Implementing Regulation Article 7: Reporting on approximated Greenhouse Gas Inventories

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

Year	2022
Submission	2023
Country	Estonia
Geographical scope	

GREENHOUSE GAS SOURCE AND	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	SF_6	Unspecified mix of HFCs and PFCs	NF_3	Total	ETS	Effort Sharing [3]
	CO_2 equivalent (kt)									CO_2 equivalent (kt)	
Total (net emissions)[1]	12153.98	1134.02	869.99	208.32	NO	3.09	NO	NO	14369.40		
1. Energy	12045.73	61.50	57.12						12164.34	**8 380**	**3 785**
A. Fuel combustion (sectoral approach)	12045.70	41.06	57.12						12143.88	**8 380**	**3 764**
1. Energy industries	8571.42	17.72	28.44						8617.57	**8 287**	**331**
2. Manufacturing industries and construction	460.32	1.24	1.79						463.35	**86**	**377**
3. Transport	2323.48	3.13	20.37						2346.98	**5**	**2 342**
4. Other sectors	690.48	18.98	6.52						715.98	**2**	**714**
5. Other	NO	NO	NO						NO	**NO**	**NO**
B. Fugitive emissions from fuels	0.03	20.43	NO						20.46	**NO**	**20**
1. Solid fuels	NO	NO	NO						NO	**NO**	**NO**
2. Oil and natural gas	0.03	20.43	NO						20.46	**NO**	**20**
C. CO_2 transport and storage	NO								NO	**NO**	**NO**
2. Industrial processes and product use	71.69	NO	3.03	208.32	NO	3.09	NO	NO	286.14	**33**	**253**
A. Mineral industry	32.70								32.70	**33**	**0**
B. Chemical industry	NO	NO	NO	NO	NO	NO	NO	NO	NO	**NO**	**NO**
C. Metal industry	2.62	NO	NO	NO	NO	NO	NO	NO	2.62	**NO**	**3**
D. Non-energy products from fuels and solvent use	36.37	NO	NO						36.37	**NO**	**36**
E. Electronic Industry				NO	NO	NO	NO	NO	NO	**NO**	**NO**
F. Product uses as ODS substitutes				208.32	NO	NO	NO	NO	208.32	**NO**	**208**
G. Other product manufacture and use	NO	NO	3.03	NO	NO	3.09	NO	NO	6.12	**NO**	**6**
H. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	**NO**	**NO**
3. Agriculture	36.17	803.75	770.96						1610.88	**NO**	**1 610.88**
A. Enteric fermentation		622.48							622.48		
B. Manure management		181.27	67.01						248.28		
C. Rice cultivation		NO							NO		
D. Agricultural soils		NO	703.95						703.95		
E. Prescribed burning of savannas		NO	NO						NO		
F. Field burning of agricultural residues		NO	NO						NO		
G. Liming	36.04								36.04		
H. Urea application	0.13								0.13		
I. Other carbon-containing fertilizers	NO								NO		
J. Other	NO	NO	NO						NO		
4. Land use, land-use change and forestry[1]	2535.17	75.31	272.10						2882.57		
A. Forest land	1083.24	75.19	242.44						1400.87		
B. Cropland	579.80	NO,NE	6.07						585.87		
C. Grassland	-27.27	0.01	0.00						-27.26		
D. Wetlands	1444.11	0.11	2.02						1446.24		
E. Settlements	309.02	NO,NE	10.08						319.10		
F. Other land	95.32	NO	6.23						101.55		
G. Harvested wood products	-949.05								-949.05		
H. Other	NO	NO	NO						NO		
5. Waste	0.39	268.78	38.87						308.03	**NO**	**308.03**
A. Solid waste disposal	NO	188.00							188.00		
B. Biological treatment of solid waste		19.15	10.88						30.03		
C. Incineration and open burning of waste	0.39	0.21	0.03						0.63		
D. Waste water treatment and discharge		61.42	27.96						89.38		
E. Other	NO	NO	NO						NO		
6. Other *(as specified in summary 1.A)*	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Memo items											
International bunkers	1028.04	2.24	5.71						1035.99		
Aviation	159.99	0.00	0.00						160.00		
Navigation	868.05	2.24	5.70						875.99		

NO

CO_2 emissions from biomass	5493.87								5493.87		
CO_2 captured	NO								NO		

Indirect CO_2 [2]	IE										
Total CO_2 equivalent emissions without land use, land-use change and forestry									14369.40	8412.298506	5957.099318
Total CO_2 equivalent emissions with land use, land-use change and forestry											
Total CO_2 equivalent emissions, including indirect CO_2, without land use, land-use change and forestry									14369.40	8412.298506	5957.099318
Total CO_2 equivalent emissions, including indirect CO_2, with land use, land-use change and forestry											

[1] For carbon dioxide (CO_2) from land use, land-use change and forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

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

[3] Emissions within the scope of Regulation (EU) 2018/842.

Brief description of the key drivers underpinning the increase or decrease in GHG emissions in x-1 (proxy) compared to x-2 (inventory). If this information is publicly available please include the hyperlink to the relevant website. Information on the uncertainties associated with the estimations for the LULUCF sector may also be provided.

Total emissions: Total GHG emissions in 2022 are estimated to increase by 13.9% compared to 2021 mainly due to increased emissions in Energy sector (because of the energy crisis, which resulted in an increase of oil shale consumption for electricity production to satify the electricity demand in the Baltic region). ETS emission have increased by 22.7% in 2022 compared to 2021. According to the Proxy estimates non-ETS emissions have increased by 3.4% compared to 2021. Activity data for calculating 2022 LULUCF emissions will become available by the end of 2023 and therefore 2023 March submission emission information is reported. Due to this, the LULUCF emissions are not included in the total GHG estimation, as they do not represent approximated GHG emissions for the year 2022.

Energy: 2022 total GHG emissions in the Energy sector are estimated to increase by 16.8% compared to 2021 mainly due to increasing emissions in the Energy industries in the public electricity and heat production, because of the energy crisis, which resulted in an increase of oil shale consumption for electricity production to satisfy the electricity demand in the Baltic region (1). Also, increase in emissions in Other sectors due to Agriculture, as crop yield improved (thus increased fuel consumption for agricultural machinery) in 2022 compared to 2021, due to favorable weather conditions. Emissions are estimated to decrease in the Transport sector by 0.2% as a result of high fuel prices. In the ETS and non-ETS section in the table above CO2 emissions from domestic aviation have been presented under the ETS column.
The proxy estimation for Energy sector is based on short term fuel consumption statistics provided by Statistics Estonia (mini Joint Questionnaires) which are preliminary estimations for 2022. However, the national inventory report is based on annual Joint Questionnaires, which is compiled in autumn and is more detailed, therefore changes in the final emission estimations are foreseen.
(1) https://www.err.ee/1608469163/elektridefitsiit-leedus-kergitab-elektri-hinda-ka-eestis

IPPU: 2022 year´s emissions from IPPU sector are estimated to decrease by 3.3% in comparison to 2021 year´s emissions. Emission decreased by 44% in the mineral industry subsector because lime production in of the biggest factories producing lime in Estonia stopped in March 2023, as due to higher price of natural gas the lime production was not economically feasible anymore. The emission of HFC-s increased 9.5% mainly due to decommissioning 15 year old equipment (ca 3 times higher amount than in 2021) containing of R-404a which has high GWP therefore having significant impact to emissions. Emissions from other categories in 2022 are estimated to remain at the 2021 level. Some changes in the final emission estimations of HFC-s are foreseen if additional data from companies becomes available. Under memo items indirect CO2 emissions from NMVOC from solvent use and road paving with asphalt (ca 30.68 kt CO2) are included into 2.D.

Agriculture: Total emissions from Agriculture sector in 2022 are estimated to increase by 1.7% compared to 2021. The emissions from livestock category, e.g. Enteric fermentation and Manure management are estimated to decrease slightly - 0.1% and 2.7%, respectively. That is mostly caused by slightly lower livestock numbers than reported in the 2023 National Inventory Report. That in turn is mostly caused by the current difficult situation in the agriculture sector that started in the end of 2021: the energy crisis and inflation have caused the production costs to exceed the profit from agricultural production. However, emissions from Agricultural Soils category are estimated to increase by 4.0%, mostly because of the increased amount of lime fertilizers used on fields. That is in turn a part of a larger trend: the usage of fertilizers has been increasing since 2019, mostly because of the shift in agricultural holdings to large producers that use more fertilizer than small agricultural holdings.

LULUCF: Activity data for calculating 2022 LULUCF emissions will become available by the end of 2023 and therefore 2023 March submission emission information is reported.

Waste: Total emissions from waste sector in 2022 are estimated to decrease by 2.9% compared to 2021. Waste activity data for calculating 2022 waste sector emissions is under inspection by the Estonian Environment Agency (EstEA) and is not yet available. However, for waste incineration without energy recovery sub-category activity data has been verified and is ready for use in the calculations. Emissions from Incineration and open burning are estimated to decreased by 28.8% in 2022 compared to 2021 due to decreasing amount of waste incinerated without energy recovery. The total amount of waste incinerated without energy recovery in 2021 was 58.06 tons including different materials, however according to the data by EstEA only 0.174 tons of solvents were incinerated without energy recovery in 2022. For other sub-sectors waste activity data from 2023 submission is used together with updated 2022 population and GDP data. In addition, information on different wastewater systems for 2022 was also updated. In category 5D Industrial wastewater activity data from 2023 submission is used as activity data and methodology is under review and will be updated for the next submission if necessary.