61	7.31	660.70	NO	NO	NO	11.96	NO	2,506.57
2.A. Mineral industry	953.71	NO	NO						953.71
2.B. Chemical industry	715.58	5.48	628.05	NO	NO	NO	NO	NO	1,349.12
2.C. Metal industry	81.17	1.83	NO	NO	NO	NO		NO	83.00
2.D. Non-energy products from fuels and solvent use	76.14	NA,NO	NA,NO						76.14
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				NO	NO	NO	NO	NO	NO
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	11.96	NO	44.60
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	47.57	1,931.42	1,188.42						3,167.41
3.A. Enteric fermentation		1,576.63							1,576.63
3.B. Manure management		354.79	192.30						547.09
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	996.12						996.12
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	47.57								47.57
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,116.36	17.39	50.57						-8,048.41
4.A. Forest land	-8,451.73	16.47	8.62						-8,426.64
4.B. Cropland	126.51	NO	4.08						130.59
4.C. Grassland	-3.41	0.92	3.85						1.36
4.D. Wetlands	57.83	NO	8.07						65.91
4.E. Settlements	199.93	NO	25.94						225.87
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-45.49								-45.49
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,288.68	62.13						1,351.35
5.A. Solid waste disposal		629.18							629.18
5.B. Biological treatment of solid waste		0.61	0.35						0.96
5.C. Incineration and open burning of waste	0.54	12.56	2.75						15.85
5.D. Waste water treatment and discharge		646.33	59.03						705.36
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	403.81	0.41	2.93						407.15
1.D.1.a. Aviation	264.02	0.05	1.96						266.03
1.D.1.b. Navigation	139.78	0.36	0.97						141.11
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	4,999.29								4,999.29
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	4,227.78								4,227.78
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									22,112.06
Total CO ₂ equivalent emissions with LULUCF									14,063.66
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									22,112.06
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									14,063.66

Table A5.2-7: GHG emission in Croatia, 1995

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	8,211.61	3,932.20	2,062.58	21.43	NO	NO	12.45	NO	14,240.27
1. Energy	15,115.44	750.44	165.98						16,031.87
1.A. Fuel combustion	14,279.66	425.87	165.62						14,871.16
1.A.1. Energy industries	5,261.60	4.54	11.00						5,277.14
1.A.2. Manufacturing industries and construction	2,868.29	5.24	7.42						2,880.96
1.A.3. Transport	3,292.91	35.27	45.83						3,374.01
1.A.4. Other sectors	2,856.86	380.82	101.37						3,339.05
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	835.78	324.57	0.36						1,160.71
1.B.1. Solid fuels	NO	31.61	NA,NO						31.61
1.B.2. Oil and natural gas and other emissions from energy production	835.78	292.96	0.36						1,129.09
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,652.22	6.55	635.45	21.43	NO	NO	12.45	NO	2,328.10
2.A. Mineral industry	739.76	NO	NO						739.76
2.B. Chemical industry	756.00	5.67	602.81	NO	NO	NO	NO	NO	1,364.48
2.C. Metal industry	40.32	0.88	NO	NO	NO	NO		NO	41.19
2.D. Non-energy products from fuels and solvent use	116.14	NA,NO	NA,NO						116.14
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				21.43	NO	NO	NO	NO	21.43
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	12.45	NO	45.09
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	46.29	1,857.43	1,147.37						3,051.09
3.A. Enteric fermentation		1,516.84							1,516.84
3.B. Manure management		340.58	179.26						519.84
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	968.11						968.11
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	46.29								46.29
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,602.88	11.40	46.71						-8,544.77
4.A. Forest land	-8,916.83	10.82	5.66						-8,900.35
4.B. Cropland	127.82	NO	4.36						132.18
4.C. Grassland	-6.76	0.58	4.02						-2.16
4.D. Wetlands	54.82	NO	7.65						62.47
4.E. Settlements	193.18	NO	25.02						218.19
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-55.09								-55.09
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,306.38	67.06						1,373.98
5.A. Solid waste disposal		654.50							654.50
5.B. Biological treatment of solid waste		0.65	0.37						1.01
5.C. Incineration and open burning of waste	0.54	11.99	2.62						15.15
5.D. Waste water treatment and discharge		639.25	64.07						703.32
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	348.25	0.31	2.54						351.10
1.D.1.a. Aviation	245.16	0.05	1.82						247.03
1.D.1.b. Navigation	103.08	0.27	0.72						104.07
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,288.54								5,288.54
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	4,441.46								4,441.46
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									22,785.04
Total CO₂ equivalent emissions with LULUCF									14,240.27
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									22,785.04
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									14,240.27

Table A5.2-8: GHG emission in Croatia, 1996

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	9,085.13	3,907.66	2,070.60	24.32	NO	NO	12.90	NO	15,100.60
1. Energy	15,630.57	786.58	210.77						16,627.92
1.A. Fuel combustion	14,820.27	474.03	210.42						15,504.72
1.A.1. Energy industries	5,085.53	4.56	11.51						5,101.60
1.A.2. Manufacturing industries and construction	2,857.50	5.14	7.26						2,869.90
1.A.3. Transport	3,620.22	38.22	70.92						3,729.36
1.A.4. Other sectors	3,257.02	426.10	120.74						3,803.86
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	810.30	312.55	0.35						1,123.20
1.B.1. Solid fuels	NO	25.50	NA,NO						25.50
1.B.2. Oil and natural gas and other emissions from energy production	810.30	287.05	0.35						1,097.70
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,654.89	5.80	594.42	24.32	NO	NO	12.90	NO	2,292.32
2.A. Mineral industry	826.77	NO	NO						826.77
2.B. Chemical industry	701.63	5.44	561.78	NO	NO	NO	NO	NO	1,268.84
2.C. Metal industry	19.17	0.35	NO	NO	NO	NO		NO	19.53
2.D. Non-energy products from fuels and solvent use	107.32	NA,NO	NA,NO						107.32
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				24.32	NO	NO	NO	NO	24.32
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	12.90	NO	45.54
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	52.44	1,768.25	1,147.75						2,968.44
3.A. Enteric fermentation		1,428.37							1,428.37
3.B. Manure management		339.88	170.20						510.08
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	977.55						977.55
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	52.44								52.44
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,253.30	24.87	53.52						-8,174.91
4.A. Forest land	-8,598.71	23.32	12.21						-8,563.19
4.B. Cropland	129.12	NO	4.64						133.77
4.C. Grassland	-9.71	1.55	5.36						-2.80
4.D. Wetlands	51.81	NO	7.22						59.02
4.E. Settlements	186.46	NO	24.10						210.56
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-12.27								-12.27
4.H. Other	NO	NO	NO						NO
5. Waste	0.54	1,322.16	64.13						1,386.83
5.A. Solid waste disposal		681.54							681.54
5.B. Biological treatment of solid waste		0.68	0.39						1.07
5.C. Incineration and open burning of waste	0.54	11.92	2.61						15.06
5.D. Waste water treatment and discharge		628.02	61.14						689.16
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	339.28	0.34	2.46						342.09
1.D.1.a. Aviation	223.16	0.04	1.65						224.86
1.D.1.b. Navigation	116.12	0.30	0.81						117.23
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,877.64								5,877.64
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	4,662.72								4,662.72
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									23,275.51
Total CO ₂ equivalent emissions with LULUCF									15,100.60
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									23,275.51
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									15,100.60

Table A5.2-9: GHG emission in Croatia, 1997

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	10,924.20	3,880.46	2,245.35	28.30	NO	NO	12.52	NO	17,090.83
1. Energy	16,682.92	749.73	210.59						17,643.23
1.A. Fuel combustion	15,920.57	443.70	210.23						16,574.51
1.A.1. Energy industries	5,557.16	5.00	13.43						5,575.58
1.A.2. Manufacturing industries and construction	3,088.88	5.83	8.17						3,102.89
1.A.3. Transport	3,966.11	40.41	83.17						4,089.68
1.A.4. Other sectors	3,308.41	392.47	105.47						3,806.35
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	762.35	306.03	0.35						1,068.73
1.B.1. Solid fuels	NO	18.65	NA,NO						18.65
1.B.2. Oil and natural gas and other emissions from energy production	762.35	287.37	0.35						1,050.07
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,816.04	6.17	624.06	28.30	NO	NO	12.52	NO	2,487.10
2.A. Mineral industry	948.72	NO	NO						948.72
2.B. Chemical industry	743.07	5.34	591.42	NO	NO	NO	NO	NO	1,339.83
2.C. Metal industry	40.82	0.83	NO	NO	NO	NO		NO	41.65
2.D. Non-energy products from fuels and solvent use	83.42	NA,NO	NA,NO						83.42
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				28.30	NO	NO	NO	NO	28.30
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	12.52	NO	45.17
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	68.39	1,746.16	1,292.46						3,107.01
3.A. Enteric fermentation		1,402.54							1,402.54
3.B. Manure management		343.62	166.49						510.11
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,125.97						1,125.97
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	68.39								68.39
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,644.97	26.42	53.68						-7,564.87
4.A. Forest land	-8,108.83	24.90	13.04						-8,070.89
4.B. Cropland	130.43	NO	4.92						135.35
4.C. Grassland	-13.87	1.51	5.76						-6.59
4.D. Wetlands	48.79	NO	6.79						55.58
4.E. Settlements	178.53	NO	23.17						201.71
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	119.97								119.97
4.H. Other	NO	NO	NO						NO
5. Waste	1.82	1,351.98	64.56						1,418.37
5.A. Solid waste disposal		709.15							709.15
5.B. Biological treatment of solid waste		0.72	0.41						1.12
5.C. Incineration and open burning of waste	1.82	11.47	2.53						15.82
5.D. Waste water treatment and discharge		630.65	61.62						692.27
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	310.14	0.24	2.26						312.64
1.D.1.a. Aviation	235.74	0.05	1.75						237.53
1.D.1.b. Navigation	74.41	0.19	0.52						75.12
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,526.07								5,526.07
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	4,883.53								4,883.53
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									24,655.70
Total CO₂ equivalent emissions with LULUCF									17,090.83
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									24,655.70
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									17,090.83

Table A5.2-10: GHG emission in Croatia, 1998

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,566.91	3,892.03	1,955.87	33.88	NO	NO	13.40	NO	17,462.08
1. Energy	17,274.13	736.27	195.55						18,205.95
1.A. Fuel combustion	16,596.67	447.82	195.23						17,239.72
1.A.1. Energy industries	6,238.88	5.83	14.98						6,259.68
1.A.2. Manufacturing industries and construction	3,091.23	5.63	7.99						3,104.85
1.A.3. Transport	4,098.78	41.34	61.01						4,201.13
1.A.4. Other sectors	3,167.79	395.02	111.25						3,674.06
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	677.45	288.45	0.33						966.23
1.B.1. Solid fuels	NO	19.54	NA,NO						19.54
1.B.2. Oil and natural gas and other emissions from energy production	677.45	268.91	0.33						946.69
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,717.95	5.48	477.89	33.88	NO	NO	13.40	NO	2,248.60
2.A. Mineral industry	1,014.42	NO	NO						1,014.42
2.B. Chemical industry	592.72	5.05	445.24	NO	NO	NO	NO	NO	1,043.01
2.C. Metal industry	29.65	0.42	NO	NO	NO	NO		NO	30.08
2.D. Non-energy products from fuels and solvent use	81.16	NA,NO	NA,NO						81.16
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				33.88	NO	NO	NO	NO	33.88
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	13.40	NO	46.05
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	44.25	1,714.66	1,143.59						2,902.50
3.A. Enteric fermentation		1,368.17							1,368.17
3.B. Manure management		346.49	161.65						508.14
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	981.93						981.93
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	44.25								44.25
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,473.12	67.27	75.96						-7,329.89
4.A. Forest land	-7,811.51	61.35	32.12						-7,718.04
4.B. Cropland	131.74	NO	5.20						136.94
4.C. Grassland	-16.63	5.92	10.03						-0.68
4.D. Wetlands	45.78	NO	6.36						52.14
4.E. Settlements	173.82	NO	22.25						196.07
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	3.68								3.68
4.H. Other	NO	NO	NO						NO
5. Waste	3.70	1,368.35	62.88						1,434.93
5.A. Solid waste disposal		736.44							736.44
5.B. Biological treatment of solid waste		0.75	0.43						1.18
5.C. Incineration and open burning of waste	3.70	11.34	2.53						17.57
5.D. Waste water treatment and discharge		619.81	59.92						679.73
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	336.44	0.26	2.46						339.16
1.D.1.a. Aviation	254.59	0.05	1.89						256.53
1.D.1.b. Navigation	81.85	0.21	0.57						82.63
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,535.75								5,535.75
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	5,129.02								5,129.02
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,791.97
Total CO ₂ equivalent emissions with LULUCF									17,462.08
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,791.97
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									17,462.08

Table A5.2-11: GHG emission in Croatia, 1999

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,846.69	3,884.08	2,130.38	40.89	NO	NO	13.35	NO	17,915.39
1. Energy	17,954.41	709.95	247.57						18,911.94
1.A. Fuel combustion	17,292.55	441.92	247.27						17,981.74
1.A.1. Energy industries	6,459.12	6.13	15.48						6,480.73
1.A.2. Manufacturing industries and construction	2,925.26	4.74	6.81						2,936.81
1.A.3. Transport	4,329.18	42.04	104.73						4,475.95
1.A.4. Other sectors	3,578.99	389.01	120.25						4,088.25
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	661.86	268.03	0.30						930.19
1.B.1. Solid fuels	NO	5.88	NA,NO						5.88
1.B.2. Oil and natural gas and other emissions from energy production	661.86	262.14	0.30						924.31
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,072.94	5.54	557.50	40.89	NO	NO	13.35	NO	2,690.22
2.A. Mineral industry	1,268.53	NO	NO						1,268.53
2.B. Chemical industry	701.41	5.06	524.85	NO	NO	NO	NO	NO	1,231.33
2.C. Metal industry	27.67	0.48	NO	NO	NO	NO		NO	28.15
2.D. Non-energy products from fuels and solvent use	75.34	NA,NO	NA,NO						75.34
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				40.89	NO	NO	NO	NO	40.89
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	13.35	NO	46.00
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	50.49	1,754.45	1,214.80						3,019.74
3.A. Enteric fermentation		1,375.91							1,375.91
3.B. Manure management		378.54	168.40						546.94
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,046.40						1,046.40
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	50.49								50.49
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,235.53	8.41	43.20						-8,183.92
4.A. Forest land	-8,500.99	6.56	3.44						-8,490.99
4.B. Cropland	133.05	NO	5.48						138.53
4.C. Grassland	-19.33	1.85	7.02						-10.46
4.D. Wetlands	42.76	NO	5.94						48.70
4.E. Settlements	167.23	NO	21.33						188.56
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-58.26								-58.26
4.H. Other	NO	NO	NO						NO
5. Waste	4.38	1,405.73	67.31						1,477.41
5.A. Solid waste disposal		768.93							768.93
5.B. Biological treatment of solid waste		0.79	0.45						1.23
5.C. Incineration and open burning of waste	4.38	10.44	2.35						17.17
5.D. Waste water treatment and discharge		625.57	64.51						690.08
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	311.54	0.22	2.28						314.04
1.D.1.a. Aviation	245.16	0.05	1.82						247.03
1.D.1.b. Navigation	66.37	0.17	0.47						67.01
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,328.01								5,328.01
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	5,373.62								5,373.62
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									26,099.31
Total CO₂ equivalent emissions with LULUCF									17,915.39
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									26,099.31
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									17,915.39

Table A5.2-12: GHG emission in Croatia, 2000

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,790.87	3,962.31	2,309.54	49.40	NO	NO	12.72	NO	19,124.83
1. Energy	17,347.86	653.83	253.13						18,254.81
1.A. Fuel combustion	16,636.44	395.90	252.84						17,285.18
1.A.1. Energy industries	5,810.87	4.42	16.53						5,831.82
1.A.2. Manufacturing industries and construction	3,052.78	5.00	7.19						3,064.96
1.A.3. Transport	4,354.38	40.50	106.55						4,501.44
1.A.4. Other sectors	3,418.41	345.98	122.57						3,886.96
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	711.42	257.92	0.29						969.63
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	711.42	257.92	0.29						969.63
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,237.80	3.81	649.74	49.40	NO	NO	12.72	NO	2,953.48
2.A. Mineral industry	1,426.45	NO	NO						1,426.45
2.B. Chemical industry	704.40	3.27	617.10	NO	NO	NO	NO	NO	1,324.76
2.C. Metal industry	29.68	0.54	NO	NO	NO	NO		NO	30.22
2.D. Non-energy products from fuels and solvent use	77.28	NA	NA						77.28
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				49.40	NO	NO	NO	NO	49.40
2.G. Other product manufacture and use	NO	NO	32.65	NO	NO	NO	12.72	NO	45.36
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	60.87	1,719.44	1,223.94						3,004.24
3.A. Enteric fermentation		1,349.71							1,349.71
3.B. Manure management		369.73	159.24						528.96
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,064.70						1,064.70
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	60.87								60.87
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-6,861.81	145.13	117.25						-6,599.44
4.A. Forest land	-7,105.99	134.15	70.24						-6,901.61
4.B. Cropland	134.36	NO	5.76						140.12
4.C. Grassland	-23.69	10.98	15.35						2.64
4.D. Wetlands	39.75	NO	5.51						45.26
4.E. Settlements	163.42	NO	20.40						183.82
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-69.66								-69.66
4.H. Other	NO	NO	NO						NO
5. Waste	6.15	1,440.11	65.48						1,511.73
5.A. Solid waste disposal		797.52							797.52
5.B. Biological treatment of solid waste		0.89	0.51						1.40
5.C. Incineration and open burning of waste	6.15	9.44	2.16						17.75
5.D. Waste water treatment and discharge		632.25	62.81						695.06
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	258.78	0.19	1.89						260.86
1.D.1.a. Aviation	201.16	0.04	1.49						202.69
1.D.1.b. Navigation	57.62	0.15	0.40						58.17
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	4,771.83								4,771.83
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	5,631.44								5,631.44
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									25,724.27
Total CO₂ equivalent emissions with LULUCF									19,124.83
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									25,724.27
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									19,124.83

Table A5.2-13: GHG emission in Croatia, 2001

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,732.87	3,921.43	2,216.87	60.44	NO	NO	12.81	NO	18,944.42
1. Energy	18,351.53	697.66	243.43						19,292.63
1.A. Fuel combustion	17,589.38	423.94	243.16						18,256.48
1.A.1. Energy industries	6,343.85	5.00	18.64						6,367.49
1.A.2. Manufacturing industries and construction	3,189.68	4.91	7.15						3,201.74
1.A.3. Transport	4,420.07	34.64	95.00						4,549.71
1.A.4. Other sectors	3,635.78	379.40	122.38						4,137.55
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	762.15	273.72	0.27						1,036.15
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	762.15	273.72	0.27						1,036.15
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,325.62	3.94	549.69	60.44	NO	NO	12.81	NO	2,952.50
2.A. Mineral industry	1,644.58	NO	NO						1,644.58
2.B. Chemical industry	595.81	3.92	517.91	NO	NO	NO	NO	NO	1,117.64
2.C. Metal industry	7.15	0.02	NO	NO	NO	NO		NO	7.18
2.D. Non-energy products from fuels and solvent use	78.09	NA	NA						78.09
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				60.44	NO	NO	NO	NO	60.44
2.G. Other product manufacture and use	NO	NO	31.77	NO	NO	NO	12.81	NO	44.58
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	92.09	1,746.06	1,295.08						3,133.24
3.A. Enteric fermentation		1,363.14							1,363.14
3.B. Manure management		382.92	158.46						541.38
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,136.62						1,136.62
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	92.09								92.09
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,043.06	28.02	59.96						-7,955.08
4.A. Forest land	-8,197.66	24.69	12.92						-8,160.05
4.B. Cropland	135.66	NO	6.04						141.70
4.C. Grassland	-15.67	3.33	10.09						-2.24
4.D. Wetlands	36.01	NO	5.05						41.06
4.E. Settlements	304.71	NO	25.86						330.57
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-306.12								-306.12
4.H. Other	NO	NO	NO						NO
5. Waste	6.68	1,445.74	68.71						1,521.14
5.A. Solid waste disposal		829.13							829.13
5.B. Biological treatment of solid waste		0.72	0.41						1.13
5.C. Incineration and open burning of waste	6.68	9.21	2.12						18.01
5.D. Waste water treatment and discharge		606.68	66.19						672.87
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	291.47	0.27	2.12						293.86
1.D.1.a. Aviation	201.16	0.04	1.49						202.69
1.D.1.b. Navigation	90.31	0.23	0.63						91.17
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,187.98								5,187.98
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	5,903.34								5,903.34
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									26,899.50
Total CO₂ equivalent emissions with LULUCF									18,944.42
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									26,899.50
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									18,944.42

Table A5.2-14: GHG emission in Croatia, 2002

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	13,601.80	3,903.60	2,141.85	80.83	NO	NO	13.15	NO	19,741.23
1. Energy	19,539.19	687.03	209.26						20,435.48
1.A. Fuel combustion	18,762.83	408.03	208.99						19,379.84
1.A.1. Energy industries	7,225.52	5.48	22.16						7,253.16
1.A.2. Manufacturing industries and construction	3,084.91	4.87	7.11						3,096.89
1.A.3. Transport	4,729.32	33.53	64.59						4,827.43
1.A.4. Other sectors	3,723.08	364.14	115.14						4,202.36
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	776.36	279.00	0.27						1,055.63
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	776.36	279.00	0.27						1,055.63
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,291.80	3.67	534.85	80.83	NO	NO	13.15	NO	2,924.30
2.A. Mineral industry	1,645.41	NO	NO						1,645.41
2.B. Chemical industry	550.89	3.66	503.95	NO	NO	NO	NO	NO	1,058.50
2.C. Metal industry	4.72	0.01	NO	NO	NO	NO		NO	4.73
2.D. Non-energy products from fuels and solvent use	90.78	NA	NA						90.78
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				80.83	NO	NO	NO	NO	80.83
2.G. Other product manufacture and use	NO	NO	30.90	NO	NO	NO	13.15	NO	44.05
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	80.76	1,725.80	1,269.29						3,075.85
3.A. Enteric fermentation		1,332.32							1,332.32
3.B. Manure management		393.48	157.12						550.60
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,112.18						1,112.18
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	80.76								80.76
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,313.72	9.53	56.12						-8,248.07
4.A. Forest land	-8,505.75	8.66	4.53						-8,492.56
4.B. Cropland	136.97	NO	6.32						143.29
4.C. Grassland	-24.64	0.87	9.35						-14.41
4.D. Wetlands	32.77	NO	4.59						37.36
4.E. Settlements	349.25	NO	31.33						380.58
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-302.33								-302.33
4.H. Other	NO	NO	NO						NO
5. Waste	3.78	1,477.57	72.32						1,553.67
5.A. Solid waste disposal		863.77							863.77
5.B. Biological treatment of solid waste		0.96	0.55						1.51
5.C. Incineration and open burning of waste	3.78	9.02	2.03						14.83
5.D. Waste water treatment and discharge		603.82	69.74						673.56
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	262.60	0.23	1.92						264.74
1.D.1.a. Aviation	188.59	0.04	1.40						190.02
1.D.1.b. Navigation	74.01	0.19	0.52						74.72
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	4,975.57								4,975.57
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	6,189.22								6,189.22
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									27,989.30
Total CO₂ equivalent emissions with LULUCF									19,741.23
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									27,989.30
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									19,741.23

Table A5.2-15: GHG emission in Croatia, 2003

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	15,707.07	4,127.75	2,092.90	106.82	NO	NO	13.50	NO	22,048.03
1. Energy	20,829.42	743.66	221.90						21,794.97
1.A. Fuel combustion	20,100.62	463.50	221.64						20,785.75
1.A.1. Energy industries	7,871.16	6.53	23.03						7,900.71
1.A.2. Manufacturing industries and construction	3,150.05	5.55	7.97						3,163.56
1.A.3. Transport	5,126.76	32.50	66.37						5,225.63
1.A.4. Other sectors	3,952.65	418.92	124.27						4,495.84
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	728.80	280.16	0.26						1,009.22
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	728.80	280.16	0.26						1,009.22
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,324.18	3.49	506.57	106.82	NO	NO	13.50	NO	2,954.55
2.A. Mineral industry	1,652.12	NO	NO						1,652.12
2.B. Chemical industry	574.42	3.47	476.55	NO	NO	NO	NO	NO	1,054.44
2.C. Metal industry	6.62	0.02	NO	NO	NO	NO		NO	6.64
2.D. Non-energy products from fuels and solvent use	91.01	NA	NA						91.01
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				106.82	NO	NO	NO	NO	106.82
2.G. Other product manufacture and use	NO	NO	30.02	NO	NO	NO	13.50	NO	43.52
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	71.79	1,812.40	1,202.85						3,087.04
3.A. Enteric fermentation		1,390.19							1,390.19
3.B. Manure management		422.21	161.14						583.36
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,041.70						1,041.70
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	71.79								71.79
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,519.12	59.36	89.99						-7,369.77
4.A. Forest land	-7,852.18	55.32	28.96						-7,767.90
4.B. Cropland	138.28	NO	6.60						144.88
4.C. Grassland	-34.24	4.04	13.49						-16.71
4.D. Wetlands	29.53	NO	4.13						33.66
4.E. Settlements	390.31	NO	36.80						427.12
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-190.82								-190.82
4.H. Other	NO	NO	NO						NO
5. Waste	0.80	1,508.85	71.60						1,581.25
5.A. Solid waste disposal		901.73							901.73
5.B. Biological treatment of solid waste		0.69	0.39						1.08
5.C. Incineration and open burning of waste	0.80	8.78	1.93						11.51
5.D. Waste water treatment and discharge		597.65	69.28						666.93
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO

Memo items:⁽³⁾									
1.D.1. International bunkers	251.70	0.21	1.83						253.74
1.D.1.a. Aviation	182.30	0.04	1.35						183.69
1.D.1.b. Navigation	69.39	0.18	0.48						70.05
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,755.73								5,755.73
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	6,493.19								6,493.19
Indirect N₂O			NA,NO						

Indirect CO₂⁽⁴⁾	NA,NO								
--	-------	--	--	--	--	--	--	--	--

Total CO₂ equivalent emissions without LULUCF	29,417.81
Total CO₂ equivalent emissions with LULUCF	22,048.03
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF	29,417.81
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF	22,048.03

Table A5.2-16: GHG emission in Croatia, 2004

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	15,035.96	4,164.04	2,277.83	127.86	NO	NO	13.95	NO	21,619.64
1. Energy	20,240.89	728.87	253.07						21,222.82
1.A. Fuel combustion	19,462.97	450.72	252.82						20,166.50
1.A.1. Energy industries	6,784.01	5.45	20.90						6,810.36
1.A.2. Manufacturing industries and construction	3,551.72	6.67	9.48						3,567.87
1.A.3. Transport	5,262.21	30.47	104.55						5,397.23
1.A.4. Other sectors	3,865.02	408.13	117.89						4,391.04
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	777.92	278.15	0.25						1,056.32
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	777.92	278.15	0.25						1,056.32
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,535.51	4.19	608.48	127.86	NO	NO	13.95	NO	3,289.99
2.A. Mineral industry	1,748.15	NO	NO						1,748.15
2.B. Chemical industry	665.57	4.19	579.33	NO	NO	NO	NO	NO	1,249.08
2.C. Metal industry	13.72	NA,NO	NO	NO	NO	NO		NO	13.72
2.D. Non-energy products from fuels and solvent use	108.07	NA	NA						108.07
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				127.86	NO	NO	NO	NO	127.86
2.G. Other product manufacture and use	NO	NO	29.15	NO	NO	NO	13.95	NO	43.10
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	75.94	1,875.70	1,278.11						3,229.75
3.A. Enteric fermentation		1,431.35							1,431.35
3.B. Manure management		444.36	162.96						607.32
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,115.14						1,115.14
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	NO								NO
3.H. Urea application	75.94								75.94
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,816.73	4.09	66.87						-7,745.77
4.A. Forest land	-8,198.43	3.01	1.59						-8,193.83
4.B. Cropland	141.44	NO	6.88						148.32
4.C. Grassland	-42.62	1.08	12.46						-29.08
4.D. Wetlands	26.30	NO	3.67						29.96
4.E. Settlements	436.90	NO	42.27						479.17
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-180.30								-180.30
4.H. Other	NO	NO	NO						NO
5. Waste	0.35	1,551.18	71.31						1,622.84
5.A. Solid waste disposal		936.96							936.96
5.B. Biological treatment of solid waste		0.81	0.46						1.28
5.C. Incineration and open burning of waste	0.35	8.81	1.93						11.08
5.D. Waste water treatment and discharge		604.60	68.92						673.52
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	284.43	0.23	2.07						286.73
1.D.1.a. Aviation	210.59	0.04	1.56						212.19
1.D.1.b. Navigation	73.83	0.19	0.51						74.54
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,660.22								5,660.22
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	6,814.52								6,814.52
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									29,365.41
Total CO ₂ equivalent emissions with LULUCF									21,619.64
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									29,365.41
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									21,619.64

Table A5.2-17: GHG emission in Croatia, 2005

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
(Sheet 1 of 1)2005
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	15,233.28	4,173.83	2,247.20	186.49	NO	NO	14.70	NO	21,855.50
1. Energy	20,613.73	750.26	217.43						21,581.42
1.A. Fuel combustion	19,856.99	471.66	217.19						20,545.84
1.A.1. Energy industries	6,810.03	5.16	20.33						6,835.53
1.A.2. Manufacturing industries and construction	3,681.10	6.01	8.72						3,695.83
1.A.3. Transport	5,467.69	27.92	67.45						5,563.06
1.A.4. Other sectors	3,898.16	432.57	120.69						4,451.43
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	756.74	278.60	0.24						1,035.58
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	756.74	278.60	0.24						1,035.58
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,596.20	4.22	594.51	186.49	NO	NO	14.70	NO	3,396.12
2.A. Mineral industry	1,809.90	NO	NO						1,809.90
2.B. Chemical industry	663.60	4.22	566.23	NO	NO	NO	NO	NO	1,234.06
2.C. Metal industry	12.71	NA,NO	NO	NO	NO	NO		NO	12.71
2.D. Non-energy products from fuels and solvent use	109.99	NA	NA						109.99
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				186.49	NO	NO	NO	NO	186.49
2.G. Other product manufacture and use	NO	NO	28.28	NO	NO	NO	14.70	NO	42.98
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	85.46	1,884.71	1,286.27						3,256.45
3.A. Enteric fermentation		1,458.81							1,458.81
3.B. Manure management		425.90	150.25						576.15
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,136.03						1,136.03
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	14.49								14.49
3.H. Urea application	70.97								70.97
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-8,062.27	3.95	74.58						-7,983.75
4.A. Forest land	-8,313.06	3.31	1.77						-8,307.98
4.B. Cropland	142.14	NO	7.16						149.30
4.C. Grassland	-39.79	0.64	14.71						-24.44
4.D. Wetlands	23.06	NO	3.21						26.26
4.E. Settlements	474.10	NO	47.73						521.83
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-348.72								-348.72
4.H. Other	NO	NO	NO						NO
5. Waste	0.16	1,530.69	74.41						1,605.26
5.A. Solid waste disposal		919.12							919.12
5.B. Biological treatment of solid waste		1.47	0.84						2.31
5.C. Incineration and open burning of waste	0.16	8.76	1.91						10.83
5.D. Waste water treatment and discharge		601.34	71.66						673.00
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	337.55	0.26	2.47						340.27
1.D.1.a. Aviation	257.74	0.05	1.91						259.70
1.D.1.b. Navigation	79.82	0.21	0.56						80.58
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,908.79								5,908.79
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	7,155.39								7,155.39
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									29,839.25
Total CO₂ equivalent emissions with LULUCF									21,855.50
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									29,839.25
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									21,855.50

Table A5.2-18: GHG emission in Croatia, 2006

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	15,614.88	4,289.06	2,268.59	241.85	NO	NO	14.57	NO	22,428.95
1. Energy	20,683.71	732.34	217.67						21,633.73
1.A. Fuel combustion	19,917.74	435.17	217.44						20,570.35
1.A.1. Energy industries	6,631.42	5.40	20.06						6,656.87
1.A.2. Manufacturing industries and construction	3,806.68	6.38	9.26						3,822.32
1.A.3. Transport	5,820.94	26.79	70.17						5,917.90
1.A.4. Other sectors	3,658.71	396.60	117.95						4,173.25
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	765.97	297.17	0.24						1,063.38
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	765.97	297.17	0.24						1,063.38
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,731.07	4.10	587.03	241.85	NO	NO	14.57	NO	3,578.63
2.A. Mineral industry	1,938.74	NO	NO						1,938.74
2.B. Chemical industry	657.88	4.10	559.63	NO	NO	NO	NO	NO	1,221.62
2.C. Metal industry	13.31	NA,NO	NO	NO	NO	NO		NO	13.31
2.D. Non-energy products from fuels and solvent use	121.14	NA	NA						121.14
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				241.85	NO	NO	NO	NO	241.85
2.G. Other product manufacture and use	NO	NO	27.40	NO	NO	NO	14.57	NO	41.97
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	80.67	1,931.52	1,302.30						3,314.49
3.A. Enteric fermentation		1,456.68							1,456.68
3.B. Manure management		474.84	155.93						630.77
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,146.37						1,146.37
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	17.48								17.48
3.H. Urea application	63.19								63.19
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,881.32	9.04	85.11						-7,787.16
4.A. Forest land	-8,174.52	8.38	4.46						-8,161.68
4.B. Cropland	143.30	NO	7.44						150.74
4.C. Grassland	-59.27	0.67	17.27						-41.32
4.D. Wetlands	19.82	NO	2.75						22.57
4.E. Settlements	512.31	NO	53.20						565.51
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-322.96								-322.96
4.H. Other	NO	NO	NO						NO
5. Waste	0.74	1,612.06	76.46						1,689.26
5.A. Solid waste disposal		995.72							995.72
5.B. Biological treatment of solid waste		1.14	0.65						1.79
5.C. Incineration and open burning of waste	0.74	8.99	1.97						11.70
5.D. Waste water treatment and discharge		606.21	73.84						680.05
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	325.65	0.21	2.39						328.25
1.D.1.a. Aviation	264.02	0.05	1.96						266.03
1.D.1.b. Navigation	61.63	0.16	0.43						62.21
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,497.41								5,497.41
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	7,559.57								7,559.57
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									30,216.11
Total CO₂ equivalent emissions with LULUCF									22,428.95
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									30,216.11
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									22,428.95

Table A5.2-19: GHG emission in Croatia, 2007

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
(Sheet 1 of 1)2007
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	18,039.26	4,331.71	2,341.78	318.18	NO	NO	14.59	NO	25,045.52
1. Energy	21,909.53	728.78	222.68						22,860.99
1.A. Fuel combustion	21,181.93	420.22	222.45						21,824.60
1.A.1. Energy industries	7,815.15	6.24	24.11						7,845.50
1.A.2. Manufacturing industries and construction	3,797.32	6.43	9.22						3,812.98
1.A.3. Transport	6,242.17	25.95	73.06						6,341.18
1.A.4. Other sectors	3,327.29	381.60	116.06						3,824.94
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	727.60	308.56	0.23						1,036.39
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	727.60	308.56	0.23						1,036.39
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,802.25	3.82	644.01	318.18	NO	NO	14.59	NO	3,782.85
2.A. Mineral industry	1,966.71	NO	NO						1,966.71
2.B. Chemical industry	696.32	3.82	617.48	NO	NO	NO	NO	NO	1,317.62
2.C. Metal industry	13.69	NA,NO	NO	NO	NO	NO		NO	13.69
2.D. Non-energy products from fuels and solvent use	125.53	NA	NA						125.53
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				318.18	NO	NO	NO	NO	318.18
2.G. Other product manufacture and use	NO	NO	26.53	NO	NO	NO	14.59	NO	41.11
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	89.32	1,860.89	1,281.67						3,231.88
3.A. Enteric fermentation		1,400.89							1,400.89
3.B. Manure management		460.00	145.34						605.34
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,136.33						1,136.33
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	16.60								16.60
3.H. Urea application	72.72								72.72
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-6,762.50	47.81	115.17						-6,599.53
4.A. Forest land	-7,318.89	45.37	23.87						-7,249.65
4.B. Cropland	351.87	NO	9.25						361.12
4.C. Grassland	-73.40	2.43	21.08						-49.88
4.D. Wetlands	17.39	NO	2.32						19.71
4.E. Settlements	569.89	NO	58.64						628.52
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-309.35								-309.35
4.H. Other	NO	NO	NO						NO
5. Waste	0.65	1,690.41	78.26						1,769.32
5.A. Solid waste disposal		1,066.44							1,066.44
5.B. Biological treatment of solid waste		2.52	1.43						3.94
5.C. Incineration and open burning of waste	0.65	9.32	2.04						12.01
5.D. Waste water treatment and discharge		612.14	74.79						686.93
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	353.05	0.25	2.58						355.87
1.D.1.a. Aviation	276.60	0.05	2.05						278.70
1.D.1.b. Navigation	76.45	0.20	0.53						77.17
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,322.60								5,322.60
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	8,058.67								8,058.67
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									31,645.05
Total CO₂ equivalent emissions with LULUCF									25,045.52
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									31,645.05
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									25,045.52

Table A5.2-20: GHG emission in Croatia, 2008

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	16,560.60	4,302.87	2,599.19	388.68	NO	NO	13.39	NO	23,864.73
1. Energy	20,727.44	714.59	218.76						21,660.79
1.A. Fuel combustion	20,090.63	418.46	218.54						20,727.62
1.A.1. Energy industries	6,771.62	5.37	21.53						6,798.52
1.A.2. Manufacturing industries and construction	3,798.07	6.18	8.89						3,813.13
1.A.3. Transport	6,079.11	23.92	68.16						6,171.19
1.A.4. Other sectors	3,441.83	382.99	119.96						3,944.78
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	636.82	296.13	0.22						933.17
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	636.82	296.13	0.22						933.17
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,690.94	3.62	656.84	388.68	NO	NO	13.39	NO	3,753.47
2.A. Mineral industry	1,868.34	NO	NO						1,868.34
2.B. Chemical industry	676.64	3.62	631.19	NO	NO	NO	NO	NO	1,311.45
2.C. Metal industry	23.41	NA,NO	NO	NO	NO	NO		NO	23.41
2.D. Non-energy products from fuels and solvent use	122.55	NA	NA						122.55
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				388.68	NO	NO	NO	NO	388.68
2.G. Other product manufacture and use	NO	NO	25.65	NO	NO	NO	13.39	NO	39.04
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	96.60	1,773.78	1,539.09						3,409.47
3.A. Enteric fermentation		1,347.72							1,347.72
3.B. Manure management		426.06	133.63						559.69
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,405.46						1,405.46
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	20.78								20.78
3.H. Urea application	75.83								75.83
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-6,955.05	14.25	105.25						-6,835.55
4.A. Forest land	-7,522.44	13.20	7.06						-7,502.18
4.B. Cropland	369.97	NO	11.07						381.04
4.C. Grassland	-102.15	1.05	21.14						-79.95
4.D. Wetlands	14.40	NO	1.90						16.30
4.E. Settlements	610.51	NO	64.07						674.58
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-325.34								-325.34
4.H. Other	NO	NO	NO						NO
5. Waste	0.67	1,796.64	79.25						1,876.56
5.A. Solid waste disposal		1,180.01							1,180.01
5.B. Biological treatment of solid waste		2.45	1.39						3.85
5.C. Incineration and open burning of waste	0.67	9.54	2.09						12.30
5.D. Waste water treatment and discharge		604.64	75.77						680.41
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	384.96	0.23	2.82						388.01
1.D.1.a. Aviation	317.46	0.06	2.35						319.87
1.D.1.b. Navigation	67.50	0.17	0.46						68.14
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,298.65								5,298.65
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	8,590.84								8,590.84
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									30,700.29
Total CO ₂ equivalent emissions with LULUCF									23,864.73
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									30,700.29
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									23,864.73

Table A5.2-21: GHG emission in Croatia, 2009

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	14,688.10	4,387.34	2,039.35	469.94	NO	NO	9.63	NO	21,594.37
1. Energy	19,593.01	719.86	212.55						20,525.42
1.A. Fuel combustion	19,019.15	432.61	212.34						19,664.10
1.A.1. Energy industries	6,365.42	5.34	18.68						6,389.44
1.A.2. Manufacturing industries and construction	3,108.28	5.86	8.20						3,122.34
1.A.3. Transport	6,091.06	22.69	66.59						6,180.33
1.A.4. Other sectors	3,454.39	398.72	118.88						3,971.99
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	573.86	287.25	0.21						861.32
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	573.86	287.25	0.21						861.32
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,082.18	3.26	551.63	469.94	NO	NO	9.63	NO	3,116.64
2.A. Mineral industry	1,455.41	NO	NO						1,455.41
2.B. Chemical industry	529.27	3.26	527.51	NO	NO	NO	NO	NO	1,060.04
2.C. Metal industry	4.84	NA,NO	NO	NO	NO	NO		NO	4.84
2.D. Non-energy products from fuels and solvent use	92.66	NA	NA						92.66
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				469.94	NO	NO	NO	NO	469.94
2.G. Other product manufacture and use	NO	NO	24.11	NO	NO	NO	9.63	NO	33.74
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	76.96	1,790.31	1,083.89						2,951.16
3.A. Enteric fermentation		1,333.59							1,333.59
3.B. Manure management		456.72	136.58						593.30
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	947.31						947.31
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	11.92								11.92
3.H. Urea application	65.04								65.04
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,064.22	7.68	110.93						-6,945.61
4.A. Forest land	-7,909.44	7.43	4.10						-7,897.92
4.B. Cropland	407.71	NO	12.88						420.60
4.C. Grassland	-95.99	0.25	22.96						-72.78
4.D. Wetlands	11.41	NO	1.48						12.89
4.E. Settlements	701.06	NO	69.51						770.57
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-178.97								-178.97
4.H. Other	NO	NO	NO						NO
5. Waste	0.16	1,866.24	80.36						1,946.76
5.A. Solid waste disposal		1,287.74							1,287.74
5.B. Biological treatment of solid waste		2.13	1.17						3.30
5.C. Incineration and open burning of waste	0.16	9.51	2.08						11.75
5.D. Waste water treatment and discharge		566.86	77.11						643.97
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	292.16	0.11	2.15						294.42
1.D.1.a. Aviation	270.31	0.05	2.00						272.37
1.D.1.b. Navigation	21.85	0.06	0.15						22.06
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,576.02								5,576.02
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	9,102.28								9,102.28
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									28,539.98
Total CO ₂ equivalent emissions with LULUCF									21,594.37
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									28,539.98
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									21,594.37

Table A5.2-22: GHG emission in Croatia, 2010

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	13,959.93	4,444.87	2,269.35	563.88	NO	NO	10.13	NO	21,248.17
1. Energy	18,774.65	748.54	210.43						19,733.62
1.A. Fuel combustion	18,233.13	460.07	210.23						18,903.43
1.A.1. Energy industries	5,877.34	4.86	19.32						5,901.52
1.A.2. Manufacturing industries and construction	2,983.81	5.80	8.02						2,997.63
1.A.3. Transport	5,865.78	20.46	62.66						5,948.90
1.A.4. Other sectors	3,506.21	428.94	120.24						4,055.39
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	541.52	288.47	0.20						830.19
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	541.52	288.47	0.20						830.19
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,115.40	3.05	704.20	563.88	NO	NO	10.13	NO	3,396.66
2.A. Mineral industry	1,403.71	NO	NO						1,403.71
2.B. Chemical industry	615.36	3.05	680.28	NO	NO	NO	NO	NO	1,298.69
2.C. Metal industry	14.68	NA,NO	NO	NO	NO	NO		NO	14.68
2.D. Non-energy products from fuels and solvent use	81.64	NA	NA						81.64
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				563.88	NO	NO	NO	NO	563.88
2.G. Other product manufacture and use	NO	NO	23.91	NO	NO	NO	10.13	NO	34.05
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	88.04	1,772.99	1,154.23						3,015.26
3.A. Enteric fermentation		1,303.76							1,303.76
3.B. Manure management		469.23	132.23						601.46
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,022.00						1,022.00
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	21.46								21.46
3.H. Urea application	66.58								66.58
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-7,018.20	2.63	117.84						-6,897.73
4.A. Forest land	-7,776.50	2.50	1.59						-7,772.41
4.B. Cropland	415.49	NO	14.70						430.20
4.C. Grassland	-112.24	0.13	25.54						-86.56
4.D. Wetlands	8.42	NO	1.05						9.47
4.E. Settlements	695.78	NO	74.95						770.73
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-249.16								-249.16
4.H. Other	NO	NO	NO						NO
5. Waste	0.05	1,917.66	82.65						2,000.36
5.A. Solid waste disposal		1,310.99							1,310.99
5.B. Biological treatment of solid waste		2.41	1.26						3.67
5.C. Incineration and open burning of waste	0.05	9.65	2.11						11.80
5.D. Waste water treatment and discharge		594.61	79.28						673.89
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	315.09	0.11	2.33						317.52
1.D.1.a. Aviation	295.46	0.06	2.19						297.70
1.D.1.b. Navigation	19.64	0.05	0.14						19.82
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,940.55								5,940.55
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	9,618.04								9,618.04
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									28,145.89
Total CO ₂ equivalent emissions with LULUCF									21,248.17
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									28,145.89
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									21,248.17

Table A5.2-23: GHG emission in Croatia, 2011

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	14,843.35	4,437.44	2,344.31	625.90	NO	NO	10.57	NO	22,261.57
1. Energy	18,565.66	713.33	198.31						19,477.31
1.A. Fuel combustion	18,006.77	447.33	198.13						18,652.23
1.A.1. Energy industries	6,247.86	5.62	20.45						6,273.94
1.A.2. Manufacturing industries and construction	2,750.09	5.09	7.05						2,762.23
1.A.3. Transport	5,726.93	18.81	51.85						5,797.59
1.A.4. Other sectors	3,281.90	417.81	118.78						3,818.48
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	558.89	266.01	0.18						825.07
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	558.89	266.01	0.18						825.07
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,943.77	1.96	693.97	625.90	NO	NO	10.57	NO	3,276.17
2.A. Mineral industry	1,255.57	NO	NO						1,255.57
2.B. Chemical industry	593.19	1.96	670.44	NO	NO	NO	NO	NO	1,265.59
2.C. Metal industry	16.64	NA,NO	NO	NO	NO	NO		NO	16.64
2.D. Non-energy products from fuels and solvent use	78.37	NA	NA						78.37
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				625.90	NO	NO	NO	NO	625.90
2.G. Other product manufacture and use	NO	NO	23.53	NO	NO	NO	10.57	NO	34.10
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	105.18	1,728.33	1,225.94						3,059.45
3.A. Enteric fermentation		1,277.73							1,277.73
3.B. Manure management		450.61	123.74						574.35
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,102.20						1,102.20
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	21.32								21.32
3.H. Urea application	83.86								83.86
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,771.31	27.18	142.70						-5,601.43
4.A. Forest land	-6,570.02	23.34	12.57						-6,534.11
4.B. Cropland	438.67	NO	16.24						454.90
4.C. Grassland	-119.90	3.84	31.53						-84.53
4.D. Wetlands	8.45	NO	1.06						9.50
4.E. Settlements	740.26	NO	81.32						821.58
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-268.76								-268.76
4.H. Other	NO	NO	NO						NO
5. Waste	0.05	1,966.64	83.38						2,050.07
5.A. Solid waste disposal		1,363.14							1,363.14
5.B. Biological treatment of solid waste		2.58	1.32						3.89
5.C. Incineration and open burning of waste	0.05	9.19	2.01						11.25
5.D. Waste water treatment and discharge		591.73	80.06						671.78
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	387.14	0.25	2.83						390.22
1.D.1.a. Aviation	311.17	0.06	2.31						313.54
1.D.1.b. Navigation	75.97	0.19	0.52						76.69
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,834.09								5,834.09
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	10,126.53								10,126.53
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									27,863.00
Total CO ₂ equivalent emissions with LULUCF									22,261.57
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									27,863.00
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									22,261.57

Table A5.2-24: GHG emission in Croatia, 2012

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	13,688.30	4,427.40	2,169.00	699.22	NO	NO	11.30	NO	20,995.22
1. Energy	17,199.62	673.59	190.64						18,063.85
1.A. Fuel combustion	16,726.38	442.71	190.48						17,359.57
1.A.1. Energy industries	5,849.20	5.47	19.37						5,874.04
1.A.2. Manufacturing industries and construction	2,384.35	5.22	7.17						2,396.75
1.A.3. Transport	5,551.16	15.88	50.09						5,617.13
1.A.4. Other sectors	2,941.67	416.14	113.85						3,471.65
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	473.24	230.88	0.16						704.28
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	473.24	230.88	0.16						704.28
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,749.08	IE,NA,NE,NO	601.62	699.22	NO	NO	11.30	NO	3,061.22
2.A. Mineral industry	1,173.23	NO	NO						1,173.23
2.B. Chemical industry	502.01	IE,NE,NO	580.13	NO	NO	NO	NO	NO	1,082.13
2.C. Metal industry	1.43	NA,NO	NO	NO	NO	NO		NO	1.43
2.D. Non-energy products from fuels and solvent use	72.41	NA	NA						72.41
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				699.22	NO	NO	NO	NO	699.22
2.G. Other product manufacture and use	NO	NO	21.50	NO	NO	NO	11.30	NO	32.79
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	101.23	1,723.82	1,121.55						2,946.60
3.A. Enteric fermentation		1,283.43							1,283.43
3.B. Manure management		440.38	120.76						561.14
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	1,000.79						1,000.79
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	14.38								14.38
3.H. Urea application	86.85								86.85
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,361.72	58.25	169.05						-5,134.31
4.A. Forest land	-6,138.25	55.23	29.39						-6,053.64
4.B. Cropland	454.85	NO	17.77						472.62
4.C. Grassland	-146.47	3.13	33.16						-110.18
4.D. Wetlands	8.47	NO	1.06						9.53
4.E. Settlements	779.50	NO	87.68						867.18
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-319.83								-319.83
4.H. Other	NO	NO	NO						NO
5. Waste	0.08	1,971.64	86.13						2,057.86
5.A. Solid waste disposal		1,405.28							1,405.28
5.B. Biological treatment of solid waste		4.81	2.43						7.25
5.C. Incineration and open burning of waste	0.08	8.89	1.94						10.91
5.D. Waste water treatment and discharge		552.66	81.76						634.41
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	342.53	0.10	2.53						345.16
1.D.1.a. Aviation	330.03	0.06	2.45						332.54
1.D.1.b. Navigation	12.50	0.03	0.09						12.62
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	6,011.36								6,011.36
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	10,579.23								10,579.23
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									26,129.53
Total CO ₂ equivalent emissions with LULUCF									20,995.22
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									26,129.53
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									20,995.22

Table A5.2-25: GHG emission in Croatia, 2013

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,105.83	4,266.82	1,620.76	764.81	NO	NO	7.40	NO	18,765.62
1. Energy	16,466.37	658.48	187.39						17,312.23
1.A. Fuel combustion	16,013.57	438.88	187.23						16,639.68
1.A.1. Energy industries	5,238.07	4.66	18.60						5,261.34
1.A.2. Manufacturing industries and construction	2,359.25	5.01	6.95						2,371.21
1.A.3. Transport	5,636.55	15.67	49.74						5,701.96
1.A.4. Other sectors	2,779.70	413.54	111.94						3,305.18
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	452.80	219.60	0.16						672.55
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	452.80	219.60	0.16						672.55
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,860.32	IE,NA,NE,NO	233.40	764.81	NO	NO	7.40	NO	2,865.92
2.A. Mineral industry	1,271.22	NO	NO						1,271.22
2.B. Chemical industry	509.33	IE,NE,NO	213.66	NO	NO	NO	NO	NO	722.99
2.C. Metal industry	13.93	NA,NO	NO	NO	NO	NO		NO	13.93
2.D. Non-energy products from fuels and solvent use	65.84	NA	NA						65.84
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				764.81	NO	NO	NO	NO	764.81
2.G. Other product manufacture and use	NO	NO	19.73	NO	NO	NO	7.40	NO	27.13
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	74.61	1,647.09	970.50						2,692.20
3.A. Enteric fermentation		1,230.76							1,230.76
3.B. Manure management		416.33	113.27						529.60
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	857.23						857.23
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	14.23								14.23
3.H. Urea application	60.39								60.39
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-6,295.52	2.75	141.74						-6,151.02
4.A. Forest land	-6,654.14	2.23	1.79						-6,650.12
4.B. Cropland	267.59	NO	17.38						284.97
4.C. Grassland	-171.85	0.53	33.32						-138.00
4.D. Wetlands	9.33	NO	1.10						10.43
4.E. Settlements	679.73	NO	88.15						767.88
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-426.18								-426.18
4.H. Other	NO	NO	NO						NO
5. Waste	0.04	1,958.50	87.74						2,046.28
5.A. Solid waste disposal		1,402.22							1,402.22
5.B. Biological treatment of solid waste		6.77	3.39						10.17
5.C. Incineration and open burning of waste	0.04	8.47	1.85						10.36
5.D. Waste water treatment and discharge		541.03	82.50						623.53
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO

Memo items:⁽³⁾									
1.D.1. International bunkers	379.01	0.10	2.77						381.88
1.D.1.a. Aviation	366.52	0.07	2.68						369.27
1.D.1.b. Navigation	12.50	0.03	0.09						12.62
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,975.40								5,975.40
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	11,040.45								11,040.45
Indirect N₂O			NA,NO						

Indirect CO₂⁽⁴⁾	NA,NO								
--	-------	--	--	--	--	--	--	--	--

Total CO₂ equivalent emissions without LULUCF	24,916.64
Total CO₂ equivalent emissions with LULUCF	18,765.62
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF	24,916.64
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF	18,765.62

Table A5.2-26: GHG emission in Croatia, 2014

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,496.16	4,226.42	1,589.51	850.23	NO	NO	7.91	NO	18,170.23
1. Energy	15,596.95	591.92	176.66						16,365.53
1.A. Fuel combustion	15,155.79	386.90	176.50						15,719.19
1.A.1. Energy industries	4,743.91	3.62	15.96						4,763.49
1.A.2. Manufacturing industries and construction	2,300.57	4.28	5.99						2,310.84
1.A.3. Transport	5,580.73	14.64	48.94						5,644.31
1.A.4. Other sectors	2,530.59	364.36	105.61						3,000.56
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	441.16	205.02	0.15						646.33
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	441.16	205.02	0.15						646.33
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,983.47	IE,NA,NE,NO	254.43	850.23	NO	NO	7.91	NO	3,096.04
2.A. Mineral industry	1,354.11	NO	NO						1,354.11
2.B. Chemical industry	559.83	IE,NE,NO	236.72	NO	NO	NO	NO	NO	796.55
2.C. Metal industry	10.11	NA,NO	NO	NO	NO	NO		NO	10.11
2.D. Non-energy products from fuels and solvent use	59.42	NA	NA						59.42
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				850.23	NO	NO	NO	NO	850.23
2.G. Other product manufacture and use	NO	NO	17.71	NO	NO	NO	7.91	NO	25.62
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	69.47	1,628.93	927.04						2,625.44
3.A. Enteric fermentation		1,213.29							1,213.29
3.B. Manure management		415.64	114.84						530.48
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	812.20						812.20
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	19.99								19.99
3.H. Urea application	49.47								49.47
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-6,153.78	0.43	143.64						-6,009.71
4.A. Forest land	-6,380.08	0.31	0.99						-6,378.78
4.B. Cropland	260.57	0.09	17.02						277.68
4.C. Grassland	-182.46	0.03	35.86						-146.57
4.D. Wetlands	9.62	NO	1.14						10.76
4.E. Settlements	677.18	NO	88.63						765.81
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-538.61								-538.61
4.H. Other	NO	NO	NO						NO
5. Waste	0.04	2,005.15	87.75						2,092.94
5.A. Solid waste disposal		1,448.17							1,448.17
5.B. Biological treatment of solid waste		8.44	3.50						11.93
5.C. Incineration and open burning of waste	0.04	8.50	1.86						10.40
5.D. Waste water treatment and discharge		540.04	82.40						622.44
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	383.77	0.11	2.80						386.68
1.D.1.a. Aviation	368.10	0.07	2.69						370.87
1.D.1.b. Navigation	15.66	0.04	0.11						15.81
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,245.05								5,245.05
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	11,465.10								11,465.10
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									24,179.94
Total CO₂ equivalent emissions with LULUCF									18,170.23
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									24,179.94
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									18,170.23

Table A5.2-27: GHG emission in Croatia, 2015

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,926.32	4,341.93	1,725.51	944.27	NO	NO	5.75	NO	18,943.78
1. Energy	15,777.74	657.39	186.01						16,621.13
1.A. Fuel combustion	15,528.20	440.29	185.83						16,154.33
1.A.1. Energy industries	4,718.82	4.63	17.44						4,740.89
1.A.2. Manufacturing industries and construction	2,201.79	3.71	5.28						2,210.78
1.A.3. Transport	5,887.78	14.15	50.43						5,952.36
1.A.4. Other sectors	2,719.81	417.80	112.68						3,250.30
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	249.54	217.10	0.17						466.80
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	249.54	217.10	0.17						466.80
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,946.77	IE,NA,NE,NO	294.77	944.27	NO	NO	5.75	NO	3,191.56
2.A. Mineral industry	1,306.35	NO	NO						1,306.35
2.B. Chemical industry	572.27	IE,NE,NO	276.87	NO	NO	NO	NO	NO	849.14
2.C. Metal industry	9.30	NA,NO	NO	NO	NO	NO		NO	9.30
2.D. Non-energy products from fuels and solvent use	58.84	NA	NA						58.84
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				944.27	NO	NO	NO	NO	944.27
2.G. Other product manufacture and use	NO	NO	17.90	NO	NO	NO	5.75	NO	23.65
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	69.34	1,609.89	995.58						2,674.81
3.A. Enteric fermentation		1,193.79							1,193.79
3.B. Manure management		416.09	112.43						528.52
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	883.15						883.15
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	12.09								12.09
3.H. Urea application	57.25								57.25
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,867.57	19.52	156.58						-5,691.46
4.A. Forest land	-5,901.70	14.88	8.90						-5,877.92
4.B. Cropland	311.14	2.89	18.09						332.12
4.C. Grassland	-215.90	1.75	39.31						-174.84
4.D. Wetlands	9.90	NO	1.18						11.08
4.E. Settlements	693.14	NO	89.11						782.25
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-764.15								-764.15
4.H. Other	NO	NO	NO						NO
5. Waste	0.05	2,055.13	92.57						2,147.75
5.A. Solid waste disposal		1,493.27							1,493.27
5.B. Biological treatment of solid waste		13.85	5.56						19.41
5.C. Incineration and open burning of waste	0.05	8.25	1.80						10.10
5.D. Waste water treatment and discharge		539.76	85.21						624.97
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	365.05	0.10	2.67						367.81
1.D.1.a. Aviation	354.08	0.07	2.59						356.74
1.D.1.b. Navigation	10.97	0.03	0.08						11.07
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	6,006.75								6,006.75
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	11,900.58								11,900.58
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									24,635.24
Total CO₂ equivalent emissions with LULUCF									18,943.78
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									24,635.24
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									18,943.78

Table A5.2-28: GHG emission in Croatia, 2016

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,204.64	4,314.08	1,495.68	1,079.83	NO	NO	6.80	NO	19,101.03
1. Energy	16,190.57	647.66	188.45						17,026.68
1.A. Fuel combustion	15,953.85	428.91	188.26						16,571.02
1.A.1. Energy industries	4,846.79	6.10	20.48						4,873.38
1.A.2. Manufacturing industries and construction	2,210.60	3.22	4.63						2,218.45
1.A.3. Transport	6,106.38	13.68	52.53						6,172.60
1.A.4. Other sectors	2,790.08	405.91	110.62						3,306.60
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	236.72	218.75	0.18						455.66
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	236.72	218.75	0.18						455.66
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,812.49	IE,NA,NE,NO	114.55	1,079.83	NO	NO	6.80	NO	3,013.67
2.A. Mineral industry	1,201.30	NO	NO						1,201.30
2.B. Chemical industry	547.86	IE,NE,NO	97.25	NO	NO	NO	NO	NO	645.11
2.C. Metal industry	1.05	NA,NO	NO	NO	NO	NO		NO	1.05
2.D. Non-energy products from fuels and solvent use	62.27	NA	NA						62.27
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,079.83	NO	NO	NO	NO	1,079.83
2.G. Other product manufacture and use	NO	NO	17.30	NO	NO	NO	6.80	NO	24.10
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	76.17	1,600.48	947.48						2,624.13
3.A. Enteric fermentation		1,195.55							1,195.55
3.B. Manure management		404.92	112.59						517.51
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	834.89						834.89
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	11.20								11.20
3.H. Urea application	64.96								64.96
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,874.64	12.51	152.89						-5,709.24
4.A. Forest land	-5,788.58	10.83	6.78						-5,770.97
4.B. Cropland	257.35	0.06	16.21						273.62
4.C. Grassland	-254.48	1.62	39.10						-213.76
4.D. Wetlands	10.19	NO	1.22						11.41
4.E. Settlements	680.96	NO	89.58						770.54
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-780.07								-780.07
4.H. Other	NO	NO	NO						NO
5. Waste	0.05	2,053.44	92.31						2,145.79
5.A. Solid waste disposal		1,490.64							1,490.64
5.B. Biological treatment of solid waste		11.76	3.24						15.00
5.C. Incineration and open burning of waste	0.05	7.63	1.67						9.34
5.D. Waste water treatment and discharge		543.41	87.40						630.81
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	388.96	0.11	2.84						391.91
1.D.1.a. Aviation	375.75	0.07	2.75						378.57
1.D.1.b. Navigation	13.21	0.03	0.09						13.34
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	5,970.35								5,970.35
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	12,312.38								12,312.38
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,810.27
Total CO ₂ equivalent emissions with LULUCF									19,101.03
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,810.27
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									19,101.03

Table A5.2-29: GHG emission in Croatia, 2017

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	13,585.72	4,371.88	1,652.03	1,225.33	NO	NO	7.23	NO	20,842.20
1. Energy	16,574.03	636.75	189.37						17,400.16
1.A. Fuel combustion	16,262.44	419.66	189.19						16,871.28
1.A.1. Energy industries	4,464.77	7.74	19.16						4,491.67
1.A.2. Manufacturing industries and construction	2,405.83	3.92	5.55						2,415.29
1.A.3. Transport	6,570.29	13.41	55.31						6,639.01
1.A.4. Other sectors	2,821.56	394.59	109.17						3,325.31
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	311.59	217.10	0.18						528.88
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	311.59	217.10	0.18						528.88
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,057.97	IE,NA,NE,NO	105.24	1,225.33	NO	NO	7.23	NO	3,395.78
2.A. Mineral industry	1,425.61	NO	NO						1,425.61
2.B. Chemical industry	566.79	IE,NE,NO	87.68	NO	NO	NO	NO	NO	654.47
2.C. Metal industry	1.87	NA,NO	NO	NO	NO	NO		NO	1.87
2.D. Non-energy products from fuels and solvent use	63.70	NA	NA						63.70
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,225.33	NO	NO	NO	NO	1,225.33
2.G. Other product manufacture and use	NO	NO	17.56	NO	NO	NO	7.23	NO	24.80
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	81.13	1,585.60	1,061.17						2,727.90
3.A. Enteric fermentation		1,192.32							1,192.32
3.B. Manure management		393.28	111.02						504.31
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	950.15						950.15
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	10.92								10.92
3.H. Urea application	70.21								70.21
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,127.40	101.60	203.14						-4,822.67
4.A. Forest land	-4,809.83	92.61	49.59						-4,667.62
4.B. Cropland	256.61	0.54	16.07						273.22
4.C. Grassland	-239.81	8.45	46.15						-185.22
4.D. Wetlands	10.47	NO	1.26						11.73
4.E. Settlements	684.51	NO	90.06						774.57
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-1,029.35								-1,029.35
4.H. Other	NO	NO	NO						NO
5. Waste	NO	2,047.93	93.10						2,141.03
5.A. Solid waste disposal		1,514.78							1,514.78
5.B. Biological treatment of solid waste		11.50	3.66						15.16
5.C. Incineration and open burning of waste	NO	6.87	1.50						8.37
5.D. Waste water treatment and discharge		514.77	87.94						602.72
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO

Memo items:⁽³⁾									
1.D.1. International bunkers	469.17	0.14	3.42						472.73
1.D.1.a. Aviation	449.06	0.09	3.28						452.43
1.D.1.b. Navigation	20.11	0.05	0.14						20.31
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	5,906.57								5,906.57
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	12,710.94								12,710.94
Indirect N₂O			NA,NO						

Indirect CO₂⁽⁴⁾	NA,NO								
--	-------	--	--	--	--	--	--	--	--

Total CO₂ equivalent emissions without LULUCF	25,664.86
Total CO₂ equivalent emissions with LULUCF	20,842.20
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF	25,664.86
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF	20,842.20

Table A5.2-30: GHG emission in Croatia, 2018

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,043.79	4,087.99	1,557.05	1,352.41	NO	NO	6.46	NO	19,047.71
1. Energy	15,671.07	601.43	187.80						16,460.30
1.A. Fuel combustion	15,386.44	402.19	187.63						15,976.26
1.A.1. Energy industries	3,907.81	8.78	19.76						3,936.35
1.A.2. Manufacturing industries and construction	2,390.76	4.16	5.85						2,400.78
1.A.3. Transport	6,340.78	12.49	53.59						6,406.86
1.A.4. Other sectors	2,747.08	376.75	108.44						3,232.27
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	284.64	199.24	0.17						484.05
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	284.64	199.24	0.17						484.05
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,951.20	IE,NA,NE,NO	60.88	1,352.41	NO	NO	6.46	NO	3,370.95
2.A. Mineral industry	1,358.42	NO	NO						1,358.42
2.B. Chemical industry	513.06	IE,NE,NO	44.56	NO	NO	NO	NO	NO	557.62
2.C. Metal industry	8.99	NA,NO	NO	NO	NO	NO		NO	8.99
2.D. Non-energy products from fuels and solvent use	70.73	NA	NA						70.73
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,352.41	NO	NO	NO	NO	1,352.41
2.G. Other product manufacture and use	NO	NO	16.32	NO	NO	NO	6.46	NO	22.78
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	72.24	1,487.67	1,064.16						2,624.08
3.A. Enteric fermentation		1,118.35							1,118.35
3.B. Manure management		369.33	102.31						471.64
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	961.85						961.85
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	4.62								4.62
3.H. Urea application	67.62								67.62
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,650.72	1.69	148.33						-5,500.69
4.A. Forest land	-5,575.32	1.18	1.72						-5,572.42
4.B. Cropland	248.03	0.01	15.39						263.43
4.C. Grassland	-260.32	0.50	39.37						-220.44
4.D. Wetlands	10.75	NO	1.30						12.06
4.E. Settlements	687.79	NO	90.55						778.34
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-761.66								-761.66
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,997.19	95.88						2,093.07
5.A. Solid waste disposal		1,482.58							1,482.58
5.B. Biological treatment of solid waste		11.49	4.21						15.70
5.C. Incineration and open burning of waste	NO	7.15	1.56						8.71
5.D. Waste water treatment and discharge		495.97	90.11						586.08
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	624.92	0.28	4.55						629.75
1.D.1.a. Aviation	559.65	0.11	4.09						563.85
1.D.1.b. Navigation	65.27	0.17	0.46						65.90
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	6,057.52								6,057.52
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	13,084.84								13,084.84
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,548.40
Total CO ₂ equivalent emissions with LULUCF									19,047.71
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,548.40
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									19,047.71

Table A5.2-31: GHG emission in Croatia, 2019

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,928.98	3,998.90	1,560.98	1,466.75	NO	NO	8.09	NO	18,963.70
1. Energy	15,738.60	580.02	191.98						16,510.60
1.A. Fuel combustion	15,451.66	393.29	191.82						16,036.78
1.A.1. Energy industries	3,878.50	11.02	22.70						3,912.23
1.A.2. Manufacturing industries and construction	2,397.37	4.47	6.18						2,408.02
1.A.3. Transport	6,516.87	11.81	56.22						6,584.90
1.A.4. Other sectors	2,658.92	365.99	106.72						3,131.63
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	286.94	186.73	0.16						473.83
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	286.94	186.73	0.16						473.83
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	2,006.16	IE,NA,NE,NO	60.74	1,466.75	NO	NO	8.09	NO	3,541.75
2.A. Mineral industry	1,324.94	NO	NO						1,324.94
2.B. Chemical industry	594.60	IE,NE,NO	44.55	NO	NO	NO	NO	NO	639.15
2.C. Metal industry	4.91	NA,NO	NO	NO	NO	NO		NO	4.91
2.D. Non-energy products from fuels and solvent use	81.71	NA	NA						81.71
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,466.75	NO	NO	NO	NO	1,466.75
2.G. Other product manufacture and use	NO	NO	16.19	NO	NO	NO	8.09	NO	24.28
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	75.66	1,461.44	1,060.64						2,597.74
3.A. Enteric fermentation		1,119.03							1,119.03
3.B. Manure management		342.41	102.46						444.88
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	958.17						958.17
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	2.07								2.07
3.H. Urea application	73.59								73.59
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,891.44	3.65	149.37						-5,738.42
4.A. Forest land	-5,825.74	3.12	2.74						-5,819.88
4.B. Cropland	245.90	0.04	15.01						260.95
4.C. Grassland	-262.34	0.49	39.26						-222.59
4.D. Wetlands	11.04	NO	1.34						12.38
4.E. Settlements	691.87	NO	91.02						782.89
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-752.16								-752.16
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,953.79	98.25						2,052.04
5.A. Solid waste disposal		1,434.54							1,434.54
5.B. Biological treatment of solid waste		12.68	4.48						17.16
5.C. Incineration and open burning of waste	NO	6.57	1.44						8.01
5.D. Waste water treatment and discharge		500.00	92.33						592.33
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	683.77	0.32	4.98						689.08
1.D.1.a. Aviation	605.86	0.12	4.43						610.41
1.D.1.b. Navigation	77.91	0.20	0.55						78.67
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	6,228.14								6,228.14
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	13,430.40								13,430.40
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,702.12
Total CO ₂ equivalent emissions with LULUCF									18,963.70
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,702.12
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									18,963.70

Table A5.2-32: GHG emission in Croatia, 2020

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,018.71	3,977.36	1,620.70	1,572.23	NO	NO	9.35	NO	18,198.35
1. Energy	14,801.24	570.14	190.46	1,572.23	NO	NO	9.35	NO	15,561.84
1.A. Fuel combustion	14,513.05	397.68	190.32						15,101.06
1.A.1. Energy industries	3,661.13	11.84	23.07						3,696.05
1.A.2. Manufacturing industries and construction	2,392.56	5.08	6.91						2,404.55
1.A.3. Transport	5,732.11	9.63	50.31						5,792.05
1.A.4. Other sectors	2,727.25	371.13	110.03						3,208.41
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	288.19	172.46	0.14						460.78
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	288.19	172.46	0.14						460.78
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,973.69	IE,NA,NE,NO	75.60	1,572.23	NO	NO	9.35	NO	3,630.88
2.A. Mineral industry	1,359.34	NO	NO						1,359.34
2.B. Chemical industry	535.32	IE,NE,NO	57.87	NO	NO	NO	NO	NO	593.19
2.C. Metal industry	4.93	NA,NO	NO	NO	NO	NO		NO	4.93
2.D. Non-energy products from fuels and solvent use	74.10	NA	NA						74.10
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,572.23	NO	NO	NO	NO	1,572.23
2.G. Other product manufacture and use	NO	NO	17.73	NO	NO	NO	9.35	NO	27.08
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	95.18	1,458.26	1,081.50						2,634.93
3.A. Enteric fermentation		1,091.14							1,091.14
3.B. Manure management		367.12	101.06						468.18
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	980.43						980.43
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	6.89								6.89
3.H. Urea application	88.29								88.29
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,851.40	48.31	173.93						-5,629.15
4.A. Forest land	-5,907.80	44.37	24.33						-5,839.10
4.B. Cropland	242.97	0.01	14.60						257.58
4.C. Grassland	-263.20	3.93	42.11						-217.16
4.D. Wetlands	11.32	NO	1.38						12.71
4.E. Settlements	694.85	NO	91.51						786.36
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-629.54								-629.54
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,900.64	99.20						1,999.84
5.A. Solid waste disposal		1,428.60							1,428.60
5.B. Biological treatment of solid waste		16.87	6.36						23.24
5.C. Incineration and open burning of waste	NO	6.58	1.44						8.01
5.D. Waste water treatment and discharge		448.59	91.40						540.00
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	227.53	0.20	1.65						229.38
1.D.1.a. Aviation	163.82	0.03	1.20						165.05
1.D.1.b. Navigation	63.71	0.17	0.45						64.33
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	6,383.96								6,383.96
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	13,735.16								13,735.16
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO₂ equivalent emissions without LULUCF									23,827.50
Total CO₂ equivalent emissions with LULUCF									18,198.35
Total CO₂ equivalent emissions, including indirect CO₂, without LULUCF									23,827.50
Total CO₂ equivalent emissions, including indirect CO₂, with LULUCF									18,198.35

Table A5.2-33: GHG emission in Croatia, 2021

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	11,468.49	3,795.31	1,584.24	1,697.01	NO	NO	9.63	NO	18,554.67
1. Energy	15,486.40	596.34	200.09						16,282.83
1.A. Fuel combustion	15,202.48	431.03	199.95						15,833.46
1.A.1. Energy industries	3,730.98	13.06	25.32						3,769.36
1.A.2. Manufacturing industries and construction	2,418.06	5.20	7.10						2,430.36
1.A.3. Transport	6,194.87	10.40	54.08						6,259.35
1.A.4. Other sectors	2,858.57	402.37	113.46						3,374.39
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	283.92	165.31	0.14						449.37
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	283.92	165.31	0.14						449.37
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,824.31	IE,NA,NE,NO	53.14	1,697.01	NO	NO	9.63	NO	3,584.09
2.A. Mineral industry	1,372.26	NO	NO						1,372.26
2.B. Chemical industry	365.49	IE,NE,NO	36.28	NO	NO	NO	NO	NO	401.77
2.C. Metal industry	14.26	NA,NO	NO	NO	NO	NO		NO	14.26
2.D. Non-energy products from fuels and solvent use	72.30	NA	NA						72.30
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,697.01	NO	NO	NO	NO	1,697.01
2.G. Other product manufacture and use	NO	NO	16.87	NO	NO	NO	9.63	NO	26.49
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	92.26	1,422.14	1,085.22						2,599.62
3.A. Enteric fermentation		1,079.31							1,079.31
3.B. Manure management		342.84	96.52						439.36
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	988.70						988.70
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	18.70								18.70
3.H. Urea application	73.57								73.57
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,934.48	8.02	144.89						-5,781.57
4.A. Forest land	-5,926.02	6.23	4.37						-5,915.41
4.B. Cropland	240.29	0.00	14.19						254.49
4.C. Grassland	-255.40	1.78	39.27						-214.35
4.D. Wetlands	11.83	NO	1.45						13.29
4.E. Settlements	651.10	NO	85.60						736.70
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-656.28								-656.28
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,768.81	100.90						1,869.70
5.A. Solid waste disposal		1,301.54							1,301.54
5.B. Biological treatment of solid waste		21.74	7.37						29.11
5.C. Incineration and open burning of waste	NO	6.06	1.32						7.38
5.D. Waste water treatment and discharge		439.47	92.20						531.67
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	372.76	0.25	2.71						375.73
1.D.1.a. Aviation	298.31	0.06	2.18						300.55
1.D.1.b. Navigation	74.45	0.20	0.53						75.18
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	7,049.25								7,049.25
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	14,029.00								14,029.00
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,336.24
Total CO ₂ equivalent emissions with LULUCF									18,554.67
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,336.24
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									18,554.67

Table A5.2-34: GHG emission in Croatia, 2022

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,508.76	3,768.22	1,474.27	1,812.05	NO	NO	10.00	NO	19,573.30
1. Energy	16,121.65	548.51	201.77						16,871.92
1.A. Fuel combustion	15,765.56	393.25	201.64						16,360.44
1.A.1. Energy industries	4,062.71	14.50	29.03						4,106.24
1.A.2. Manufacturing industries and construction	2,313.06	4.86	6.71						2,324.63
1.A.3. Transport	6,667.33	8.65	55.16						6,731.15
1.A.4. Other sectors	2,722.45	365.23	110.74						3,198.42
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	356.09	155.26	0.13						511.48
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	356.09	155.26	0.13						511.48
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,415.64	IE,NA,NE,NO	29.16	1,812.05	NO	NO	10.00	NO	3,266.84
2.A. Mineral industry	1,255.47	NO	NO						1,255.47
2.B. Chemical industry	83.90	IE,NE,NO	12.22	NO	NO	NO	NO	NO	96.12
2.C. Metal industry	13.39	NA,NO	NO	NO	NO	NO		NO	13.39
2.D. Non-energy products from fuels and solvent use	62.87	NA	NA						62.87
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,812.05	NO	NO	NO	NO	1,812.05
2.G. Other product manufacture and use	NO	NO	16.94	NO	NO	NO	10.00	NO	26.94
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	47.88	1,341.54	981.31						2,370.73
3.A. Enteric fermentation		1,020.85							1,020.85
3.B. Manure management		320.69	92.13						412.82
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	889.18						889.18
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	5.87								5.87
3.H. Urea application	42.01								42.01
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,076.41	47.59	159.42						-4,869.39
4.A. Forest land	-5,293.57	42.16	23.18						-5,228.22
4.B. Cropland	240.21	0.27	13.95						254.43
4.C. Grassland	-249.39	5.16	41.08						-203.15
4.D. Wetlands	12.34	NO	1.53						13.87
4.E. Settlements	607.25	NO	79.68						686.93
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-393.25								-393.25
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,830.58	102.62						1,933.20
5.A. Solid waste disposal		1,378.38							1,378.38
5.B. Biological treatment of solid waste		30.14	8.89						39.03
5.C. Incineration and open burning of waste	NO	5.94	1.30						7.23
5.D. Waste water treatment and discharge		416.12	92.43						508.55
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	623.87	0.26	4.54						628.68
1.D.1.a. Aviation	564.44	0.11	4.13						568.67
1.D.1.b. Navigation	59.44	0.15	0.42						60.01
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO₂ emissions from biomass	6,532.67								6,532.67
1.D.4. CO₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	14,328.34								14,328.34
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									24,442.69
Total CO ₂ equivalent emissions with LULUCF									19,573.30
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									24,442.69
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									19,573.30

Table A5.2-35: GHG emission in Croatia, 2023

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	12,770.02	3,613.39	1,451.03	1,928.97	NO	NO	10.47	NO	19,773.88
1. Energy	16,896.79	532.64	214.83						17,644.26
1.A. Fuel combustion	16,592.72	384.19	214.70						17,191.61
1.A.1. Energy industries	4,054.35	14.42	28.61						4,097.38
1.A.2. Manufacturing industries and construction	2,435.00	6.65	9.03						2,450.68
1.A.3. Transport	7,504.54	9.63	67.70						7,581.88
1.A.4. Other sectors	2,598.83	353.48	109.36						3,061.66
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	304.07	148.45	0.13						452.65
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	304.07	148.45	0.13						452.65
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,542.64	IE,NA,NE,NO	34.90	1,928.97	NO	NO	10.47	NO	3,516.97
2.A. Mineral industry	1,259.30	NO	NO						1,259.30
2.B. Chemical industry	201.91	IE,NE,NO	17.51	NO	NO	NO	NO	NO	219.42
2.C. Metal industry	17.90	NA,NO	NO	NO	NO	NO		NO	17.90
2.D. Non-energy products from fuels and solvent use	63.52	NA	NA						63.52
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				1,928.97	NO	NO	NO	NO	1,928.97
2.G. Other product manufacture and use	NO	NO	17.38	NO	NO	NO	10.47	NO	27.86
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	28.05	1,273.28	968.06						2,269.38
3.A. Enteric fermentation		968.74							968.74
3.B. Manure management		304.54	87.71						392.25
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	880.35						880.35
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	6.38								6.38
3.H. Urea application	21.67								21.67
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-5,697.45	1.84	126.95						-5,668.67
4.A. Forest land	-5,882.22	1.11	1.69						-5,879.42
4.B. Cropland	235.10	0.00	13.40						248.50
4.C. Grassland	-236.61	0.72	36.51						-199.38
4.D. Wetlands	12.85	NO	1.60						14.45
4.E. Settlements	564.85	NO	73.76						638.61
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-391.43								-391.43
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,805.64	106.29						1,911.93
5.A. Solid waste disposal		1,359.95							1,359.95
5.B. Biological treatment of solid waste		34.24	10.30						44.54
5.C. Incineration and open burning of waste	NO	5.92	1.29						7.21
5.D. Waste water treatment and discharge		405.54	94.70						500.23
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	669.60	0.31	4.94						674.85
1.D.1.a. Aviation	596.25	0.12	4.42						600.79
1.D.1.b. Navigation	73.35	0.19	0.52						74.06
1.D.2. Multilateral operations	C	C	C						C
1.D.3. CO ₂ emissions from biomass	6,438.50								6,438.50
1.D.4. CO ₂ captured	NO								NO
5.F.1. Long-term storage of C in waste disposal sites	14,602.68								14,602.68
Indirect N₂O			NA,NO						
Indirect CO₂⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									25,342.55
Total CO ₂ equivalent emissions with LULUCF									19,773.88
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									25,342.55
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									19,773.88

Table A5.2-36: GHG emission in Croatia, 2024

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
Total (net emissions)⁽³⁾	13,697.38	3,616.84	1,497.23	2,047.66	NO	NO	10.77	NO	20,869.89
1. Energy	16,868.45	509.40	223.87						17,601.72
1.A. Fuel combustion	16,625.63	368.79	223.75						17,218.17
1.A.1. Energy industries	3,138.05	15.77	26.67						3,180.49
1.A.2. Manufacturing industries and construction	2,519.28	9.06	12.02						2,540.36
1.A.3. Transport	8,299.12	10.28	76.26						8,385.65
1.A.4. Other sectors	2,669.19	333.69	108.80						3,111.67
1.A.5. Other	IE,NO	IE,NO	IE,NO						IE,NO
1.B. Fugitive emissions from fuels	242.81	140.61	0.12						383.54
1.B.1. Solid fuels	NO	NO	NO						NO
1.B.2. Oil and natural gas and other emissions from energy production	242.81	140.61	0.12						383.54
1.C. CO ₂ transport and storage	NO								NO
2. Industrial processes and product use	1,327.41	IE,NA,NE,NO	30.84	2,047.66	NO	NO	10.77	NO	3,416.69
2.A. Mineral industry	1,125.59	NO	NO						1,125.59
2.B. Chemical industry	128.27	IE,NE,NO	13.34	NO	NO	NO	NO	NO	141.61
2.C. Metal industry	11.68	NA,NO	NO	NO	NO	NO		NO	11.68
2.D. Non-energy products from fuels and solvent use	61.87	NA	NA						61.87
2.E. Electronic Industry			NO	NO	NO	NO	NO	NO	NO
2.F. Product uses as ODS substitutes				2,047.66	NO	NO	NO	NO	2,047.66
2.G. Other product manufacture and use	NO	NO	17.50	NO	NO	NO	10.77	NO	28.28
2.H. Other	NA,NO	NA,NO	NA,NO	NO	NO	NO	NO	NO	NA,NO
3. Agriculture	57.37	1,293.46	1,005.95						2,356.78
3.A. Enteric fermentation		979.02							979.02
3.B. Manure management		314.44	89.47						403.91
3.C. Rice cultivation		NO							NO
3.D. Agricultural soils		NE	916.48						916.48
3.E. Prescribed burning of savannahs		NA	NA						NA
3.F. Field burning of agricultural residues		NA,NO	NA,NO						NA,NO
3.G. Liming	14.43								14.43
3.H. Urea application	42.94								42.94
3.I. Other carbon-containing fertilizers	NA								NA
3.J. Other	NA	NA	NA						NA
4. Land use, land-use change and forestry⁽¹⁾	-4,555.85	20.21	130.10						-4,405.53
4.A. Forest land	-4,705.70	17.37	10.19						-4,678.14
4.B. Cropland	234.87	0.22	13.12						248.20
4.C. Grassland	-230.74	2.62	37.27						-190.85
4.D. Wetlands	13.36	NO	1.67						15.04
4.E. Settlements	520.10	NO	67.85						587.95
4.F. Other land	NO	NO	NO						NO
4.G. Harvested wood products	-387.74								-387.74
4.H. Other	NO	NO	NO						NO
5. Waste	NO	1,793.77	106.47						1,900.24
5.A. Solid waste disposal		1,352.06							1,352.06
5.B. Biological treatment of solid waste		32.95	9.07						42.02
5.C. Incineration and open burning of waste	NO	5.88	1.28						7.16
5.D. Waste water treatment and discharge		402.88	96.11						498.99
5.E. Other	NO	NO	NO						NO
6. Other (as specified in summary 1)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Memo items:⁽³⁾									
1.D.1. International bunkers	778.23	0.26	5.76						784.24
1.D.1.a. Aviation	734.55	0.14	5.44						740.14
1.D.1.b. Navigation	43.67	0.12	0.31						44.10
1.D.2. Multilateral operations									
1.D.3. CO ₂ emissions from biomass	6,523.02								6,523.02
1.D.4. CO ₂ captured									
5.F.1. Long-term storage of C in waste disposal sites	14,870.55								14,870.55
Indirect N ₂ O			NA,NO						
Indirect CO ₂ ⁽⁴⁾	NA,NO								
Total CO ₂ equivalent emissions without LULUCF									25,275.42
Total CO ₂ equivalent emissions with LULUCF									20,869.89
Total CO ₂ equivalent emissions, including indirect CO ₂ , without LULUCF									25,275.42
Total CO ₂ equivalent emissions, including indirect CO ₂ , with LULUCF									20,869.89

Annex 5-3: CO₂ emission factors, oxidation factors and national net calorific values

Table 5.3-1: National net calorific values, CO₂ emission factors and oxidation factors for 2024 (needed for monitoring and reporting on CO₂ emission)

Gorivo		DOV		CO ₂ Emisijski faktor (t CO ₂ /TJ)	Oksidacijski faktor (OF)
		Jedinica	2023		
Motorni benzin	Motor Gasoline	GJ/t	44.5900	69.30	1
Aviobenzin	Aviation Gasoline	GJ/t	44.5900	70.00	1
Kerozin (Mlazno gorivo)	Jet Kerosene	GJ/t	43.9600	71.50	1
Dizel i ekstra lako loživo ulje (plinsko ulje)	Gas/Diesel Oil	GJ/t	42.7100	74.10	1
Loživo ulje i srednje loživo ulje	Residual Fuel Oil	GJ/t	40.1900	77.40	1
Ukapljeni naftni plin	Liquefied Petroleum Gases	GJ/t	46.8900	63.10	1
Maziva	Lubricants	GJ/t	33.5000	73.30	1
Naftni koks	Petroleum Coke	GJ/t	31.0000	97.50	1
Petrolej	Petroleum	GJ/t	43.9600	73.30	1
Antracit	Anthracite	GJ/t	29.3100	98.30	1
Kameni ugljen- Industrija	Other bituminous coal Industry	GJ/t	25.9170	94.60	1
Kameni ugljen- Termoelektrane	Other bituminous coal Thermal power plant	GJ/t	24.4700	93.104	1
Ugljen za proizvodnju koksa (koksni ugljen)	Coking coal	GJ/t	28.2000	94.60	1
Mrki ugljen (smeđi ugljen) Industrija	Sub bituminous coal Industry	GJ/t	15.7000	96.10	1
Lignit	Lignite	GJ/t	11.5000	101.00	1
Briketi kamenog ugljena	Brown coal briquettes	GJ/t	20.7000	97.50	1
Koks	Coke oven coke	GJ/t	29.3100	107.00	1
Prirodni plin	Natural Gas	GJ/10 ³ m ³	37.0000	56.10	1
Gradski plin	Gas Works Gas	GJ/t	38.7000	44.40	1
Koksni plin	Coke Oven Gas	GJ/t	38.7000	44.40	1
Rafinerijski plin	Refinery Gas	GJ/t	42.6000	57.60	1

Annex 5-4: Reporting on consistency of the reported data on air pollutants, for 2024

SO_x

EMISSION CATEGORIES	Emissions for pollutant X reported in greenhouse gas (GHG inventory) (in kt) ⁽³⁾	Emissions for pollutant X reported under Directive 2016/2284 (NEC), submission version X (in kt) ⁽³⁾	Absolute difference in kt ^{(1) (3)}	Explanations for differences
National total (excluding LULUCF)	5	6	0.0	
1. Energy	5	5	0.0	
A. Fuel combustion (sectoral approach)	4	4	0.0	
1. Energy industries	0.9469	1	0.0	
2. Manufacturing industries and construction	2	2	0.0	
3. Transport	0	0	0.0	
4. Other sectors	1	1	0.0	
5. Other	NO		NO	
B. Fugitive emissions from fuels	2	2	0.0	
1. Solid fuels	NO	NO	NO	
2. Oil and natural gas and other emissions from energy production	2	2	0.0	
2. Industrial processes and product use	0	0	-0.1	
A. Mineral industry	NA	0	NO	
B. Chemical industry	NE,NO	0	NO	
C. Metal industry	0	0	0.0	
D. Non-energy products from fuels and solvent use	NA,NO	0	NO	
G. Other product manufacture and use	NO	0	NO	
H. Other	NA,NE	0	NO	
3. Agriculture	0	0	0.0	
B. Manure management	0	0	0.0	
D. Agricultural soils	0	0	0.0	
F. Field burning of agricultural residues	NO	NO	NO	
J. Other	0	NO	NO	
5. Waste	0	0	0.0	
A. Solid waste disposal	0	0	0.0	
B. Biological treatment of solid waste	0	0	0.0	
C. Incineration and open burning of waste	0	0	0.0	
D. Wastewater treatment and discharge	0	0	0.0	
E. Other	NO	NO	NO	
6. Other	NA	NA	NO	

NOx

EMISSION CATEGORIES	Emissions for pollutant X reported in greenhouse gas (GHG inventory) (in kt) ⁽³⁾	Emissions for pollutant X reported under Directive 2016/2284 (NEC), submission version X (in kt) ⁽³⁾	Absolute difference in kt ⁽¹⁾⁽³⁾	Explanations for differences
National total (excluding LULUCF)	43	42	0.6	
1. Energy	43	42	0.7	
A. Fuel combustion (sectoral approach)	43	42	0.7	
1. Energy industries	5	5	0.0	
2. Manufacturing industries and construction	6	6	0.0	
3. Transport	25	25	-0.2	Difference is due to differences in methodology in Aviation sector
4. Other sectors	6.9688	6.0522	0.9	Error occurred. Will be corrected in next submission
5. Other	NO	NO	NO	
B. Fugitive emissions from fuels	0	0	0.0	
1. Solid fuels	NO	NO	NO	
2. Oil and natural gas and other emissions from energy production	0	0	0.0	
2. Industrial processes and product use	0	0	-0.1	
A. Mineral industry	NA	0	NO	
B. Chemical industry	0	0	0.1	
C. Metal industry	0	0	0.0	
D. Non-energy products from fuels and solvent use	NA,NO	0	NO	
G. Other product manufacture and use	NO	0	NO	
H. Other	NA,NE	0	NO	
3. Agriculture	3	5	-1.3	Difference is due to differences in methodology
B. Manure management	0	0	-0.1	Difference is due to differences in methodology
D. Agricultural soils	3	5	-1.2	Difference is due to differences in methodology
F. Field burning of agricultural residues	NO	NO	NO	
J. Other	0	NO	NO	
5. Waste	0	0	0.0	
A. Solid waste disposal	NA,NO	0	NO	
B. Biological treatment of solid waste	NE	0	NO	
C. Incineration and open burning of waste	0	0	0.0	
D. Wastewater treatment and discharge	NA,NO	0	NO	
E. Other	NO	NO	NO	
6. Other	NA	NA	NO	

CO

EMISSION CATEGORIES	Emissions for pollutant X reported in greenhouse gas (GHG inventory) (in kt) ⁽³⁾	Emissions for pollutant X reported under Directive 2016/2284 (NEC), submission version X (in kt) ⁽³⁾	Absolute difference in kt ⁽¹⁾⁽³⁾	Explanations for differences
National total (excluding LULUCF)	207	207	-0.2	
1. Energy	204	204	0.3	
A. Fuel combustion (sectoral approach)	190	190	0.3	
1. Energy industries	1.8490	2	0.0	
2. Manufacturing industries and construction	12	12	0.0	
3. Transport	23	23	-0.4	Difference is due to differences in methodology in Aviation sector
4. Other sectors	154	154	0.6	Error occurred. Will be corrected in next submission
5. Other	NO		NO	
B. Fugitive emissions from fuels	14	14	0.0	
1. Solid fuels	NO	NO	NO	
2. Oil and natural gas and other emissions from energy production	14	14	0.0	
2. Industrial processes and product use	0	1	-0.5	Difference is due to differences in methodology
A. Mineral industry	NA	0	NO	
B. Chemical industry	0	0	0.0	
C. Metal industry	0	0	0.0	
D. Non-energy products from fuels and solvent use	0	0	0.0	
G. Other product manufacture and use	NO	0	NO	
H. Other	NA,NE	0	NO	
3. Agriculture	0	0	0.0	
B. Manure management	0	0	0.0	
D. Agricultural soils	NO	0	NO	
F. Field burning of agricultural residues	NO	NO	NO	
J. Other	0	NO	NO	
5. Waste	2	2	0.0	
A. Solid waste disposal	NE,NO	0	NO	
B. Biological treatment of solid waste	NE	0	NO	
C. Incineration and open burning of waste	2	2	0.0	
D. Wastewater treatment and discharge	NA,NO	0	NO	
E. Other	NO	NO	NO	
6. Other	NA	NA	NO	

NMVOC

EMISSION CATEGORIES	Emissions for pollutant X reported in greenhouse gas (GHG inventory) (in kt) ⁽³⁾	Emissions for pollutant X reported under Directive 2016/2284 (NEC), submission version X (in kt) ⁽³⁾	Absolute difference in kt ^{(1),(3)}	Explanations for differences
National total (excluding LULUCF)	44	46	-1.5	
1. Energy	26	27	-0.8	
A. Fuel combustion (sectoral approach)	24	24	-0.8	
1. Energy industries	0.5168	1	0.0	
2. Manufacturing industries and construction	2	2	0.0	
3. Transport	3	4	-1.2	Difference is due to differences in methodology in Aviation sector
4. Other sectors	18	18	0.4	
5. Other	NO		NO	
B. Fugitive emissions from fuels	2	2	0.0	
1. Solid fuels	NO	NO	NO	
2. Oil and natural gas and other emissions from energy production	2	2	0.0	
2. Industrial processes and product use	18	18	-0.7	Difference is due to differences in methodology
A. Mineral industry	NA	0	NO	
B. Chemical industry	0	0	0.0	
C. Metal industry	0	0	0.0	
D. Non-energy products from fuels and solvent use	14	14	0.0	
G. Other product manufacture and use	NO	1	NO	
H. Other	3	3	0.0	
3. Agriculture	8	8	0.0	
B. Manure management	7	7	0.0	
D. Agricultural soils	2	2	0.0	
F. Field burning of agricultural residues	NO	NO	NO	
J. Other	0	NO	NO	
5. Waste	1	1	0.0	
A. Solid waste disposal	1	1	0.0	
B. Biological treatment of solid waste	NE	0	NO	
C. Incineration and open burning of waste	0	0	0.0	
D. Wastewater treatment and discharge	0	0	0.0	
E. Other	NO	NO	NO	
6. Other	NA	NA	NO	

Annex 5-5: Reporting on consistency of reported emissions with data from the ETS

2024

	Total emissions (CO _{2eq})			
	Greenhouse gas inventory emissions [kt CO _{2eq}] ⁽³⁾	Verified emissions under Directive 2003/87/EC [kt CO _{2eq}] (3)	Ratio in % (Verified emissions/inventory emissions) ⁽³⁾	Comment ⁽²⁾
Greenhouse gas emissions (for GHG inventory: total GHG emissions, including indirect CO₂ emissions if reported, without LULUCF, and excluding emissions from domestic aviation; for Directive 2003/87/EC: GHG emissions from stationary installations under Article 2(1) of Directive 2003/87/EC)	25,244.63	5,491.73	21.75%	
CO₂ emissions (for GHG inventory: total CO₂ emissions, including indirect CO₂ emissions if reported, without LULUCF, and excluding CO₂ emissions from domestic aviation; for Directive 2003/87/EC: CO₂ emissions from stationary installations under Article 2(1) of Directive 2003/87/EC)	18,436.68	5,360.70	29.08%	
	CO ₂ emissions			
	Greenhouse gas inventory emissions [kt] ⁽³⁾	Verified emissions under Directive 2003/87/EC [kt] (3)	Ratio in % (Verified emissions/inventory emissions) ⁽³⁾	Comment ⁽²⁾
I.A Fuel combustion activities, total		NA	NA	
I.A Fuel combustion activities, stationary combustion		4,223.43		
I.A.1 Energy industries	3,180.49	3,026.98	95.17%	
I.A.1.a Public electricity and heat production	2,177.34	2,233.92	102.60%	
I.A.1.b Petroleum refining	703.83	663.74	94.30%	
I.A.1.c Manufacture of solid fuels and other energy industries	299.32	129.32	43.21%	
Iron and steel (for GHG inventory combined CRT categories 1.A.2.a + 2.C.1 + 1.A.1.c and other relevant CRT categories that include emissions from iron and steel (e.g. 1A1a, 1B1) ⁽⁴⁾	571.13	141.00	24.69%	
I.A.2 Manufacturing industries and construction	2,540.36	1,196.45	47.10%	
I.A.2.a Iron and steel	260.13	0.00	0.00%	
I.A.2.b Non-ferrous metals	31.26	0.00	0.00%	
I.A.2.c Chemicals	103.48	0.00	NO	
I.A.2.d Pulp, paper and print	118.31	0.00	0.00%	
I.A.2.e Food processing, beverages and tobacco	289.00	0.00	0.00%	
I.A.2.f Non-metallic minerals	1,228.67	1,144.89	93.18%	
I.A.2.g Other	509.52	51.56	10.12%	
I.A.3 Transport	NO	NO	NO	
I.A.3.e Other transportation (pipeline transport)	NO	NO	NO	
I.A.4 Other sectors	NO	NO	NO	
I.A.4.a Commercial/institutional	NO	NO	NO	
I.A.4.b Agriculture/Forestry/Fisheries	NO	NO	NO	
I.B Fugitive emissions from Fuels	NO	NO	NO	
I.C CO₂ Transport and storage	NO	NO	NO	
I.C.1 Transport of CO ₂	NO	NO	NO	
I.C.2 Injection and storage	NO	NO	NO	
I.C.3 Other	NO	NO	NO	
2.A Mineral products	1,125.59	1,268.30	112.68%	
2.A.1 Cement production	994.57	994.57	100.00%	
2.A.2 Lime production	96.08	108.96	113.40%	
2.A.3 Glass production	22.05	22.05	100.00%	
2.A.4 Other process uses of carbonates	12.88	NO	#VALUE!	
2.B Chemical industry	128.27	NO	#VALUE!	
2.B.1 Ammonia production	128.27	NO	#VALUE!	
2.B.3 Adipic acid production (CO ₂)	NO	NO	NO	
2.B.4 Caprolactam, glyoxal and glyoxylic acid production	NO	NO	NO	
2.B.5 Carbide production	NO	NO	NO	
2.B.6 Titanium dioxide production	NO	NO	NO	
2.B.7 Soda ash production	NO	NO	NO	
2.B.8 Petrochemical and carbon black production	NO	NO	NO	
2.C Metal production	11.68	11.68	100.00%	
2.C.1 Iron and steel production	11.68	11.68	100.00%	
2.C.2 Ferroalloys production	NO	NO	NO	
2.C.3 Aluminium production	NO	NO	NO	
2.C.4 Magnesium production	NO	NO	NO	
2.C.5 Lead production	NO	NO	NO	
2.C.6 Zinc production	NO	NO	NO	
2.C.7 Other metal production	NO	NO	NO	
	N ₂ O emissions			
	Greenhouse gas inventory emissions [kt CO _{2eq}] ⁽³⁾	Verified emissions under Directive 2003/87/EC [kt CO _{2eq}] (3)	Ratio in % (Verified emissions/inventory emissions) ⁽³⁾	Comment ⁽²⁾
2.B.2 Nitric acid production	13.34	131.03	982.14%	
2.B.3 Adipic acid production	NO	NO	NO	
2.B.4 Caprolactam, glyoxal and glyoxylic acid production	NO	NO	NO	
	PFC emissions			
	Greenhouse gas inventory emissions [kt CO _{2eq}] ⁽³⁾	Verified emissions under Directive 2003/87/EC [kt CO _{2eq}] (3)	Ratio in % (Verified emissions/inventory emissions) ⁽³⁾	Comment ⁽²⁾
2.C.3 Aluminium production	NO	NO	NO	

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