



LITHUANIA'S NATIONAL INVENTORY REPORT 2014

GREENHOUSE GAS EMISSIONS 1990-2012

ANNEXES

VILNIUS, 2014

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ANNEX I. Tier 1 and Tier 2 key source category analysis

Table 1-1. Tier 1 key category Level analysis excluding LULUCF: 1990

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	0,12	12,4%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	0,12	24,4%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	0,07	31,6%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	0,06	38,0%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	0,06	44,3%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	0,06	50,1%
1.AA.4.B Residential, CO ₂	2277,12	0,05	54,8%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	0,04	59,2%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	0,04	63,4%
4.D.3. Indirect Emissions, N ₂ O	1888,68	0,04	67,3%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	0,03	70,8%
2.A.1. Cement Production, CO ₂	1668,07	0,03	74,2%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	0,03	77,3%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	0,03	80,0%
2.B.1. Ammonia Production, CO ₂	1291,50	0,03	82,7%
2.B.2. Nitric Acid Production, N ₂ O	928,97	0,02	84,6%
4.B. Manure Management, N ₂ O	885,25	0,02	86,4%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	0,02	88,2%
4.B. Manure Management swine, CH ₄	636,36	0,01	89,5%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	0,01	90,7%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	0,01	91,8%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	0,01	92,8%
4.B. Manure Management, cattle, CH ₄	424,59	0,01	93,7%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	0,01	94,5%
1.AA.3.C Railways, CO ₂	349,97	0,01	95,2%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	0,00	95,7%
2.A.2. Lime Production, CO ₂	217,80	0,00	96,1%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	0,00	96,5%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	0,00	96,9%
6.B. Waste-water Handling, CH ₄	173,86	0,00	97,3%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	0,00	97,6%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	0,00	97,9%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	0,00	98,1%
4.A. Enteric Fermentation others, CH ₄	100,67	0,00	98,3%
3. Solvent and Other Product Use, CO ₂	100,42	0,00	98,5%
3. Solvent and Other Product Use, N ₂ O	97,11	0,00	98,7%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	0,00	98,9%
6.B. Waste-water Handling, N ₂ O	79,91	0,00	99,1%
1.AA.4 Other sectors, biomass, CH ₄	68,58	0,00	99,2%
2.B.5.5 Methanol, CO ₂	61,10	0,00	99,3%
1.AA.3.B Road transportation LPG, CO ₂	60,19	0,00	99,5%
1.AA.3 Transport, N ₂ O	45,79	0,00	99,6%
1.AA.3 Transport, CH ₄	38,60	0,00	99,6%
1.AA.4 Other sectors, N ₂ O	30,39	0,00	99,7%
1.AA.1 Energy industries, N ₂ O	23,32	0,00	99,7%
2.C.1.2 Pig iron, CO ₂	21,25	0,00	99,8%
1.AA.3.D Navigation, CO ₂	15,49	0,00	99,8%
2.A.7 Glass Production, CO ₂	11,70	0,00	99,8%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	0,00	99,9%
2D2 Food and drink, CO ₂	9,32	0,00	99,9%
1.AA.3.A Civil aviation, CO ₂	9,02	0,00	99,9%
1.AA.1 Energy industries, CH ₄	8,87	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	6,49	0,00	99,9%
2.A.7 Mineral wool production, CO ₂	6,28	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,00	100,0%
6.C. Waste Incineration, CO ₂	4,33	0,00	100,0%
2.B.5.5 Methanol, CH ₄	3,83	0,00	100,0%
4.B. Manure Management other, CH ₄	2,63	0,00	100,0%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,19	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
1.AA.5 Other, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,00	100,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	0,00	0,00	100,0%
2F2 Foam blowing, HFCs	0,00	0,00	100,0%
2F3 Fire extinguishers, HFCs	0,00	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	0,00	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,00	100,0%

Table 1-2. Tier 1 key category Level analysis including LULUCF: 1990

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
5.A.1. Forest Land remaining Forest Land, CO ₂	6798,52	0,11	10,5%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	0,09	19,8%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	0,09	28,8%
5.B. Cropland, CO ₂	5777,27	0,09	37,7%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	0,05	43,2%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	0,05	48,0%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	0,05	52,7%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	0,04	57,1%
5.C. Grassland, CO ₂	2362,36	0,04	60,8%
1.AA.4.B Residential, CO ₂	2277,12	0,04	64,3%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	0,03	67,6%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	0,03	70,7%
4.D.3. Indirect Emissions, N ₂ O	1888,68	0,03	73,7%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	0,03	76,3%
2.A.1. Cement Production, CO ₂	1668,07	0,03	78,8%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	0,02	81,2%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	0,02	83,2%
2.B.1. Ammonia Production, CO ₂	1291,50	0,02	85,2%
5.A.2. Land converted to Forest Land, CO ₂	1033,10	0,02	86,8%
2.B.2. Nitric Acid Production, N ₂ O	928,97	0,01	88,3%
4.B. Manure Management, N ₂ O	885,25	0,01	89,6%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	0,01	91,0%
4.B. Manure Management swine, CH ₄	636,36	0,01	92,0%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	0,01	92,9%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	0,01	93,6%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	0,01	94,4%
4.B. Manure Management, cattle, CH ₄	424,59	0,01	95,1%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	0,01	95,7%
1.AA.3.C Railways, CO ₂	349,97	0,01	96,2%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	0,00	96,6%
2.A.2. Lime Production, CO ₂	217,80	0,00	96,9%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	0,00	97,2%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	0,00	97,5%
6.B. Waste-water Handling, CH ₄	173,86	0,00	97,8%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	0,00	98,0%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	0,00	98,2%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	0,00	98,4%
4.A. Enteric Fermentation others, CH ₄	100,67	0,00	98,6%
3. Solvent and Other Product Use, CO ₂	100,42	0,00	98,7%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
3. Solvent and Other Product Use, N ₂ O	97,11	0,00	98,9%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	0,00	99,0%
6.B. Waste-water Handling, N ₂ O	79,91	0,00	99,1%
5.D. Wetlands, CO ₂	72,73	0,00	99,3%
1.AA.4 Other sectors, biomass, CH ₄	68,58	0,00	99,4%
2.B.5.5 Methanol, CO ₂	61,10	0,00	99,5%
1.AA.3.B Road transportation LPG, CO ₂	60,19	0,00	99,5%
1.AA.3 Transport, N ₂ O	45,79	0,00	99,6%
1.AA.3 Transport, CH ₄	38,60	0,00	99,7%
1.AA.4 Other sectors, N ₂ O	30,39	0,00	99,7%
1.AA.1 Energy industries, N ₂ O	23,32	0,00	99,8%
5.A.1. Forest Land remaining Forest Land, N ₂ O	22,07	0,00	99,8%
2.C.1.2 Pig iron, CO ₂	21,25	0,00	99,8%
1.AA.3.D Navigation, CO ₂	15,49	0,00	99,8%
2.A.7 Glass Production, CO ₂	11,70	0,00	99,9%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	0,00	99,9%
2D2 Food and drink, CO ₂	9,32	0,00	99,9%
1.AA.3.A Civil aviation, CO ₂	9,02	0,00	99,9%
1.AA.1 Energy industries, CH ₄	8,87	0,00	99,9%
5.B. Cropland, N ₂ O	7,84	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	6,49	0,00	99,9%
2.A.7 Mineral wool production, CO ₂	6,28	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,00	100,0%
6.C. Waste Incineration, CO ₂	4,33	0,00	100,0%
2.B.5.5 Methanol, CH ₄	3,83	0,00	100,0%
4.B. Manure Management other, CH ₄	2,63	0,00	100,0%
5.C. Grassland, N ₂ O	2,40	0,00	100,0%
5.C. Grassland, CH ₄	1,78	0,00	100,0%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,00	100,0%
5.A.1. Forest Land remaining Forest Land, CH ₄	0,43	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,19	0,00	100,0%
5.B. Cropland, CH ₄	0,07	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
1.AA.5 Other, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,00	100,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	0,00	0,00	100,0%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
2F2 Foam blowing, HFCs	0,00	0,00	100,0%
2F3 Fire extinguishers, HFCs	0,00	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	0,00	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,00	100,0%
5.E Settlements, CO ₂	0,00	0,00	100,0%
5.F Other land, CO ₂	0,00	0,00	100,0%

Table 1-3. Tier 1 key category Level analysis excluding LULUCF: 2012

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
1.AA.3.B Road transportation diesel, CO ₂	2919,46	0,14	13,5%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	2390,35	0,11	24,6%
2.B.1. Ammonia Production, CO ₂	2319,17	0,11	35,4%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1413,40	0,07	42,0%
4.A. Enteric Fermentation, cattle, CH ₄	1135,10	0,05	47,2%
4.D.3. Indirect Emissions, N ₂ O	949,84	0,04	51,6%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	829,78	0,04	55,5%
6.A. Solid Waste Disposal on Land, CH ₄	789,65	0,04	59,2%
1.AA.4.B Residential, CO ₂	752,45	0,03	62,7%
1.AA.3.B Road transportation gasoline, CO ₂	704,60	0,03	65,9%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	684,41	0,03	69,1%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	670,38	0,03	72,2%
2.B.2. Nitric Acid Production, N ₂ O	596,32	0,03	75,0%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	525,33	0,02	77,4%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	486,83	0,02	79,7%
1.AA.3.B Road transportation LPG, CO ₂	418,69	0,02	81,6%
2.A.1. Cement Production, CO ₂	395,19	0,02	83,5%
1.AA.4.A Commercial/Institutional, CO ₂	326,47	0,02	85,0%
4.B. Manure Management, N ₂ O	263,17	0,01	86,2%
1.B. Fugitive Emissions from Fuels, CH ₄	260,81	0,01	87,4%
4.B. Manure Management, cattle, CH ₄	253,86	0,01	88,6%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	241,31	0,01	89,7%
4.B. Manure Management swine, CH ₄	232,23	0,01	90,8%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	228,82	0,01	91,8%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	191,38	0,01	92,7%
1.AA.3.C Railways, CO ₂	180,84	0,01	93,6%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	174,59	0,01	94,4%
1.AA.3.E Off-road vehicles and machinery, CO ₂	173,27	0,01	95,2%
1.AA.4 Other sectors, biomass, CH ₄	159,74	0,01	95,9%
6.B. Waste-water Handling, CH ₄	102,18	0,00	96,4%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	99,84	0,00	96,9%
3. Solvent and Other Product Use, CO ₂	81,13	0,00	97,2%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	79,47	0,00	97,6%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	73,46	0,00	97,9%
6.B. Waste-water Handling, N ₂ O	72,85	0,00	98,3%
4.A. Enteric Fermentation others, CH ₄	50,00	0,00	98,5%
1.AA.3 Transport, N ₂ O	39,41	0,00	98,7%
2.A.2. Lime Production, CO ₂	36,10	0,00	98,9%
1.AA.4 Other sectors, N ₂ O	34,28	0,00	99,0%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	32,68	0,00	99,2%
1.AA.1 Energy industries solid fuel, CO ₂	25,01	0,00	99,3%
1.AA.1 Energy industries, N ₂ O	22,87	0,00	99,4%
1.AA.3.D Navigation, CO ₂	14,94	0,00	99,5%
1.AA.3 Transport, CH ₄	11,47	0,00	99,5%
1.AA.1 Energy industries, CH ₄	10,92	0,00	99,6%
2.A.7 Mineral wool production, CO ₂	10,03	0,00	99,6%
1.AA.5 Other, CO ₂	8,96	0,00	99,7%
2D2 Food and drink, CO ₂	8,86	0,00	99,7%
1.B. Fugitive Emissions from Fuels, CO ₂	8,14	0,00	99,7%
1.AA.2 Manufacturing and construction, N ₂ O	7,52	0,00	99,8%
2.A.7 Glass Production, CO ₂	7,27	0,00	99,8%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	5,78	0,00	99,8%
2F4 Aerosols/Metered dose inhalers, HFCs	5,77	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	4,78	0,00	99,9%
4.B. Manure Management other, CH ₄	4,53	0,00	99,9%
2F2 Foam blowing, HFCs	4,41	0,00	99,9%
2F7 Semiconductor manufacture, SF ₆	3,73	0,00	99,9%
2.C.1.2 Pig iron, CO ₂	3,05	0,00	100,0%
3. Solvent and Other Product Use, N ₂ O	2,60	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	1,72	0,00	100,0%
2F3 Fire extinguishers, HFCs	1,66	0,00	100,0%
6.C. Waste Incineration, CO ₂	1,64	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,93	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,29	0,00	100,0%
2F9 Other, SF ₆	0,17	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	0,14	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	0,14	0,00	100,0%
1.AA.5 Other, N ₂ O	0,08	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,07	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,02	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	0,00	0,00	100,0%

Table 1-4. Tier 1 key category Level analysis including LULUCF: 2012

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
5.A.1. Forest Land remaining Forest Land, CO ₂	8394,67	0,22	21,9%
5.B. Cropland, CO ₂	3825,60	0,10	31,9%
1.AA.3.B Road transportation diesel, CO ₂	2919,46	0,08	39,5%
5.C. Grassland, CO ₂	2885,16	0,08	47,1%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	2390,35	0,06	53,3%
2.B.1. Ammonia Production, CO ₂	2319,17	0,06	59,4%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1413,40	0,04	63,0%
5.A.2. Land converted to Forest Land, CO ₂	1143,39	0,03	66,0%
4.A. Enteric Fermentation, cattle, CH ₄	1135,10	0,03	69,0%
4.D.3. Indirect Emissions, N ₂ O	949,84	0,02	71,5%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	829,78	0,02	73,6%
6.A. Solid Waste Disposal on Land, CH ₄	789,65	0,02	75,7%
1.AA.4.B Residential, CO ₂	752,45	0,02	77,7%
1.AA.3.B Road transportation gasoline, CO ₂	704,60	0,02	79,5%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	684,41	0,02	81,3%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	670,38	0,02	83,0%
2.B.2. Nitric Acid Production, N ₂ O	596,32	0,02	84,6%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	525,33	0,01	86,0%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	486,83	0,01	87,2%
1.AA.3.B Road transportation LPG, CO ₂	418,69	0,01	88,3%
2.A.1. Cement Production, CO ₂	395,19	0,01	89,4%
1.AA.4.A Commercial/Institutional, CO ₂	326,47	0,01	90,2%
5.E Settlements, CO ₂	278,55	0,01	90,9%
4.B. Manure Management, N ₂ O	263,17	0,01	91,6%
1.B. Fugitive Emissions from Fuels, CH ₄	260,81	0,01	92,3%
4.B. Manure Management, cattle, CH ₄	253,86	0,01	93,0%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	241,31	0,01	93,6%
4.B. Manure Management swine, CH ₄	232,23	0,01	94,2%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	228,82	0,01	94,8%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	191,38	0,00	95,3%
1.AA.3.C Railways, CO ₂	180,84	0,00	95,8%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	174,59	0,00	96,2%
1.AA.3.E Off-road vehicles and machinery, CO ₂	173,27	0,00	96,7%
1.AA.4 Other sectors, biomass, CH ₄	159,74	0,00	97,1%
5.F Other land, CO ₂	139,10	0,00	97,5%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
6.B. Waste-water Handling, CH ₄	102,18	0,00	97,7%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	99,84	0,00	98,0%
3. Solvent and Other Product Use, CO ₂	81,13	0,00	98,2%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	79,47	0,00	98,4%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	73,46	0,00	98,6%
6.B. Waste-water Handling, N ₂ O	72,85	0,00	98,8%
5.D. Wetlands, CO ₂	55,57	0,00	98,9%
4.A. Enteric Fermentation others, CH ₄	50,00	0,00	99,1%
1.AA.3 Transport, N ₂ O	39,41	0,00	99,2%
2.A.2. Lime Production, CO ₂	36,10	0,00	99,3%
1.AA.4 Other sectors, N ₂ O	34,28	0,00	99,4%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	32,68	0,00	99,4%
1.AA.1 Energy industries solid fuel, CO ₂	25,01	0,00	99,5%
5.A.1. Forest Land remaining Forest Land, N ₂ O	23,31	0,00	99,6%
1.AA.1 Energy industries, N ₂ O	22,87	0,00	99,6%
1.AA.3.D Navigation, CO ₂	14,94	0,00	99,7%
1.AA.3 Transport, CH ₄	11,47	0,00	99,7%
1.AA.1 Energy industries, CH ₄	10,92	0,00	99,7%
5.B. Cropland, N ₂ O	10,60	0,00	99,8%
2.A.7 Mineral wool production, CO ₂	10,03	0,00	99,8%
1.AA.5 Other, CO ₂	8,96	0,00	99,8%
2D2 Food and drink, CO ₂	8,86	0,00	99,8%
1.B. Fugitive Emissions from Fuels, CO ₂	8,14	0,00	99,8%
1.AA.2 Manufacturing and construction, N ₂ O	7,52	0,00	99,9%
2.A.7 Glass Production, CO ₂	7,27	0,00	99,9%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	5,78	0,00	99,9%
2F4 Aerosols/Metered dose inhalers, HFCs	5,77	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	4,78	0,00	99,9%
4.B. Manure Management other, CH ₄	4,53	0,00	99,9%
2F2 Foam blowing, HFCs	4,41	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	3,73	0,00	100,0%
2.C.1.2 Pig iron, CO ₂	3,05	0,00	100,0%
3. Solvent and Other Product Use, N ₂ O	2,60	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	1,72	0,00	100,0%
2F3 Fire extinguishers, HFCs	1,66	0,00	100,0%
6.C. Waste Incineration, CO ₂	1,64	0,00	100,0%
5.C. Grassland, N ₂ O	0,96	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,93	0,00	100,0%
5.C. Grassland, CH ₄	0,72	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,29	0,00	100,0%
2F9 Other, SF ₆	0,17	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	0,14	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	0,14	0,00	100,0%

Key Category	GHG emissions, Gg CO ₂ eq.	Level assessment	Cumulative total
1.AA.5 Other, N ₂ O	0,08	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,07	0,00	100,0%
5.A.1. Forest Land remaining Forest Land, CH ₄	0,06	0,00	100,0%
5.B. Cropland, CH ₄	0,03	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,02	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	0,00	0,00	100,0%

Table 1-5. Tier 1 key category trend assessment excluding LULUCF: 1990 – 2012

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	525,33	0,02	0,22	0,14	14,0%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	2919,46	0,14	0,21	0,13	26,8%
2.B.1. Ammonia Production, CO ₂	1291,50	2319,17	0,11	0,18	0,11	38,1%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	79,47	0,00	0,15	0,10	47,7%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	326,47	0,02	0,10	0,06	53,8%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	1413,40	0,07	0,08	0,05	58,6%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	704,60	0,03	0,07	0,04	62,9%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	173,27	0,01	0,06	0,04	66,6%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	684,41	0,03	0,04	0,03	69,3%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	789,65	0,04	0,04	0,03	71,9%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	486,83	0,02	0,04	0,03	74,6%
1.AA.3.B Road transportation LPG, CO ₂	60,19	418,69	0,02	0,04	0,03	77,1%
2.A.1. Cement Production, CO ₂	1668,07	395,19	0,02	0,04	0,02	79,4%
1.AA.4.B Residential, CO ₂	2277,12	752,45	0,03	0,03	0,02	81,0%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	1135,10	0,05	0,03	0,02	82,7%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	670,38	0,03	0,02	0,02	84,2%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	829,78	0,04	0,02	0,02	85,8%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	1,99	228,82	0,01	0,02	0,01	87,2%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	260,81	0,01	0,02	0,01	88,5%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	2390,35	0,11	0,02	0,01	89,7%
2.B.2. Nitric Acid Production, N ₂ O	928,97	596,32	0,03	0,02	0,01	90,9%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	241,31	0,01	0,02	0,01	92,1%
4.B. Manure Management, N ₂ O	885,25	263,17	0,01	0,01	0,01	92,9%
1.AA.4 Other sectors, biomass, CH ₄	68,58	159,74	0,01	0,01	0,01	93,7%
4.D.3. Indirect Emissions, N ₂ O	1888,68	949,84	0,04	0,01	0,01	94,5%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	5,78	0,00	0,01	0,01	95,1%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	99,84	0,00	0,01	0,01	95,6%
4.B. Manure Management, cattle, CH ₄	424,59	253,86	0,01	0,01	0,00	96,0%
2.A.2. Lime Production, CO ₂	217,80	36,10	0,00	0,01	0,00	96,4%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	25,01	0,00	0,01	0,00	96,8%
4.B. Manure Management swine, CH ₄	636,36	232,23	0,01	0,01	0,00	97,1%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	174,59	0,01	0,00	0,00	97,4%
3. Solvent and Other Product Use, N ₂ O	97,11	2,60	0,00	0,00	0,00	97,7%
6.B. Waste-water Handling, N ₂ O	79,91	72,85	0,00	0,00	0,00	97,9%
3. Solvent and Other Product Use, CO ₂	100,42	81,13	0,00	0,00	0,00	98,2%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	73,46	0,00	0,00	0,00	98,4%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	191,38	0,01	0,00	0,00	98,6%
1.AA.3.C Railways, CO ₂	349,97	180,84	0,01	0,00	0,00	98,7%
6.B. Waste-water Handling, CH ₄	173,86	102,18	0,00	0,00	0,00	98,9%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	32,68	0,00	0,00	0,00	99,0%
1.AA.4 Other sectors, N ₂ O	30,39	34,28	0,00	0,00	0,00	99,2%
1.AA.3 Transport, N ₂ O	45,79	39,41	0,00	0,00	0,00	99,3%
1.AA.1 Energy industries, N ₂ O	23,32	22,87	0,00	0,00	0,00	99,4%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
1.AA.5 Other, CO ₂	0,00	8,96	0,00	0,00	0,00	99,4%
1.AA.3.D Navigation, CO ₂	15,49	14,94	0,00	0,00	0,00	99,5%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	8,14	0,00	0,00	0,00	99,5%
2.A.7 Mineral wool production, CO ₂	6,28	10,03	0,00	0,00	0,00	99,6%
1.AA.1 Energy industries, CH ₄	8,87	10,92	0,00	0,00	0,00	99,6%
2.C.1.2 Pig iron, CO ₂	21,25	3,05	0,00	0,00	0,00	99,7%
1.AA.3 Transport, CH ₄	38,60	11,47	0,00	0,00	0,00	99,7%
2F4 Aerosols/Metered dose inhalers, HFCs	0,77	5,77	0,00	0,00	0,00	99,8%
4.A. Enteric Fermentation others, CH ₄	100,67	50,00	0,00	0,00	0,00	99,8%
2D2 Food and drink, CO ₂	9,32	8,86	0,00	0,00	0,00	99,8%
2F2 Foam blowing, HFCs	0,00	4,41	0,00	0,00	0,00	99,8%
2F7 Semiconductor manufacture, SF ₆	0,00	3,73	0,00	0,00	0,00	99,9%
4.B. Manure Management other, CH ₄	2,63	4,53	0,00	0,00	0,00	99,9%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	7,52	0,00	0,00	0,00	99,9%
1.AA.3.A Civil aviation, CO ₂	9,02	1,72	0,00	0,00	0,00	99,9%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,14	0,00	0,00	0,00	99,9%
2.A.7 Glass Production, CO ₂	11,70	7,27	0,00	0,00	0,00	100,0%
1.AA.2 Manufacturing and construction, CH ₄	6,49	4,78	0,00	0,00	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,14	0,00	0,00	0,00	100,0%
2F3 Fire extinguishers, HFCs	0,00	1,66	0,00	0,00	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,93	0,00	0,00	0,00	100,0%
6.C. Waste Incineration, CO ₂	4,33	1,64	0,00	0,00	0,00	100,0%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
2F8 Electrical equipment, SF ₆	0,05	0,29	0,00	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,17	0,00	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,08	0,00	0,00	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,02	0,00	0,00	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,19	0,07	0,00	0,00	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,02	0,00	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	0,00	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	3,83	0,00	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	61,10	0,00	0,00	0,00	0,00	100,0%

Table 1-6. Tier 1 key category trend assessment including LULUCF: 1990 – 2012

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
5.A.1. Forest Land remaining Forest Land, CO ₂	6798,52	8394,67	0,22	0,19	0,16	16,5%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	525,33	0,01	0,13	0,11	28,0%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	79,47	0,00	0,09	0,08	35,5%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	2919,46	0,08	0,07	0,06	41,8%
2.B.1. Ammonia Production, CO ₂	1291,50	2319,17	0,06	0,07	0,06	47,6%
5.C. Grassland, CO ₂	2362,36	2885,16	0,08	0,07	0,06	53,2%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	326,47	0,01	0,06	0,05	58,3%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	704,60	0,02	0,05	0,04	62,5%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	2390,35	0,06	0,05	0,04	66,5%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	173,27	0,00	0,04	0,03	69,6%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	1135,10	0,03	0,03	0,03	72,3%
1.AA.4.B Residential, CO ₂	2277,12	752,45	0,02	0,03	0,02	74,5%
2.A.1. Cement Production, CO ₂	1668,07	395,19	0,01	0,03	0,02	76,8%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	670,38	0,02	0,02	0,02	78,8%
5.A.2. Land converted to Forest Land, CO ₂	1033,10	1143,39	0,03	0,02	0,02	80,8%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	1413,40	0,04	0,02	0,02	82,8%
5.B. Cropland, CO ₂	5777,27	3825,60	0,10	0,02	0,02	84,4%
1.AA.3.B Road transportation LPG, CO ₂	60,19	418,69	0,01	0,02	0,01	85,8%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	486,83	0,01	0,02	0,01	87,2%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	684,41	0,02	0,01	0,01	88,5%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
5.E Settlements, CO ₂	0,00	278,55	0,01	0,01	0,01	89,5%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	789,65	0,02	0,01	0,01	90,6%
4.B. Manure Management, N ₂ O	885,25	263,17	0,01	0,01	0,01	91,5%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	1,99	228,82	0,01	0,01	0,01	92,4%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	260,81	0,01	0,01	0,01	93,1%
4.D.3. Indirect Emissions, N ₂ O	1888,68	949,84	0,02	0,01	0,01	93,7%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	241,31	0,01	0,01	0,01	94,3%
4.B. Manure Management swine, CH ₄	636,36	232,23	0,01	0,01	0,01	94,8%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	99,84	0,00	0,01	0,01	95,4%
5.F Other land, CO ₂	0,00	139,10	0,00	0,01	0,01	95,9%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	5,78	0,00	0,01	0,00	96,4%
1.AA.4 Other sectors, biomass, CH ₄	68,58	159,74	0,00	0,01	0,00	96,8%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	174,59	0,00	0,01	0,00	97,3%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	191,38	0,00	0,00	0,00	97,7%
2.A.2. Lime Production, CO ₂	217,80	36,10	0,00	0,00	0,00	98,0%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	25,01	0,00	0,00	0,00	98,3%
3. Solvent and Other Product Use, N ₂ O	97,11	2,60	0,00	0,00	0,00	98,5%
2.B.2. Nitric Acid Production, N ₂ O	928,97	596,32	0,02	0,00	0,00	98,7%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	32,68	0,00	0,00	0,00	98,9%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	829,78	0,02	0,00	0,00	99,0%
1.AA.3.C Railways, CO ₂	349,97	180,84	0,00	0,00	0,00	99,1%
6.B. Waste-water Handling, N ₂ O	79,91	72,85	0,00	0,00	0,00	99,2%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	73,46	0,00	0,00	0,00	99,3%
3. Solvent and Other Product Use, CO ₂	100,42	81,13	0,00	0,00	0,00	99,4%
1.AA.4 Other sectors, N ₂ O	30,39	34,28	0,00	0,00	0,00	99,4%
5.D. Wetlands, CO ₂	72,73	55,57	0,00	0,00	0,00	99,5%
1.AA.3 Transport, N ₂ O	45,79	39,41	0,00	0,00	0,00	99,5%
1.AA.3 Transport, CH ₄	38,60	11,47	0,00	0,00	0,00	99,6%
5.A.1. Forest Land remaining Forest Land, N ₂ O	22,07	23,31	0,00	0,00	0,00	99,6%
4.A. Enteric Fermentation others, CH ₄	100,67	50,00	0,00	0,00	0,00	99,6%
2.C.1.2 Pig iron, CO ₂	21,25	3,05	0,00	0,00	0,00	99,7%
1.AA.1 Energy industries, N ₂ O	23,32	22,87	0,00	0,00	0,00	99,7%
1.AA.5 Other, CO ₂	0,00	8,96	0,00	0,00	0,00	99,7%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	8,14	0,00	0,00	0,00	99,8%
2.A.7 Mineral wool production, CO ₂	6,28	10,03	0,00	0,00	0,00	99,8%
5.B. Cropland, N ₂ O	7,84	10,60	0,00	0,00	0,00	99,8%
1.AA.3.D Navigation, CO ₂	15,49	14,94	0,00	0,00	0,00	99,8%
1.AA.1 Energy industries, CH ₄	8,87	10,92	0,00	0,00	0,00	99,9%
2F4 Aerosols/Metered dose inhalers, HFCs	0,77	5,77	0,00	0,00	0,00	99,9%
2F2 Foam blowing, HFCs	0,00	4,41	0,00	0,00	0,00	99,9%
2F7 Semiconductor manufacture, SF ₆	0,00	3,73	0,00	0,00	0,00	99,9%
1.AA.3.A Civil aviation, CO ₂	9,02	1,72	0,00	0,00	0,00	99,9%
2D2 Food and drink, CO ₂	9,32	8,86	0,00	0,00	0,00	99,9%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,14	0,00	0,00	0,00	99,9%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
4.B. Manure Management other, CH ₄	2,63	4,53	0,00	0,00	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,14	0,00	0,00	0,00	100,0%
4.B. Manure Management, cattle, CH ₄	424,59	253,86	0,01	0,00	0,00	100,0%
2F3 Fire extinguishers, HFCs	0,00	1,66	0,00	0,00	0,00	100,0%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	7,52	0,00	0,00	0,00	100,0%
1.AA.2 Manufacturing and construction, CH ₄	6,49	4,78	0,00	0,00	0,00	100,0%
6.C. Waste Incineration, CO ₂	4,33	1,64	0,00	0,00	0,00	100,0%
6.B. Waste-water Handling, CH ₄	173,86	102,18	0,00	0,00	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,93	0,00	0,00	0,00	100,0%
5.C. Grassland, N ₂ O	2,40	0,96	0,00	0,00	0,00	100,0%
2.A.7 Glass Production, CO ₂	11,70	7,27	0,00	0,00	0,00	100,0%
5.C. Grassland, CH ₄	1,78	0,72	0,00	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,05	0,29	0,00	0,00	0,00	100,0%
5.A.1. Forest Land remaining Forest Land, CH ₄	0,43	0,06	0,00	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,17	0,00	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,08	0,00	0,00	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,19	0,07	0,00	0,00	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,02	0,00	0,00	0,00	100,0%
5.B. Cropland, CH ₄	0,07	0,03	0,00	0,00	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,02	0,00	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	0,00	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	0,00	0,00	0,00	100,0%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Level assessment 2012	Trend assessment	% Contribution to Trend	Cumulative total
2.B.5.5 Methanol, CH ₄	3,83	0,00	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	61,10	0,00	0,00	0,00	0,00	100,0%

Table 1-7. Tier 2 key category Level analysis excluding LULUCF: 1990

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
4.D.3. Indirect Emissions, N ₂ O	1888,68	0,19	18,9%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	0,13	32,4%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	0,11	43,4%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	0,06	49,6%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	0,06	55,7%
4.B. Manure Management, N ₂ O	885,25	0,05	60,7%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	0,05	65,6%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	0,05	70,5%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	0,03	73,1%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	0,02	75,1%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	0,02	77,0%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	0,02	78,8%
4.B. Manure Management swine, CH ₄	636,36	0,02	80,5%
1.AA.4.B Residential, CO ₂	2277,12	0,02	82,1%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	0,01	83,6%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	0,01	85,0%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	0,01	86,4%
6.B. Waste-water Handling, CH ₄	173,86	0,01	87,7%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	0,01	88,9%
4.B. Manure Management, cattle, CH ₄	424,59	0,01	90,0%
1.AA.4 Other sectors, biomass, CH ₄	68,58	0,01	91,0%
2.B.2. Nitric Acid Production, N ₂ O	928,97	0,01	92,0%
2.A.1. Cement Production, CO ₂	1668,07	0,01	92,8%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	0,01	93,7%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	0,01	94,4%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	0,01	95,0%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	0,00	95,5%
6.B. Waste-water Handling, N ₂ O	79,91	0,00	95,9%
1.AA.4 Other sectors, N ₂ O	30,39	0,00	96,4%
2.B.1. Ammonia Production, CO ₂	1291,50	0,00	96,8%
3. Solvent and Other Product Use, CO ₂	100,42	0,00	97,1%
3. Solvent and Other Product Use, N ₂ O	97,11	0,00	97,5%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	0,00	97,8%
1.AA.1 Energy industries, N ₂ O	23,32	0,00	98,0%
1.AA.3.C Railways, CO ₂	349,97	0,00	98,3%
1.AA.3 Transport, N ₂ O	45,79	0,00	98,5%
4.A. Enteric Fermentation others, CH ₄	100,67	0,00	98,7%
2.B.5.5 Methanol, CO ₂	61,10	0,00	98,9%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	0,00	99,0%
1.AA.3 Transport, CH ₄	38,60	0,00	99,2%

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
2.A.2. Lime Production, CO ₂	217,80	0,00	99,3%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	0,00	99,5%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	0,00	99,6%
1.AA.1 Energy industries, CH ₄	8,87	0,00	99,7%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	0,00	99,8%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	0,00	99,8%
1.AA.2 Manufacturing and construction, CH ₄	6,49	0,00	99,9%
2.C.1.2 Pig iron, CO ₂	21,25	0,00	99,9%
6.C. Waste Incineration, CO ₂	4,33	0,00	99,9%
1.AA.3.B Road transportation LPG, CO ₂	60,19	0,00	99,9%
2.B.5.5 Methanol, CH ₄	3,83	0,00	99,9%
2.A.7 Glass Production, CO ₂	11,70	0,00	99,9%
1.AA.3.A Civil aviation, CO ₂	9,02	0,00	99,9%
1.AA.3.D Navigation, CO ₂	15,49	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,00	100,0%
4.B. Manure Management other, CH ₄	2,63	0,00	100,0%
2D2 Food and drink, CO ₂	9,32	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,00	100,0%
2.A.7 Mineral wool production, CO ₂	6,28	0,00	100,0%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,19	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
1.AA.5 Other, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,00	100,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	0,00	0,00	100,0%
2F2 Foam blowing, HFCs	0,00	0,00	100,0%
2F3 Fire extinguishers, HFCs	0,00	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	0,00	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,00	100,0%

Table 1-8. Tier 2 key category Level analysis including LULUCF: 1990

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
5.B. Cropland, CO ₂	5777,27	0,26	25,8%
5.C. Grassland, CO ₂	2362,36	0,11	36,4%
5.A.1. Forest Land remaining Forest Land, CO ₂	6798,52	0,11	46,9%
4.D.3. Indirect Emissions, N ₂ O	1888,68	0,10	56,5%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	0,07	63,3%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	0,06	68,8%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	0,03	72,0%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	0,03	75,0%
4.B. Manure Management, N ₂ O	885,25	0,03	77,5%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	0,02	80,0%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	0,02	82,5%
5.A.2. Land converted to Forest Land, CO ₂	1033,10	0,02	84,6%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	0,01	85,9%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	0,01	86,9%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	0,01	87,8%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	0,01	88,8%
4.B. Manure Management swine, CH ₄	636,36	0,01	89,6%
1.AA.4.B Residential, CO ₂	2277,12	0,01	90,4%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	0,01	91,2%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	0,01	91,9%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	0,01	92,6%
6.B. Waste-water Handling, CH ₄	173,86	0,01	93,2%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	0,01	93,9%
4.B. Manure Management, cattle, CH ₄	424,59	0,01	94,4%
1.AA.4 Other sectors, biomass, CH ₄	68,58	0,01	94,9%
2.B.2. Nitric Acid Production, N ₂ O	928,97	0,00	95,4%
2.A.1. Cement Production, CO ₂	1668,07	0,00	95,9%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	0,00	96,3%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	0,00	96,7%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	0,00	97,0%
5.D. Wetlands, CO ₂	72,73	0,00	97,3%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	0,00	97,5%
6.B. Waste-water Handling, N ₂ O	79,91	0,00	97,7%
1.AA.4 Other sectors, N ₂ O	30,39	0,00	97,9%
2.B.1. Ammonia Production, CO ₂	1291,50	0,00	98,1%
5.A.1. Forest Land remaining Forest Land, N ₂ O	22,07	0,00	98,3%
3. Solvent and Other Product Use, CO ₂	100,42	0,00	98,5%
3. Solvent and Other Product Use, N ₂ O	97,11	0,00	98,7%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	0,00	98,8%

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
1.AA.1 Energy industries, N ₂ O	23,32	0,00	99,0%
1.AA.3.C Railways, CO ₂	349,97	0,00	99,1%
1.AA.3 Transport, N ₂ O	45,79	0,00	99,2%
4.A. Enteric Fermentation others, CH ₄	100,67	0,00	99,3%
2.B.5.5 Methanol, CO ₂	61,10	0,00	99,4%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	0,00	99,5%
1.AA.3 Transport, CH ₄	38,60	0,00	99,5%
2.A.2. Lime Production, CO ₂	217,80	0,00	99,6%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	0,00	99,7%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	0,00	99,8%
1.AA.1 Energy industries, CH ₄	8,87	0,00	99,8%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	0,00	99,8%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	0,00	99,9%
5.B. Cropland, N ₂ O	7,84	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	6,49	0,00	99,9%
2.C.1.2 Pig iron, CO ₂	21,25	0,00	99,9%
6.C. Waste Incineration, CO ₂	4,33	0,00	99,9%
1.AA.3.B Road transportation LPG, CO ₂	60,19	0,00	99,9%
5.C. Grassland, N ₂ O	2,40	0,00	99,9%
5.C. Grassland, CH ₄	1,78	0,00	100,0%
2.B.5.5 Methanol, CH ₄	3,83	0,00	100,0%
2.A.7 Glass Production, CO ₂	11,70	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	9,02	0,00	100,0%
1.AA.3.D Navigation, CO ₂	15,49	0,00	100,0%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,00	100,0%
4.B. Manure Management other, CH ₄	2,63	0,00	100,0%
2D2 Food and drink, CO ₂	9,32	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,00	100,0%
2.A.7 Mineral wool production, CO ₂	6,28	0,00	100,0%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,00	100,0%
5.A.1. Forest Land remaining Forest Land, CH ₄	0,43	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,19	0,00	100,0%
5.B. Cropland, CH ₄	0,07	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
1.AA.5 Other, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,00	100,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	0,00	0,00	100,0%
2F2 Foam blowing, HFCs	0,00	0,00	100,0%

Key Category	GHG emissions, Gg CO₂ eq	Level assessment with uncertainty	Cumulative total
2F3 Fire extinguishers, HFCs	0,00	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	0,00	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,00	100,0%
5.E Settlements, CO ₂	0,00	0,00	100,0%
5.F Other land, CO ₂	0,00	0,00	100,0%

Table 1-9. Tier 2 key category Level analysis excluding LULUCF: 2012

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
6.A. Solid Waste Disposal on Land, CH ₄	789,65	0,17	17,1%
4.D.3. Indirect Emissions, N ₂ O	949,84	0,16	33,2%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	829,78	0,14	47,2%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	684,41	0,12	58,8%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	241,31	0,04	62,9%
1.AA.4 Other sectors, biomass, CH ₄	159,74	0,04	66,9%
4.A. Enteric Fermentation, cattle, CH ₄	1135,10	0,04	70,7%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	191,38	0,03	73,9%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	174,59	0,03	76,9%
4.B. Manure Management, N ₂ O	263,17	0,03	79,4%
1.B. Fugitive Emissions from Fuels, CH ₄	260,81	0,02	81,6%
1.AA.3.B Road transportation diesel, CO ₂	2919,46	0,01	83,0%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	2390,35	0,01	84,2%
2.B.1. Ammonia Production, CO ₂	2319,17	0,01	85,5%
6.B. Waste-water Handling, CH ₄	102,18	0,01	86,7%
4.B. Manure Management, cattle, CH ₄	253,86	0,01	87,8%
4.B. Manure Management swine, CH ₄	232,23	0,01	88,8%
2.B.2. Nitric Acid Production, N ₂ O	596,32	0,01	89,9%
1.AA.4.B Residential, CO ₂	752,45	0,01	90,8%
1.AA.4 Other sectors, N ₂ O	34,28	0,01	91,6%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	670,38	0,01	92,4%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1413,40	0,01	93,2%
6.B. Waste-water Handling, N ₂ O	72,85	0,01	93,9%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	486,83	0,01	94,5%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	32,68	0,01	95,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	228,82	0,01	95,6%
3. Solvent and Other Product Use, CO ₂	81,13	0,00	96,0%
1.AA.1 Energy industries, N ₂ O	22,87	0,00	96,4%
1.AA.4.A Commercial/Institutional, CO ₂	326,47	0,00	96,8%
2.A.1. Cement Production, CO ₂	395,19	0,00	97,2%
1.AA.3.B Road transportation gasoline, CO ₂	704,60	0,00	97,5%
1.AA.3 Transport, N ₂ O	39,41	0,00	97,9%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	525,33	0,00	98,1%
1.AA.3.E Off-road vehicles and machinery, CO ₂	173,27	0,00	98,4%
1.AA.3.C Railways, CO ₂	180,84	0,00	98,6%
1.AA.1 Energy industries, CH ₄	10,92	0,00	98,8%
1.AA.3.B Road transportation LPG, CO ₂	418,69	0,00	99,0%
4.A. Enteric Fermentation others, CH ₄	50,00	0,00	99,2%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	99,84	0,00	99,3%

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
1.AA.3.E Natural gas transportation in pipelines, CO ₂	73,46	0,00	99,4%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	79,47	0,00	99,5%
1.AA.3 Transport, CH ₄	11,47	0,00	99,6%
1.B. Fugitive Emissions from Fuels, CO ₂	8,14	0,00	99,6%
1.AA.2 Manufacturing and construction, N ₂ O	7,52	0,00	99,7%
2.A.2. Lime Production, CO ₂	36,10	0,00	99,7%
1.AA.2 Manufacturing and construction, CH ₄	4,78	0,00	99,8%
2F2 Foam blowing, HFCs	4,41	0,00	99,8%
1.AA.1 Energy industries solid fuel, CO ₂	25,01	0,00	99,8%
4.B. Manure Management other, CH ₄	4,53	0,00	99,9%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,93	0,00	99,9%
3. Solvent and Other Product Use, N ₂ O	2,60	0,00	99,9%
1.AA.3.D Navigation, CO ₂	14,94	0,00	99,9%
2.A.7 Mineral wool production, CO ₂	10,03	0,00	99,9%
6.C. Waste Incineration, CO ₂	1,64	0,00	99,9%
1.AA.5 Other, CO ₂	8,96	0,00	99,9%
2D2 Food and drink, CO ₂	8,86	0,00	100,0%
2.A.7 Glass Production, CO ₂	7,27	0,00	100,0%
2F3 Fire extinguishers, HFCs	1,66	0,00	100,0%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	5,78	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	5,77	0,00	100,0%
2.C.1.2 Pig iron, CO ₂	3,05	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	3,73	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	1,72	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,07	0,00	100,0%
1.AA.5 Other, N ₂ O	0,08	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,29	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	0,14	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	0,14	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,02	0,00	100,0%
2F9 Other, SF ₆	0,17	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	0,00	0,00	100,0%

Table 1-10. Tier 2 key category Level analysis including LULUCF: 2012

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
5.B. Cropland, CO ₂	3825,60	0,22	22,1%
5.A.1. Forest Land remaining Forest Land, CO ₂	8394,67	0,17	38,9%
5.C. Grassland, CO ₂	2885,16	0,17	55,6%
6.A. Solid Waste Disposal on Land, CH ₄	789,65	0,07	62,2%
4.D.3. Indirect Emissions, N ₂ O	949,84	0,06	68,4%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	829,78	0,05	73,9%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	684,41	0,04	78,4%
5.A.2. Land converted to Forest Land, CO ₂	1143,39	0,03	81,3%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	241,31	0,02	82,9%
1.AA.4 Other sectors, biomass, CH ₄	159,74	0,02	84,4%
5.E Settlements, CO ₂	278,55	0,01	85,9%
4.A. Enteric Fermentation, cattle, CH ₄	1135,10	0,01	87,4%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	191,38	0,01	88,6%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	174,59	0,01	89,8%
4.B. Manure Management, N ₂ O	263,17	0,01	90,8%
1.B. Fugitive Emissions from Fuels, CH ₄	260,81	0,01	91,6%
5.F Other land, CO ₂	139,10	0,01	92,3%
1.AA.3.B Road transportation diesel, CO ₂	2919,46	0,01	92,8%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	2390,35	0,00	93,3%
2.B.1. Ammonia Production, CO ₂	2319,17	0,00	93,8%
6.B. Waste-water Handling, CH ₄	102,18	0,00	94,2%
4.B. Manure Management, cattle, CH ₄	253,86	0,00	94,7%
4.B. Manure Management swine, CH ₄	232,23	0,00	95,1%
2.B.2. Nitric Acid Production, N ₂ O	596,32	0,00	95,5%
1.AA.4.B Residential, CO ₂	752,45	0,00	95,8%
1.AA.4 Other sectors, N ₂ O	34,28	0,00	96,1%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	670,38	0,00	96,5%
5.D. Wetlands, CO ₂	55,57	0,00	96,8%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1413,40	0,00	97,0%
6.B. Waste-water Handling, N ₂ O	72,85	0,00	97,3%
5.A.1. Forest Land remaining Forest Land, N ₂ O	23,31	0,00	97,6%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	486,83	0,00	97,8%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	32,68	0,00	98,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	228,82	0,00	98,2%
3. Solvent and Other Product Use, CO ₂	81,13	0,00	98,4%
1.AA.1 Energy industries, N ₂ O	22,87	0,00	98,6%
1.AA.4.A Commercial/Institutional, CO ₂	326,47	0,00	98,7%
2.A.1. Cement Production, CO ₂	395,19	0,00	98,9%
1.AA.3.B Road transportation gasoline, CO ₂	704,60	0,00	99,0%

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
1.AA.3 Transport, N ₂ O	39,41	0,00	99,1%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	525,33	0,00	99,2%
1.AA.3.E Off-road vehicles and machinery, CO ₂	173,27	0,00	99,3%
1.AA.3.C Railways, CO ₂	180,84	0,00	99,4%
1.AA.1 Energy industries, CH ₄	10,92	0,00	99,5%
1.AA.3.B Road transportation LPG, CO ₂	418,69	0,00	99,6%
4.A. Enteric Fermentation others, CH ₄	50,00	0,00	99,6%
5.B. Cropland, N ₂ O	10,60	0,00	99,7%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	99,84	0,00	99,7%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	73,46	0,00	99,8%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	79,47	0,00	99,8%
1.AA.3 Transport, CH ₄	11,47	0,00	99,8%
1.B. Fugitive Emissions from Fuels, CO ₂	8,14	0,00	99,9%
1.AA.2 Manufacturing and construction, N ₂ O	7,52	0,00	99,9%
2.A.2. Lime Production, CO ₂	36,10	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	4,78	0,00	99,9%
2F2 Foam blowing, HFCs	4,41	0,00	99,9%
1.AA.1 Energy industries solid fuel, CO ₂	25,01	0,00	99,9%
4.B. Manure Management other, CH ₄	4,53	0,00	99,9%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,93	0,00	99,9%
3. Solvent and Other Product Use, N ₂ O	2,60	0,00	99,9%
1.AA.3.D Navigation, CO ₂	14,94	0,00	100,0%
2.A.7 Mineral wool production, CO ₂	10,03	0,00	100,0%
6.C. Waste Incineration, CO ₂	1,64	0,00	100,0%
5.C. Grassland, N ₂ O	0,96	0,00	100,0%
1.AA.5 Other, CO ₂	8,96	0,00	100,0%
2D2 Food and drink, CO ₂	8,86	0,00	100,0%
2.A.7 Glass Production, CO ₂	7,27	0,00	100,0%
5.C. Grassland, CH ₄	0,72	0,00	100,0%
2F3 Fire extinguishers, HFCs	1,66	0,00	100,0%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	5,78	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	5,77	0,00	100,0%
2.C.1.2 Pig iron, CO ₂	3,05	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	3,73	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	1,72	0,00	100,0%
6.C. Waste Incineration, N ₂ O	0,07	0,00	100,0%
5.A.1. Forest Land remaining Forest Land, CH ₄	0,06	0,00	100,0%
1.AA.5 Other, N ₂ O	0,08	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,29	0,00	100,0%
5.B. Cropland, CH ₄	0,03	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	0,14	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	0,14	0,00	100,0%

Key Category	GHG emissions, Gg CO ₂ eq	Level assessment with uncertainty	Cumulative total
1.B. Fugitive Emissions from Fuels, N ₂ O	0,02	0,00	100,0%
2F9 Other, SF ₆	0,17	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	0,00	0,00	100,0%

Table 1-11. Tier 2 key category trend assessment excluding LULUCF: 1990 – 2012

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
6.A. Solid Waste Disposal on Land, CH ₄	864,23	789,65	5,53	0,19	18,8%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	684,41	4,46	0,15	34,0%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	829,78	2,50	0,09	42,6%
1.AA.4 Other sectors, biomass, CH ₄	68,58	159,74	2,03	0,07	49,5%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	241,31	1,89	0,06	55,9%
4.D.3. Indirect Emissions, N ₂ O	1888,68	949,84	1,19	0,04	60,0%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	79,47	1,12	0,04	63,8%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	260,81	1,02	0,03	67,3%
4.B. Manure Management, N ₂ O	885,25	263,17	0,78	0,03	70,0%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	525,33	0,72	0,02	72,4%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	326,47	0,71	0,02	74,8%
2.B.1. Ammonia Production, CO ₂	1291,50	2319,17	0,58	0,02	76,8%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	2919,46	0,58	0,02	78,8%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	1135,10	0,53	0,02	80,6%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	173,27	0,51	0,02	82,4%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	174,59	0,47	0,02	84,0%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	1,99	228,82	0,35	0,01	85,2%
1.AA.4 Other sectors, N ₂ O	30,39	34,28	0,32	0,01	86,3%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	486,83	0,31	0,01	87,3%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	191,38	0,29	0,01	88,3%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	1413,40	0,25	0,01	89,2%
6.B. Waste-water Handling, N ₂ O	79,91	72,85	0,23	0,01	89,9%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	32,68	0,23	0,01	90,7%
2.B.2. Nitric Acid Production, N ₂ O	928,97	596,32	0,20	0,01	91,4%
1.AA.4.B Residential, CO ₂	2277,12	752,45	0,20	0,01	92,0%
2.A.1. Cement Production, CO ₂	1668,07	395,19	0,19	0,01	92,7%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	704,60	0,19	0,01	93,4%
6.B. Waste-water Handling, CH ₄	173,86	102,18	0,19	0,01	94,0%
4.B. Manure Management, cattle, CH ₄	424,59	253,86	0,18	0,01	94,6%
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	670,38	0,18	0,01	95,3%
3. Solvent and Other Product Use, N ₂ O	97,11	2,60	0,15	0,01	95,8%
4.B. Manure Management swine, CH ₄	636,36	232,23	0,14	0,00	96,3%
1.AA.1 Energy industries, N ₂ O	23,32	22,87	0,14	0,00	96,7%
3. Solvent and Other Product Use, CO ₂	100,42	81,13	0,14	0,00	97,2%
1.AA.3.B Road transportation LPG, CO ₂	60,19	418,69	0,12	0,00	97,6%
1.AA.3 Transport, N ₂ O	45,79	39,41	0,10	0,00	97,9%
1.AA.1 Energy industries, CH ₄	8,87	10,92	0,08	0,00	98,2%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	5,78	0,07	0,00	98,5%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	99,84	0,06	0,00	98,7%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	2390,35	0,06	0,00	98,9%
2.A.2. Lime Production, CO ₂	217,80	36,10	0,04	0,00	99,0%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	25,01	0,04	0,00	99,2%
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	8,14	0,04	0,00	99,3%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	73,46	0,03	0,00	99,4%
1.AA.3 Transport, CH ₄	38,60	11,47	0,02	0,00	99,5%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
2F2 Foam blowing, HFCs	0,00	4,41	0,02	0,00	99,6%
1.AA.3.C Railways, CO ₂	349,97	180,84	0,02	0,00	99,6%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	7,52	0,01	0,00	99,7%
4.A. Enteric Fermentation others, CH ₄	100,67	50,00	0,01	0,00	99,7%
1.AA.2 Manufacturing and construction, CH ₄	6,49	4,78	0,01	0,00	99,8%
4.B. Manure Management other, CH ₄	2,63	4,53	0,01	0,00	99,8%
2.C.1.2 Pig iron, CO ₂	21,25	3,05	0,01	0,00	99,8%
1.AA.5 Other, CO ₂	0,00	8,96	0,01	0,00	99,8%
2.A.7 Mineral wool production, CO ₂	6,28	10,03	0,01	0,00	99,9%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,93	0,01	0,00	99,9%
1.AA.3.D Navigation, CO ₂	15,49	14,94	0,00	0,00	99,9%
2F3 Fire extinguishers, HFCs	0,00	1,66	0,00	0,00	99,9%
2F4 Aerosols/Metered dose inhalers, HFCs	0,77	5,77	0,00	0,00	99,9%
2D2 Food and drink, CO ₂	9,32	8,86	0,00	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	0,00	3,73	0,00	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,14	0,00	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	9,02	1,72	0,00	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,14	0,00	0,00	100,0%
2.A.7 Glass Production, CO ₂	11,70	7,27	0,00	0,00	100,0%
6.C. Waste Incineration, CO ₂	4,33	1,64	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,08	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,05	0,29	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,17	0,00	0,00	100,0%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
6.C. Waste Incineration, N ₂ O	0,19	0,07	0,00	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,02	0,00	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,02	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	3,83	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	61,10	0,00	0,00	0,00	100,0%

Table 1-12. Tier 2 key category trend assessment including LULUCF: 1990 – 2012

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
5.A.1. Forest Land remaining Forest Land, CO ₂	6798,52	8394,67	6,00	0,21	21,0%
5.C. Grassland, CO ₂	2362,36	2885,16	5,89	0,21	41,6%
5.B. Cropland, CO ₂	5777,27	3825,60	1,60	0,06	47,1%
6.A. Solid Waste Disposal on Land, CH ₄	864,23	789,65	1,59	0,06	52,7%
4.D.1.5. Direct Soil Emissions Cultivation of histosols, N ₂ O	600,99	684,41	1,48	0,05	57,9%
5.E Settlements, CO ₂	0,00	278,55	1,01	0,04	61,4%
5.A.2. Land converted to Forest Land, CO ₂	1033,10	1143,39	0,94	0,03	64,7%
1.AA.4 Other sectors, biomass, CH ₄	68,58	159,74	0,79	0,03	67,4%
4.D.3. Indirect Emissions, N ₂ O	1888,68	949,84	0,76	0,03	70,1%
4.D.1.4. Direct Soil Emissions Crop residues, N ₂ O	144,13	241,31	0,70	0,02	72,6%
4.B. Manure Management, N ₂ O	885,25	263,17	0,66	0,02	74,9%
1.AA.2 Manufacturing and construction, liquid fuels, CO ₂	3500,92	79,47	0,64	0,02	77,1%
4.A. Enteric Fermentation, cattle, CH ₄	3125,88	1135,10	0,64	0,02	79,3%
4.D.1.2. Direct Soil Emissions manure fertilizers, N ₂ O	493,19	174,59	0,53	0,02	81,2%
5.F Other land, CO ₂	0,00	139,10	0,46	0,02	82,8%
4.D.2. Pasture, Range and Paddock Manure, N ₂ O	493,25	191,38	0,45	0,02	84,4%
1.AA.4.A Commercial/Institutional, CO ₂	2827,06	326,47	0,43	0,02	85,9%
1.AA.1.A Public electricity and heat production, liquid fuel, CO ₂	6021,25	525,33	0,43	0,02	87,4%
1.B. Fugitive Emissions from Fuels, CH ₄	149,32	260,81	0,38	0,01	88,7%
1.AA.3.E Off-road vehicles and machinery, CO ₂	1678,61	173,27	0,31	0,01	89,8%
2.B.1. Ammonia Production, CO ₂	1291,50	2319,17	0,22	0,01	90,6%
1.AA.3.B Road transportation diesel, CO ₂	2133,90	2919,46	0,21	0,01	91,3%
1.AA.4.B Residential, CO ₂	2277,12	752,45	0,19	0,01	92,0%
4.D.1.3. Direct Soil Emissions N-fixing crops, N ₂ O	121,71	32,68	0,18	0,01	92,6%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
1.AA.2 Manufacturing and construction, gaseous fuels, CO ₂	2048,76	670,38	0,17	0,01	93,2%
4.B. Manure Management swine, CH ₄	636,36	232,23	0,17	0,01	93,8%
4.D.1.1. Direct Soil Emissions synthetic N fertilizer, N ₂ O	1341,59	829,78	0,16	0,01	94,3%
1.AA.1.A Public electricity and heat production, gaseous fuel, CO ₂	5806,05	2390,35	0,15	0,01	94,9%
2F1 Refrigeration and Air Conditioning Equipment, HFCs	1,99	228,82	0,15	0,01	95,4%
2.A.1. Cement Production, CO ₂	1668,07	395,19	0,14	0,00	95,9%
1.AA.3.B Road transportation gasoline, CO ₂	3053,06	704,60	0,14	0,00	96,3%
1.AA.2 Manufacturing and construction, solid fuels, CO ₂	189,30	486,83	0,12	0,00	96,8%
1.AA.4 Other sectors, N ₂ O	30,39	34,28	0,10	0,00	97,1%
3. Solvent and Other Product Use, N ₂ O	97,11	2,60	0,09	0,00	97,4%
5.A.1. Forest Land remaining Forest Land, N ₂ O	22,07	23,31	0,08	0,00	97,7%
1.AA.1.B Petroleum refining, liquid fuel, CO ₂	1494,03	1413,40	0,07	0,00	98,0%
6.B. Waste-water Handling, N ₂ O	79,91	72,85	0,07	0,00	98,2%
1.AA.3.B Road transportation LPG, CO ₂	60,19	418,69	0,05	0,00	98,4%
1.AA.4.C Agriculture/Forestry/Fisheries, CO ₂	409,63	99,84	0,05	0,00	98,5%
5.D. Wetlands, CO ₂	72,73	55,57	0,05	0,00	98,7%
1.AA.1 Energy industries, N ₂ O	23,32	22,87	0,04	0,00	98,8%
2.A.7 Bricks and Tiles (decarbonizing), CO ₂	228,06	5,78	0,04	0,00	99,0%
3. Solvent and Other Product Use, CO ₂	100,42	81,13	0,03	0,00	99,1%
2.A.2. Lime Production, CO ₂	217,80	36,10	0,03	0,00	99,2%
1.AA.1 Energy industries, CH ₄	8,87	10,92	0,03	0,00	99,3%
1.AA.1 Energy industries solid fuel, CO ₂	185,11	25,01	0,03	0,00	99,4%
1.AA.3 Transport, N ₂ O	45,79	39,41	0,03	0,00	99,5%
2.B.2. Nitric Acid Production, N ₂ O	928,97	596,32	0,02	0,00	99,5%
1.AA.3 Transport, CH ₄	38,60	11,47	0,02	0,00	99,6%
5.B. Cropland, N ₂ O	7,84	10,60	0,02	0,00	99,7%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
1.B. Fugitive Emissions from Fuels, CO ₂	1,03	8,14	0,02	0,00	99,7%
1.AA.3.E Natural gas transportation in pipelines, CO ₂	85,50	73,46	0,01	0,00	99,8%
4.A. Enteric Fermentation others, CH ₄	100,67	50,00	0,01	0,00	99,8%
1.AA.3.C Railways, CO ₂	349,97	180,84	0,01	0,00	99,8%
2F2 Foam blowing, HFCs	0,00	4,41	0,01	0,00	99,9%
2.C.1.2 Pig iron, CO ₂	21,25	3,05	0,00	0,00	99,9%
4.B. Manure Management other, CH ₄	2,63	4,53	0,00	0,00	99,9%
1.AA.5 Other, CO ₂	0,00	8,96	0,00	0,00	99,9%
4.B. Manure Management, cattle, CH ₄	424,59	253,86	0,00	0,00	99,9%
6.B. Waste-water Handling, CH ₄	173,86	102,18	0,00	0,00	99,9%
2.A.7 Mineral wool production, CO ₂	6,28	10,03	0,00	0,00	99,9%
4.D.1.5. Direct Soil Emissions Other, N ₂ O	0,74	0,93	0,00	0,00	99,9%
1.AA.2 Manufacturing and construction, N ₂ O	11,03	7,52	0,00	0,00	99,9%
2F3 Fire extinguishers, HFCs	0,00	1,66	0,00	0,00	99,9%
1.AA.2 Manufacturing and construction, CH ₄	6,49	4,78	0,00	0,00	99,9%
6.C. Waste Incineration, CO ₂	4,33	1,64	0,00	0,00	100,0%
2F4 Aerosols/Metered dose inhalers, HFCs	0,77	5,77	0,00	0,00	100,0%
1.AA.3.A Civil aviation, CO ₂	9,02	1,72	0,00	0,00	100,0%
2.A.4. Soda Ash Production and Use, CO ₂	5,32	0,14	0,00	0,00	100,0%
1.AA.3.D Navigation, CO ₂	15,49	14,94	0,00	0,00	100,0%
5.C. Grassland, N ₂ O	2,40	0,96	0,00	0,00	100,0%
2.A.3. Limestone and Dolomite Use, CO ₂	4,48	0,14	0,00	0,00	100,0%
2F7 Semiconductor manufacture, SF ₆	0,00	3,73	0,00	0,00	100,0%
5.C. Grassland, CH ₄	1,78	0,72	0,00	0,00	100,0%
2D2 Food and drink, CO ₂	9,32	8,86	0,00	0,00	100,0%
5.A.1. Forest Land remaining Forest Land, CH ₄	0,43	0,06	0,00	0,00	100,0%

Key Category	1990 Gg CO ₂ eq.	2012 Gg CO ₂ eq.	Trend assessment with uncertainty	% Contribution to Trend	Cumulative total
6.C. Waste Incineration, N ₂ O	0,19	0,07	0,00	0,00	100,0%
1.AA.5 Other, N ₂ O	0,00	0,08	0,00	0,00	100,0%
2.A.7 Glass Production, CO ₂	11,70	7,27	0,00	0,00	100,0%
2F8 Electrical equipment, SF ₆	0,05	0,29	0,00	0,00	100,0%
5.B. Cropland, CH ₄	0,07	0,03	0,00	0,00	100,0%
2F9 Other, SF ₆	0,00	0,17	0,00	0,00	100,0%
1.B. Fugitive Emissions from Fuels, N ₂ O	0,00	0,02	0,00	0,00	100,0%
2.A.5. Asphalt Roofing, CO ₂	0,02	0,02	0,00	0,00	100,0%
2.A.6. Road paving with asphalt, CO ₂	0,00	0,00	0,00	0,00	100,0%
1.AA.5 Other, CH ₄	0,00	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CH ₄	3,83	0,00	0,00	0,00	100,0%
2.B.5.5 Methanol, CO ₂	61,10	0,00	0,00	0,00	100,0%

ANNEX II. Tier 1 Uncertainty evaluation

Table 2-1. Uncertainty evaluation excluding LULUCF

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A1 Energy Industries: biomass	CO ₂			50	50	71	0,00	0,000	0,000	0,00	0,00	0,00
1A1 Energy Industries: biomass	CH ₄	0,33	8,24	50	150	158	0,06	0,000	0,000	0,02	0,01	0,03
1A1 Energy Industries: biomass	N ₂ O	0,65	16,22	50	150	158	0,12	0,000	0,000	0,05	0,02	0,05
1A1 Energy Industries: gaseous fuel	CO ₂	5.806,05	2.397,53	2	3	3	0,35	-0,004	0,049	-0,01	0,14	0,14
1A1 Energy Industries: gaseous fuel	CH ₄	2,21	0,91	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A1 Energy Industries: gaseous fuel	N ₂ O	3,26	1,35	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A1 Energy Industries: liquid fuel	CO ₂	7524,61	1.948,86	2	3	3	0,29	-0,028	0,040	-0,07	0,11	0,13
1A1 Energy Industries: liquid fuel	CH ₄	6,29	1,76	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A1 Energy Industries: liquid fuel	N ₂ O	18,56	5,18	2	50	50	0,01	0,000	0,000	0,00	0,00	0,00
1A1 Energy Industries: solid fuel	CO ₂	185,11	25,01	2	7	7	0,01	-0,001	0,001	-0,01	0,00	0,01
1A1 Energy Industries: solid fuel	CH ₄	0,04	0,01	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A1 Energy Industries: solid fuel	N ₂ O	0,85	0,11	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A2 Manufacturing Industries	CH ₄	6,5	4,8	2	50	50	0,01	0,000	0,000	0,00	0,00	0,00
1A2 Manufacturing Industries	N ₂ O	11,0	7,5	2	50	50	0,02	0,000	0,000	0,00	0,00	0,00
1A2 Manufacturing Industries	CO ₂	5.738,99	1.259,24	2	7	7	0,42	-0,026	0,026	-0,18	0,07	0,20
1A3A Civil aviation	CO ₂	9,02	1,72	10	2	10	0,00	0,000	0,000	0,00	0,00	0,00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A3A Civil aviation	CH ₄	0,00	0,00	10	100	100	0,00	0,000	0,000	0,00	0,00	0,00
1A3A Civil aviation	N ₂ O	0,08	0,02	10	150	150	0,00	0,000	0,000	0,00	0,00	0,00
1A3E Mobile combustion: other transport	CO ₂	1.764,11	246,72	5	7	9	0,10	-0,011	0,005	-0,08	0,04	0,08
1A3E Mobile combustion: other transport	CH ₄	2,58	0,39	5	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A3E Mobile combustion: other transport	N ₂ O	4,33	0,48	5	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A3B Mobile combustion: road transport	CO ₂	5.247,15	4.042,75	2	2	3	0,53	0,035	0,083	0,07	0,23	0,24
1A3B Mobile combustion: road transport	CH ₄	35,50	10,80	2	40	40	0,02	0,000	0,000	0,00	0,00	0,00
1A3B Mobile combustion: road transport	N ₂ O	40,45	38,42	2	50	50	0,09	0,000	0,001	0,02	0,00	0,02
1A3D Navigation	CO ₂	15,49	14,94	5	3	6	0,00	0,000	0,000	0,00	0,00	0,00
1A3D Navigation	CH ₄	0,02	0,02	5	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A3D Navigation	N ₂ O	0,04	0,04	5	140	140	0,00	0,000	0,000	0,00	0,00	0,00
1A3C Railways	CO ₂	349,97	180,84	5	5	7	0,06	0,001	0,004	0,00	0,03	0,03
1A3C Railways	CH ₄	0,50	0,26	5	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A3C Railways	N ₂ O	0,89	0,46	5	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A4C Agriculture/Forestry/Fishing	CO ₂	409,63	99,84	2	7	7	0,03	-0,002	0,002	-0,01	0,01	0,01
1A4C Agriculture/Forestry/Fishing	CH ₄	11,57	3,59	2	50	50	0,01	0,000	0,000	0,00	0,00	0,00
1A4C Agriculture/Forestry/Fishing	N ₂ O	1,24	0,75	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A4A Commercial/Institutional	CO ₂	2.827,06	326,47	2	7	7	0,11	-0,019	0,007	-0,13	0,02	0,13
1A4A Commercial/Institutional	CH ₄	17,21	9,44	2	50	50	0,02	0,000	0,000	0,00	0,00	0,00
1A4A Commercial/Institutional	N ₂ O	10,17	2,58	2	50	50	0,01	0,000	0,000	0,00	0,00	0,00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A4B Residential	CO ₂	2.277,12	752,45	2	7	7	0,25	-0,005	0,015	-0,04	0,04	0,06
1A4B Residential	CH ₄	155,26	166,60	2	50	50	0,39	0,002	0,003	0,10	0,01	0,10
1A4B Residential	N ₂ O	18,98	30,95	2	50	50	0,07	0,000	0,001	0,02	0,00	0,02
1A5 Other	CO ₂	0,00	8,96	2	7	7	0,00	0,000	0,000	0,00	0,00	0,00
1A5 Other	N ₂ O	0,00	0,08	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1A5 Other	CH ₄	0,00	0,00	2	50	50	0,00	0,000	0,000	0,00	0,00	0,00
1B Fugitive Emissions	CH ₄	149,32	260,81	5	50	50	0,61	0,004	0,005	0,20	0,04	0,20
1B Fugitive Emissions	CO ₂	1,03	8,14	5	50	50	0,02	0,000	0,000	0,01	0,00	0,01
1B Fugitive Emissions	N ₂ O	0,00	0,02	5	50	50	0,00	0,000	0,000	0,00	0,00	0,00
2A1 Cement Production	CO ₂	1.668,07	395,19	2	5	5	0,10	-0,007	0,008	-0,04	0,02	0,04
2A2 Lime Production	CO ₂	217,80	36,10	5	5	7	0,01	-0,001	0,001	-0,01	0,01	0,01
2A3 Limestone and dolomite use	CO ₂	4,48	0,14	10	5	11	0,00	0,000	0,000	0,00	0,00	0,00
2A4 Soda ash use	CO ₂	5,32	0,14	10	5	11	0,00	0,000	0,000	0,00	0,00	0,00
2A5 Asphalt roofing	CO ₂	0,02	0,02	5	25	25	0,00	0,000	0,000	0,00	0,00	0,00
2A6 Road paving with asphalt	CO ₂	0,00	0,00	10	25	27	0,00	0,000	0,000	0,00	0,00	0,00
2A7.1 Glass production	CO ₂	11,70	7,27	7	5	9	0,00	0,000	0,000	0,00	0,00	0,00
2A7.2 Mineral wool production	CO ₂	6,28	10,03	7	5	9	0,00	0,000	0,000	0,00	0,00	0,00
2A7.3 Bricks and tiles	CO ₂	228,06	5,78	5	5	7	0,00	-0,002	0,000	-0,01	0,00	0,01
2B1 Ammonia production	CO ₂	1.291,50	2.319,17	2	3	3	0,34	0,036	0,048	0,09	0,13	0,16
2B2 Nitric Acid Production	N ₂ O	928,97	596,32	2	10	10	0,28	0,004	0,012	0,04	0,03	0,05

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
2B55 Methanol production	CH ₄	3,83	0,00	5	30	30	0,00	0,000	0,000	0,00	0,00	0,00
2B55 Methanol production	CO ₂	61,10	0,00	5	30	30	0,00	-0,001	0,000	-0,02	0,00	0,02
2D2 Food and drink	CO ₂	9,32	8,86	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2C12 Pig iron production	CO ₂	21,25	3,05	4	10	11	0,00	0,000	0,000	0,00	0,00	0,00
2.IIA.F.1.1 Domestic Refrigeration	HFCs	0,12	0,99	14	28	32	0,00	0,000	0,000	0,00	0,00	0,00
2.IIA.F.1.2 Commercial Refrigeration	HFCs	0,96	39,60	36	21	42	0,08	0,001	0,001	0,02	0,04	0,04
2.IIA.F.1.3 Transport Refrigeration	HFCs	0,11	62,75	11	21	23	0,07	0,001	0,001	0,03	0,02	0,03
2.IIA.F.1.4 Industrial Refrigeration	HFCs	0,24	11,87	30	15	34	0,02	0,000	0,000	0,00	0,01	0,01
2.IIA.F.1.5 Stationary Air-Conditioning	HFCs	0,13	12,41	36	28	46	0,03	0,000	0,000	0,01	0,01	0,01
2.IIA.F.1.6 Mobile Air-Conditioning	HFCs	0,43	101,20	11	21	23	0,11	0,002	0,002	0,04	0,03	0,05
2F2 Foam blowing	HFCs	0,00	4,41	30	30	42	0,01	0,000	0,000	0,00	0,00	0,00
2F3 Fire extinguishers	HFCs	0,00	1,66	20	20	28	0,00	0,000	0,000	0,00	0,00	0,00
2F4 Aerosols/Metered dose inhalers	HFCs	0,77	5,77	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F7 Semiconductor manufacture	SF ₆	0,00	3,73	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F8 Electrical equipment	SF ₆	0,05	0,29	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F9 Other	SF ₆	0,00	0,17	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
3 Solvent and other product use	CO ₂	100,42	81,13	30	20	36	0,14	0,001	0,002	0,02	0,07	0,07
3 Solvent and other product use	N ₂ O	97,11	2,60	30	20	36	0,00	-0,001	0,000	-0,02	0,00	0,02
4A Enteric Fermentation	CH ₄	3.226,55	1.185,10	3	20	20	1,11	-0,005	0,024	-0,10	0,10	0,14
4B Manure Management	CH ₄	1.093,75	506,78	18	20	27	0,63	0,000	0,010	0,01	0,26	0,26

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
4B Manure Management	N ₂ O	885,25	263,17	28	50	57	0,70	-0,003	0,005	-0,13	0,21	0,25
4D1 Direct Soil Emissions	N ₂ O	2.702,35	1.963,71	20	100	102	9,26	0,016	0,040	1,57	1,14	1,94
4D2 Pasture Range and Paddock	N ₂ O	493,25	191,38	20	100	102	0,90	-0,001	0,004	-0,06	0,11	0,12
4D3 Indirect Soil Emissions	N ₂ O	1.888,68	949,84	20	100	102	4,48	0,002	0,019	0,23	0,55	0,60
6A Solid Waste	CH ₄	864,23	789,65	30	127	130	4,75	0,008	0,016	1,05	0,69	1,26
6B Wastewater Handling	CH ₄	173,86	102,18	30	65	72	0,34	0,001	0,002	0,03	0,09	0,10
6B Wastewater Handling	N ₂ O	79,91	72,85	30	50	58	0,20	0,001	0,001	0,04	0,06	0,07
6C Waste incineration	CO ₂	4,33	1,64	30	30	42	0,00	0,000	0,000	0,00	0,00	0,00
6C Waste incineration	N ₂ O	0,19	0,07	30	100	104	0,00	0,000	0,000	0,00	0,00	0,00
Total emission		48.723,58	21.622,29	Overall uncertainty (%)			11,5	Trend uncertainty (%)				2,5

* Base year for F-gases is 1995

Table 2-2. Uncertainty evaluation including LULUCF

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A1 Energy Industries: biomass	CO ₂			50	50	70,71	0,00	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: biomass	CH ₄	0,33	8,24	50	150	158,11	0,10	0,00	0,00	0,03	0,01	0,03
1A1 Energy Industries: biomass	N ₂ O	0,65	16,22	50	150	158,11	0,20	0,00	0,00	0,05	0,03	0,06
1A1 Energy Industries: gaseous fuel	CO ₂	5.806,05	2.397,53	2	3	3,20	0,58	0,02	0,05	0,04	0,15	0,16
1A1 Energy Industries: gaseous fuel	CH ₄	2,21	0,91	2	50	50,04	0,00	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: gaseous fuel	N ₂ O	3,26	1,35	2	50	50,04	0,01	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: liquid fuel	CO ₂	7.524,61	1.948,86	2	3	3,20	0,48	-0,01	0,04	-0,02	0,12	0,13
1A1 Energy Industries: liquid fuel	CH ₄	6,29	1,76	2	50	50,04	0,01	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: liquid fuel	N ₂ O	18,56	5,18	2	50	50,04	0,02	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: solid fuel	CO ₂	185,11	25,01	2	7	7,28	0,01	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: solid fuel	CH ₄	0,04	0,01	2	50	50,04	0,00	0,00	0,00	0,00	0,00	0,00
1A1 Energy Industries: solid fuel	N ₂ O	0,85	0,11	2	50	50,04	0,00	0,00	0,00	0,00	0,00	0,00
1A2 Manufacturing Industries	CH ₄	6,49	4,78	2	50	50,04	0,02	0,00	0,00	0,00	0,00	0,00
1A2 Manufacturing Industries	N ₂ O	11,03	7,52	2	50	50,04	0,03	0,00	0,00	0,00	0,00	0,00
1A2 Manufacturing Industries	CO ₂	5.738,99	1.259,24	2	7	7,28	0,70	-0,01	0,03	-0,07	0,08	0,11
1A3A Civil aviation	CO ₂	9,02	1,72	10	2	10,20	0,00	0,00	0,00	0,00	0,00	0,00
1A3A Civil aviation	CH ₄	0,00	0,00	10	100	100,50	0,00	0,00	0,00	0,00	0,00	0,00
1A3A Civil aviation	N ₂ O	0,08	0,02	10	150	150,33	0,00	0,00	0,00	0,00	0,00	0,00
1A3E Mobile combustion: other transport	CO ₂	1.764,11	246,72	5	7	8,60	0,16	-0,01	0,01	-0,04	0,04	0,06

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A3E Mobile combustion: other transport	CH ₄	2,58	0,39	5	50	50,25	0,00	0,00	0,00	0,00	0,00	0,00
1A3E Mobile combustion: other transport	N ₂ O	4,33	0,48	5	50	50,25	0,00	0,00	0,00	0,00	0,00	0,00
1A3B Mobile combustion: road transport	CO ₂	5.247,15	4.042,75	2	2	2,83	0,87	0,06	0,09	0,11	0,26	0,28
1A3B Mobile combustion: road transport	CH ₄	35,50	10,80	2	40	40,05	0,03	0,00	0,00	0,00	0,00	0,00
1A3B Mobile combustion: road transport	N ₂ O	40,45	38,42	2	50	50,04	0,15	0,00	0,00	0,03	0,00	0,03
1A3D Navigation	CO ₂	15,49	14,94	5	3	5,83	0,01	0,00	0,00	0,00	0,00	0,00
1A3D Navigation	CH ₄	0,02	0,02	5	50	50,25	0,00	0,00	0,00	0,00	0,00	0,00
1A3D Navigation	N ₂ O	0,04	0,04	5	140	140,09	0,00	0,00	0,00	0,00	0,00	0,00
1A3C Railways	CO ₂	349,97	180,84	5	5	7,07	0,10	0,00	0,00	0,01	0,03	0,03
1A3C Railways	CH ₄	0,50	0,26	5	50	50,25	0,00	0,00	0,00	0,00	0,00	0,00
1A3C Railways	N ₂ O	0,89	0,46	5	50	50,25	0,00	0,00	0,00	0,00	0,00	0,00
1A4C Agriculture/Forestry/Fishing	CO ₂	409,63	99,84	2	7	7,28	0,06	0,00	0,00	0,00	0,01	0,01
1A4C Agriculture/Forestry/Fishing	CH ₄	11,57	3,59	2	50	50,04	0,01	0,00	0,00	0,00	0,00	0,00
1A4C Agriculture/Forestry/Fishing	N ₂ O	1,24	0,75	2	50	50,04	0,00	0,00	0,00	0,00	0,00	0,00
1A4A Commercial/Institutional	CO ₂	2.827,06	326,47	2	7	7,28	0,18	-0,01	0,01	-0,08	0,02	0,08
1A4A Commercial/Institutional	CH ₄	17,21	9,44	2	50	50,04	0,04	0,00	0,00	0,00	0,00	0,00
1A4A Commercial/Institutional	N ₂ O	10,17	2,58	2	50	50,04	0,01	0,00	0,00	0,00	0,00	0,00
1A4B Residential	CO ₂	2.277,12	752,45	2	7	7,28	0,42	0,00	0,02	0,01	0,05	0,05
1A4B Residential	CH ₄	155,26	166,60	2	50	50,04	0,64	0,00	0,00	0,14	0,01	0,14
1A4B Residential	N ₂ O	18,98	30,95	2	50	50,04	0,12	0,00	0,00	0,03	0,00	0,03
1A5 Other	CO ₂	0,00	8,96	2	7	7,28	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A5 Other	N ₂ O	0,00	0,08	2	50	50,04	0,00	0,00	0,00	0,00	0,00	0,00
1A5 Other	CH ₄	0,00	0,00	2	50	50,04	0,00	0,00	0,00	0,00	0,00	0,00
1B Fugitive Emissions	CH ₄	149,32	260,81	5	50	50,25	1,00	0,00	0,01	0,24	0,04	0,25
1B Fugitive Emissions	CO ₂	1,03	8,14	5	50	50,25	0,03	0,00	0,00	0,01	0,00	0,01
1B Fugitive Emissions	N ₂ O	0,00	0,02	5	50	50,25	0,00	0,00	0,00	0,00	0,00	0,00
2A1 Cement Production	CO ₂	1.668,07	395,19	2	5	5,39	0,16	0,00	0,01	-0,01	0,03	0,03
2A2 Lime Production	CO ₂	217,80	36,10	5	5	7,07	0,02	0,00	0,00	0,00	0,01	0,01
2A3 Limestone and dolomite use	CO ₂	4,48	0,14	10	5	11,18	0,00	0,00	0,00	0,00	0,00	0,00
2A4 Soda ash use	CO ₂	5,32	0,14	10	5	11,18	0,00	0,00	0,00	0,00	0,00	0,00
2A5 Asphalt roofing	CO ₂	0,02	0,02	5	25	25,50	0,00	0,00	0,00	0,00	0,00	0,00
2A6 Road paving with asphalt	CO ₂	0,00	0,00	10	25	26,93	0,00	0,00	0,00	0,00	0,00	0,00
2A7.1 Glass production	CO ₂	11,70	7,27	7	5	8,60	0,00	0,00	0,00	0,00	0,00	0,00
2A7.2 Mineral wool production	CO ₂	6,28	10,03	7	5	8,60	0,01	0,00	0,00	0,00	0,00	0,00
2A7.3 Bricks and tiles	CO ₂	228,06	5,78	5	5	7,07	0,00	0,00	0,00	-0,01	0,00	0,01
2B1 Ammonia production	CO ₂	1.291,50	2.319,17	2	3	3,20	0,57	0,04	0,05	0,11	0,15	0,18
2B2 Nitric Acid Production	N ₂ O	928,97	596,32	2	10	10,20	0,46	0,01	0,01	0,07	0,04	0,08
2B55 Methanol production	CH ₄	3,83	0,00	5	30	30,41	0,00	0,00	0,00	0,00	0,00	0,00
2B55 Methanol production	CO ₂	61,10	0,00	5	30	30,41	0,00	0,00	0,00	-0,01	0,00	0,01
2D2 Food and drink	CO ₂	9,32	8,86	5	5	7,07	0,00	0,00	0,00	0,00	0,00	0,00
2C12 Pig iron production	CO ₂	21,25	3,05	4	10	10,77	0,00	0,00	0,00	0,00	0,00	0,00
2.IIA.F.1.1 Domestic Refrigeration	HFCs	0,12	0,99	14	28	31,62	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
2.IIA.F.1.2 Commercial Refrigeration	HFCs	0,96	39,60	36	21	41,82	0,13	0,00	0,00	0,02	0,05	0,05
2.IIA.F.1.3 Transport Refrigeration	HFCs	0,11	62,75	11	21	23,45	0,11	0,00	0,00	0,03	0,02	0,04
2.IIA.F.1.4 Industrial Refrigeration	HFCs	0,24	11,87	30	15	33,54	0,03	0,00	0,00	0,00	0,01	0,01
2.IIA.F.1.5 Stationary Air-Conditioning	HFCs	0,13	12,41	36	28	45,87	0,04	0,00	0,00	0,01	0,01	0,02
2.IIA.F.1.6 Mobile Air-Conditioning	HFCs	0,43	101,20	11	21	23,45	0,18	0,00	0,00	0,05	0,04	0,06
2F2 Foam blowing	HFCs	0,00	4,41	30	30	42,43	0,01	0,00	0,00	0,00	0,00	0,01
2F3 Fire extinguishers	HFCs	0,00	1,66	20	20	28,28	0,00	0,00	0,00	0,00	0,00	0,00
2F4 Aerosols/Metered dose inhalers	HFCs	0,77	5,77	5	5	7,07	0,00	0,00	0,00	0,00	0,00	0,00
2F7 Semiconductor manufacture	SF ₆	0,00	3,73	5	5	7,07	0,00	0,00	0,00	0,00	0,00	0,00
2F8 Electrical equipment	SF ₆	0,05	0,29	5	5	7,07	0,00	0,00	0,00	0,00	0,00	0,00
2F9 Other	SF ₆	0,00	0,17	5	5	7,07	0,00	0,00	0,00	0,00	0,00	0,00
3 Solvent and other product use	CO ₂	100,42	81,13	30	20	36,06	0,22	0,00	0,00	0,02	0,08	0,08
3 Solvent and other product use	N ₂ O	97,11	2,60	30	20	36,06	0,01	0,00	0,00	-0,01	0,00	0,01
4A Enteric Fermentation	CH ₄	3.226,55	1.185,10	3	20	20,22	1,83	0,01	0,03	0,10	0,11	0,15
4B Manure Management	CH ₄	1.093,75	506,78	18	20	26,91	1,04	0,00	0,01	0,08	0,29	0,30
4B Manure Management	N ₂ O	885,25	263,17	28	50	57,31	1,15	0,00	0,01	0,00	0,23	0,23
4D1 Direct Soil Emissions	N ₂ O	2.702,35	1.963,71	20	100	101,98	15,25	0,03	0,04	2,62	1,25	2,90
4D2 Pasture Range and Paddock	N ₂ O	493,25	191,38	20	100	101,98	1,49	0,00	0,00	0,10	0,12	0,16
4D3 Indirect Soil Emissions	N ₂ O	1.888,68	949,84	20	100	101,98	7,38	0,01	0,02	0,88	0,60	1,07
5.A.1. Forest Land remaining Forest Land	CO ₂	-6.798,52	-8.394,67	2	31	31,18	-19,94	-0,14	-0,19	-4,48	-0,61	4,52
5.A.1. Forest Land remaining Forest Land	CH ₄	0,43	0,06	35	70	78,26	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Gas	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
		Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
5.A.1. Forest Land remaining Forest Land	N ₂ O	22,07	23,31	11	171	171,35	0,30	0,00	0,00	0,06	0,01	0,07
5.A.2. Land converted to Forest Land	CO ₂	-1.033,10	-1.143,39	12	38	40,29	-3,51	-0,02	-0,03	-0,72	-0,44	0,85
5.A.2. Land converted to Forest Land	CH ₄	0,02	0,00	35	70	78,26	0,00	0,00	0,00	0,00	0,00	0,00
5.A.2. Land converted to Forest Land	N ₂ O	0,00	0,00	11	171	171,35	0,00	0,00	0,00	0,00	0,00	0,00
5.B. Cropland	CO ₂	5.777,27	3.825,60	2	90	90,03	26,23	0,05	0,09	4,29	0,27	4,29
5.B. Cropland	CH ₄	0,07	0,03	1	70	70,01	0,00	0,00	0,00	0,00	0,00	0,00
5.B. Cropland	N ₂ O	7,84	10,60	1	70	70,01	0,06	0,00	0,00	0,01	0,00	0,01
5.C. Grassland	CO ₂	-2.362,36	-2.885,16	1	90	90,01	-19,78	-0,05	-0,06	-4,43	-0,11	4,43
5.C. Grassland	CH ₄	1,78	0,72	1	70	70,01	0,00	0,00	0,00	0,00	0,00	0,00
5.C. Grassland	N ₂ O	2,40	0,96	1	70	70,01	0,01	0,00	0,00	0,00	0,00	0,00
5.D. Wetlands	CO ₂	72,73	55,57	80	20	82,46	0,35	0,00	0,00	0,02	0,14	0,14
5.D. Wetlands	N ₂ O	15,81	12,08	1	64	64,01	0,06	0,00	0,00	0,01	0,00	0,01
6A Solid Waste	CH ₄	864,23	789,65	30	127	130,01	7,82	0,01	0,02	1,52	0,75	1,70
6B Wastewater Handling	CH ₄	173,86	102,18	30	65	71,59	0,56	0,00	0,00	0,07	0,10	0,12
6B Wastewater Handling	N ₂ O	79,91	72,85	30	50	58,31	0,32	0,00	0,00	0,06	0,07	0,09
6C Waste incineration	CO ₂	4,33	1,64	30	30	42,43	0,01	0,00	0,00	0,00	0,00	0,00
6C Waste incineration	N ₂ O	0,19	0,07	30	100	104,40	0,00	0,00	0,00	0,00	0,00	0,00
Total emission		44.430,03	13.128,01	Overall uncertainty (%)			43,0	Trend uncertainty (%)				8,5

* Base year for F-gases is 1995

Table 2-3. Combined uncertainty evaluation excluding LULUCF (reported descending according to combined uncertainty)

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
6A Solid Waste	864,23	789,65	30	127	130	4,75	0,01	0,02	1,05	0,69	1,26
1A1 Energy Industries: biomass	0,99	24,47	37	112	118	0,13	0,00	0,00	0,06	0,03	0,06
4D1 Direct Soil Emissions	2.702,35	1.963,71	20	100	102	9,26	0,02	0,04	1,57	1,14	1,94
4D2 Pasture Range and Paddock	493,25	191,38	20	100	102	0,90	0,00	0,00	-0,06	0,11	0,12
4D3 Indirect Soil Emissions	1.888,68	949,84	20	100	102	4,48	0,00	0,02	0,23	0,55	0,60
1B Fugitive Emissions	150,35	268,98	5	49	49	0,61	0,00	0,01	0,20	0,04	0,20
6B Wastewater Handling	253,77	175,02	22	43	48	0,39	0,00	0,00	0,06	0,11	0,12
2F2 Foam blowing	0,00	4,41	30	30	42	0,01	0,00	0,00	0,00	0,00	0,00
6C Waste incineration	4,51	1,71	29	29	41	0,00	0,00	0,00	0,00	0,00	0,00
3 Solvent and other product use	197,52	83,74	29	19	35	0,14	0,00	0,00	0,00	0,07	0,07
2B55 Methanol production	3,83	0,00	5	30	30	0,00	0,00	0,00	0,00	0,00	0,00
2B55 Methanol production	61,10	0,00	5	30	30	0,00	0,00	0,00	-0,02	0,00	0,02
2F3 Fire extinguishers	0,00	1,66	20	20	28	0,00	0,00	0,00	0,00	0,00	0,00
2A6 Road paving with asphalt	0,00	0,00	10	25	27	0,00	0,00	0,00	0,00	0,00	0,00
4B Manure Management	1.979,00	769,96	15	22	26	0,94	0,00	0,02	-0,05	0,34	0,34
2A5 Asphalt roofing	0,02	0,02	5	25	25	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
4A Enteric Fermentation	3.226,55	1.185,10	3	20	20	1,11	-0,01	0,02	-0,10	0,10	0,14
2F1 Refrigeration and Air Conditioning Equipment	1,99	228,82	9	11	15	0,15	0,00	0,00	0,05	0,06	0,08
2A3 Limestone and dolomite use	4,48	0,14	10	5	11	0,00	0,00	0,00	0,00	0,00	0,00
2A4 Soda ash use	5,32	0,14	10	5	11	0,00	0,00	0,00	0,00	0,00	0,00
2C12 Pig iron production	21,25	3,05	4	10	11	0,00	0,00	0,00	0,00	0,00	0,00
1A4B Residential	2.451,36	950,00	2	11	11	0,47	0,00	0,02	-0,03	0,04	0,05
2B2 Nitric Acid Production	928,97	596,32	2	10	10	0,28	0,00	0,01	0,04	0,03	0,05
1A3 Civil aviation	9,10	1,74	10	2	10	0,00	0,00	0,00	0,00	0,00	0,00
2A7.1 Glass production	11,70	7,27	7	5	9	0,00	0,00	0,00	0,00	0,00	0,00
2A7.2 Mineral wool production	6,28	10,03	7	5	9	0,00	0,00	0,00	0,00	0,00	0,00
1A3E Mobile combustion: other transport	1.771,02	247,59	5	7	9	0,10	-0,01	0,01	-0,08	0,04	0,08
1A1 Energy Industries: solid fuel	185,99	25,12	2	7	7	0,01	0,00	0,00	-0,01	0,00	0,01
1A5 Other	0,00	9,04	2	7	7	0,00	0,00	0,00	0,00	0,00	0,00
1A2 Manufacturing Industries	5.756,51	1.271,53	2	7	7	0,42	-0,03	0,03	-0,18	0,07	0,20
1A4C Agriculture/Forestry/Fishing	422,45	104,17	2	7	7	0,03	0,00	0,00	-0,01	0,01	0,01
1A4A Commercial/Institutional	2.854,44	338,49	2	7	7	0,11	-0,02	0,01	-0,13	0,02	0,13
2A2 Lime Production	217,80	36,10	5	5	7	0,01	0,00	0,00	-0,01	0,01	0,01
2A7.3 Bricks and tiles	228,06	5,78	5	5	7	0,00	0,00	0,00	-0,01	0,00	0,01
2D2 Food and drink	9,32	8,86	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
2F4 Aerosols/Metered dose inhalers	0,77	5,77	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
2F7 Semiconductor manufacture	0,00	3,73	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
2F8 Electrical equipment	0,05	0,29	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
2F9 Other	0,00	0,17	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
1A3C Railways	351,37	181,56	5	5	7	0,06	0,00	0,00	0,00	0,03	0,03
1A3D Navigation	15,55	15,00	5	3	6	0,00	0,00	0,00	0,00	0,00	0,00
2A1 Cement Production	1.668,07	395,19	2	5	5	0,10	-0,01	0,01	-0,04	0,02	0,04
2B1 Ammonia production	1.291,50	2.319,17	2	3	3	0,34	0,04	0,05	0,09	0,13	0,16
1A1 Energy Industries: gaseous fuel	5.811,52	2.399,79	2	2	3	0,36	0,00	0,05	-0,01	0,14	0,14
1A1 Energy Industries: liquid fuel	7.549,46	1.955,80	2	2	3	0,29	-0,03	0,04	-0,07	0,11	0,13
1A3B Mobile combustion: road transport	5.323,09	4.091,97	2	2	3	0,54	0,04	0,08	0,07	0,23	0,25
Total emission	48.723,58	21.622,29	Overall uncertainty (%)			11,5	Trend uncertainty (%)				2,5

* Base year for F-gases is 1995

Table 2-4. Combined uncertainty evaluation including LULUCF (reported descending according to combined uncertainty)

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
6A Solid Waste	864,23	789,65	30	127	130	7,82	0,012	0,018	1,52	0,75	1,70
1A1 Energy Industries: biomass	0,99	24,47	37	112	118	0,22	0,001	0,001	0,06	0,03	0,07
4D1 Direct Soil Emissions	2.702,35	1.963,71	20	100	102	15,25	0,026	0,044	2,62	1,25	2,90
4D2 Pasture Range and Paddock	493,25	191,38	20	100	102	1,49	0,001	0,004	0,10	0,12	0,16
4D3 Indirect Soil Emissions	1.888,68	949,84	20	100	102	7,38	0,009	0,021	0,88	0,60	1,07
5.C. Grassland	-2.358,18	-2.883,48	-1	-90	90	-19,78	-0,049	-0,065	4,43	0,11	4,44
5.B. Cropland	5.785,19	3.836,23	2	90	90	26,23	0,048	0,086	4,29	0,27	4,30
5.D. Wetlands	88,54	67,65	66	20	69	0,35	0,001	0,002	0,02	0,14	0,14
1B Fugitive Emissions	150,35	268,98	5	49	49	1,00	0,005	0,006	0,25	0,04	0,25
6B Wastewater Handling	253,77	175,02	22	43	48	0,64	0,002	0,004	0,10	0,12	0,15
2F2 Foam blowing	0,00	4,41	30	30	42	0,01	0,000	0,000	0,00	0,00	0,01
6C Waste incineration	4,51	1,71	29	29	41	0,01	0,000	0,000	0,00	0,00	0,00
5.A.2. Land converted to Forest Land	-1.033,07	-1.143,39	-12	-38	40	-3,51	-0,019	-0,026	0,72	0,44	0,85
3 Solvent and other product use	197,52	83,74	29	19	35	0,22	0,001	0,002	0,01	0,08	0,08
5.A.1. Forest Land remaining Forest Land	-6.776,03	-8.371,29	-2	-31	31	-19,94	-0,144	-0,188	4,48	0,61	4,52
2B55 Methanol production	3,83	0,00	5	30	30	0,00	0,000	0,000	0,00	0,00	0,00
2B55 Methanol production	61,10	0,00	5	30	30	0,00	0,000	0,000	-0,01	0,00	0,01

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
2F3 Fire extinguishers	0,00	1,66	20	20	28	0,00	0,000	0,000	0,00	0,00	0,00
2A6 Road paving with asphalt	0,00	0,00	10	25	27	0,00	0,000	0,000	0,00	0,00	0,00
4B Manure Management	1.979,00	769,96	15	22	26	1,55	0,004	0,017	0,09	0,37	0,38
2A5 Asphalt roofing	0,02	0,02	5	25	25	0,00	0,000	0,000	0,00	0,00	0,00
4A Enteric Fermentation	3.226,55	1.185,10	3	20	20	1,83	0,005	0,027	0,10	0,11	0,15
2F1 Refrigeration and Air Conditioning Equipment	1,99	228,82	9	11	15	0,25	0,005	0,005	0,06	0,07	0,09
2A3 Limestone and dolomite use	4,48	0,14	10	5	11	0,00	0,000	0,000	0,00	0,00	0,00
2A4 Soda ash use	5,32	0,14	10	5	11	0,00	0,000	0,000	0,00	0,00	0,00
2C12 Pig iron production	21,25	3,05	4	10	11	0,00	0,000	0,000	0,00	0,00	0,00
1A4B Residential	2.451,36	950,00	2	11	11	0,77	0,005	0,021	0,05	0,05	0,07
2B2 Nitric Acid Production	928,97	596,32	2	10	10	0,46	0,007	0,013	0,07	0,04	0,08
1A3 Civil aviation	9,10	1,74	10	2	10	0,00	0,000	0,000	0,00	0,00	0,00
2A7.1 Glass production	11,70	7,27	7	5	9	0,00	0,000	0,000	0,00	0,00	0,00
2A7.2 Mineral wool production	6,28	10,03	7	5	9	0,01	0,000	0,000	0,00	0,00	0,00
1A3E Mobile combustion: other transport	1.771,02	247,59	5	7	9	0,16	-0,006	0,006	-0,04	0,04	0,06
1A1 Energy Industries: solid fuel	185,99	25,12	2	7	7	0,01	-0,001	0,001	0,00	0,00	0,00
1A5 Other	0,00	9,04	2	7	7	0,00	0,000	0,000	0,00	0,00	0,00
1A2 Manufacturing Industries	5.756,51	1.271,53	2	7	7	0,70	-0,010	0,029	-0,07	0,08	0,10
1A4C Agriculture/Forestry/Fishing	422,45	104,17	2	7	7	0,06	0,000	0,002	0,00	0,01	0,01

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
1A4A Commercial/Institutional	2.854,44	338,49	2	7	7	0,18	-0,011	0,008	-0,08	0,02	0,08
2A2 Lime Production	217,80	36,10	5	5	7	0,02	-0,001	0,001	0,00	0,01	0,01
2A7.3 Bricks and tiles	228,06	5,78	5	5	7	0,00	-0,001	0,000	-0,01	0,00	0,01
2D2 Food and drink	9,32	8,86	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F4 Aerosols/Metered dose inhalers	0,77	5,77	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F7 Semiconductor manufacture	0,00	3,73	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F8 Electrical equipment	0,05	0,29	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F9 Other	0,00	0,17	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
1A3C Railways	351,37	181,56	5	5	7	0,10	0,002	0,004	0,01	0,03	0,03
1A3D Navigation	15,55	15,00	5	3	6	0,01	0,000	0,000	0,00	0,00	0,00
2A1 Cement Production	1.668,07	395,19	2	5	5	0,16	-0,002	0,009	-0,01	0,03	0,03
2B1 Ammonia production	1.291,50	2.319,17	2	3	3	0,57	0,044	0,052	0,11	0,15	0,18
1A1 Energy Industries: gaseous fuel	5.811,52	2.399,79	2	2	3	0,58	0,015	0,054	0,04	0,15	0,16
1A1 Energy Industries: liquid fuel	7.549,46	1.955,80	2	2	3	0,48	-0,006	0,044	-0,02	0,12	0,13
1A3B Mobile combustion: road transport	5.323,09	4.091,97	2	2	3	0,88	0,057	0,092	0,12	0,26	0,28
Total emission	44.430,03	13.128,01	Overall uncertainty (%)			43,0	Trend uncertainty (%)				8,5

* Base year for F-gases is 1995

Table 2-5. Combined uncertainty evaluation excluding LULUCF (reported descending according to combined uncertainty)

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
6A Solid Waste	864,23	789,59	30	127	130	4,76	0,01	0,02	1,06	0,69	1,26
1A1 Energy Industries: biomass	0,99	24,47	37	112	118	0,13	0,00	0,00	0,06	0,03	0,06
4D1 Direct Soil Emissions	2.702,35	1.940,66	20	100	102	9,17	0,02	0,04	1,52	1,13	1,90
4D2 Pasture Range and Paddock	493,25	191,38	20	100	102	0,90	0,00	0,00	-0,06	0,11	0,12
4D3 Indirect Soil Emissions	1.888,68	932,64	20	100	102	4,41	0,00	0,02	0,20	0,54	0,58
1B Fugitive Emissions	150,35	268,98	5	49	49	0,61	0,00	0,01	0,20	0,04	0,20
6B Wastewater Handling	253,77	175,02	22	43	48	0,39	0,00	0,00	0,06	0,11	0,12
2F2 Foam blowing	0,00	4,81	30	30	42	0,01	0,00	0,00	0,00	0,00	0,01
6C Waste incineration	4,51	7,30	29	29	41	0,01	0,00	0,00	0,00	0,01	0,01
3 Solvent and other product use	197,52	83,74	29	19	35	0,14	0,00	0,00	0,00	0,07	0,07
2B55 Methanol production	3,83	0,00	5	30	30	0,00	0,00	0,00	0,00	0,00	0,00
2B55 Methanol production	61,10	0,00	5	30	30	0,00	0,00	0,00	-0,02	0,00	0,02
2F3 Fire extinguishers	0,00	1,62	20	20	28	0,00	0,00	0,00	0,00	0,00	0,00
2A6 Road paving with asphalt	0,00	0,00	10	25	27	0,00	0,00	0,00	0,00	0,00	0,00
4B Manure Management	1.979,00	769,96	15	22	26	0,94	0,00	0,02	-0,05	0,34	0,34
2A5 Asphalt roofing	0,02	0,02	5	25	25	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
4A Enteric Fermentation	3.226,55	1.185,10	3	20	20	1,11	-0,01	0,02	-0,10	0,10	0,14
2F1 Refrigeration and Air Conditioning Equipment	1,99	228,72	9	11	15	0,15	0,00	0,00	0,05	0,06	0,08
2A3 Limestone and dolomite use	4,48	0,14	10	5	11	0,00	0,00	0,00	0,00	0,00	0,00
2A4 Soda ash use	5,32	0,14	10	5	11	0,00	0,00	0,00	0,00	0,00	0,00
2C12 Pig iron production	21,41	3,05	4	10	11	0,00	0,00	0,00	0,00	0,00	0,00
1A4B Residential	2.451,36	950,00	2	11	11	0,47	0,00	0,02	-0,03	0,04	0,05
2B2 Nitric Acid Production	928,99	596,32	2	10	10	0,28	0,00	0,01	0,04	0,03	0,05
1A3 Civil aviation	9,10	1,67	10	2	10	0,00	0,00	0,00	0,00	0,00	0,00
2A7.1 Glass production	11,70	7,27	7	5	9	0,00	0,00	0,00	0,00	0,00	0,00
2A7.2 Mineral wool production	6,28	10,03	7	5	9	0,00	0,00	0,00	0,00	0,00	0,00
1A3E Mobile combustion: other transport	1.771,02	247,59	5	7	9	0,10	-0,01	0,01	-0,08	0,04	0,08
1A1 Energy Industries: solid fuel	185,99	25,12	2	7	7	0,01	0,00	0,00	-0,01	0,00	0,01
1A5 Other	0,00	9,04	2	7	7	0,00	0,00	0,00	0,00	0,00	0,00
1A2 Manufacturing Industries	5.756,51	1.271,53	2	7	7	0,43	-0,03	0,03	-0,18	0,07	0,20
1A4C Agriculture/Forestry/Fishing	422,45	104,17	2	7	7	0,03	0,00	0,00	-0,01	0,01	0,01
1A4A Commercial/Institutional	2.854,44	338,49	2	7	7	0,11	-0,02	0,01	-0,13	0,02	0,13
2A2 Lime Production	217,80	36,10	5	5	7	0,01	0,00	0,00	-0,01	0,01	0,01
2A7.3 Bricks and tiles	228,06	5,78	5	5	7	0,00	0,00	0,00	-0,01	0,00	0,01
2D2 Food and drink	9,32	8,86	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
2F4 Aerosols/Metered dose inhalers	0,77	5,77	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
2F7 Semiconductor manufacture	0,00	3,73	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
2F8 Electrical equipment	0,05	0,29	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
2F9 Other	0,00	0,17	5	5	7	0,00	0,00	0,00	0,00	0,00	0,00
1A3C Railways	351,37	181,56	5	5	7	0,06	0,00	0,00	0,00	0,03	0,03
1A3D Navigation	15,55	15,00	5	3	6	0,00	0,00	0,00	0,00	0,00	0,00
2A1 Cement Production	1.668,07	395,19	2	5	5	0,10	-0,01	0,01	-0,04	0,02	0,04
2B1 Ammonia production	1.291,50	2.319,17	2	3	3	0,34	0,04	0,05	0,09	0,13	0,16
1A1 Energy Industries: gaseous fuel	5.811,52	2.399,79	2	2	3	0,36	0,00	0,05	-0,01	0,14	0,14
1A1 Energy Industries: liquid fuel	7.549,46	1.955,80	2	2	3	0,29	-0,03	0,04	-0,07	0,11	0,13
1A3B Mobile combustion: road transport	5.323,09	4.091,97	2	2	3	0,54	0,04	0,08	0,07	0,23	0,25
Total emission	48.723,77	21.587,76	Overall uncertainty (%)			11,4	Trend uncertainty (%)				2,4

* Base year for F-gases is 1995

Table 2-6. Combined uncertainty evaluation including LULUCF (reported descending according to combined uncertainty)

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
6A Solid Waste	864,23	789,59	30	127	130	7,81	0,012	0,018	1,52	0,75	1,70
1A1 Energy Industries: biomass	0,99	24,47	37	112	118	0,22	0,001	0,001	0,06	0,03	0,07
4D1 Direct Soil Emissions	2.702,35	1.940,66	20	100	102	15,06	0,026	0,044	2,57	1,24	2,85
4D2 Pasture Range and Paddock	493,25	191,38	20	100	102	1,49	0,001	0,004	0,10	0,12	0,16
4D3 Indirect Soil Emissions	1.888,68	932,64	20	100	102	7,24	0,008	0,021	0,84	0,59	1,03
5.C. Grassland	-2.358,18	-2.855,38	-1	-90	90	-19,58	-0,049	-0,064	4,38	0,11	4,38
5.B. Cropland	5.780,01	3.852,15	2	90	90	26,32	0,048	0,087	4,32	0,27	4,33
5.D. Wetlands	88,54	67,65	66	20	69	0,35	0,001	0,002	0,02	0,14	0,14
1B Fugitive Emissions	150,35	268,98	5	49	49	1,00	0,005	0,006	0,25	0,04	0,25
6B Wastewater Handling	253,77	175,02	22	43	48	0,64	0,002	0,004	0,10	0,12	0,15
2F2 Foam blowing	0,00	4,81	30	30	42	0,02	0,000	0,000	0,00	0,00	0,01
6C Waste incineration	4,51	7,30	29	29	41	0,02	0,000	0,000	0,00	0,01	0,01
5.A.2. Land converted to Forest Land	-1.033,07	-1.143,39	-12	-38	40	-3,51	-0,019	-0,026	0,72	0,44	0,85
3 Solvent and other product use	197,52	83,74	29	19	35	0,22	0,001	0,002	0,01	0,08	0,08
5.A.1. Forest Land remaining Forest Land	-6.776,03	-8.371,29	-2	-31	31	-19,93	-0,144	-0,188	4,48	0,61	4,52
2B55 Methanol production	3,83	0,00	5	30	30	0,00	0,000	0,000	0,00	0,00	0,00
2B55 Methanol production	61,10	0,00	5	30	30	0,00	0,000	0,000	-0,01	0,00	0,01
2F3 Fire extinguishers	0,00	1,62	20	20	28	0,00	0,000	0,000	0,00	0,00	0,00
2A6 Road paving with asphalt	0,00	0,00	10	25	27	0,00	0,000	0,000	0,00	0,00	0,00

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
4B Manure Management	1.979,00	769,96	15	22	26	1,55	0,004	0,017	0,09	0,37	0,38
2A5 Asphalt roofing	0,02	0,02	5	25	25	0,00	0,000	0,000	0,00	0,00	0,00
4A Enteric Fermentation	3.226,55	1.185,10	3	20	20	1,82	0,005	0,027	0,10	0,11	0,15
2F1 Refrigeration and Air Conditioning Equipment	1,99	228,72	9	11	15	0,25	0,005	0,005	0,06	0,07	0,09
2A3 Limestone and dolomite use	4,48	0,14	10	5	11	0,00	0,000	0,000	0,00	0,00	0,00
2A4 Soda ash use	5,32	0,14	10	5	11	0,00	0,000	0,000	0,00	0,00	0,00
2C12 Pig iron production	21,41	3,05	4	10	11	0,00	0,000	0,000	0,00	0,00	0,00
1A4B Residential	2.451,36	950,00	2	11	11	0,77	0,005	0,021	0,05	0,05	0,07
2B2 Nitric Acid Production	928,99	596,32	2	10	10	0,46	0,007	0,013	0,07	0,04	0,08
1A3 Civil aviation	9,10	1,67	10	2	10	0,00	0,000	0,000	0,00	0,00	0,00
2A7.1 Glass production	11,70	7,27	7	5	9	0,00	0,000	0,000	0,00	0,00	0,00
2A7.2 Mineral wool production	6,28	10,03	7	5	9	0,01	0,000	0,000	0,00	0,00	0,00
1A3E Mobile combustion: other transport	1.771,02	247,59	5	7	9	0,16	-0,006	0,006	-0,04	0,04	0,06
1A1 Energy Industries: solid fuel	185,99	25,12	2	7	7	0,01	-0,001	0,001	0,00	0,00	0,00
1A5 Other	0,00	9,04	2	7	7	0,00	0,000	0,000	0,00	0,00	0,00
1A2 Manufacturing Industries	5.756,51	1.271,53	2	7	7	0,70	-0,010	0,029	-0,07	0,08	0,10
1A4C Agriculture/Forestry/Fishing	422,45	104,17	2	7	7	0,06	0,000	0,002	0,00	0,01	0,01
1A4A Commercial/Institutional	2.854,44	338,49	2	7	7	0,18	-0,011	0,008	-0,08	0,02	0,08
2A2 Lime Production	217,80	36,10	5	5	7	0,02	-0,001	0,001	0,00	0,01	0,01
2A7.3 Bricks and tiles	228,06	5,78	5	5	7	0,00	-0,001	0,000	-0,01	0,00	0,01
2D2 Food and drink	9,32	8,86	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00

IPCC Source category	Base year (1990) emissions*	Emissions in 2012	Activity data uncertainty	Emission factor uncertainty	Combined uncertainty	Combined uncertainty as % of total national emissions in 2012	Type A sensitivity	Type B sensitivity	Uncertainty in trend in national emissions introduced by emission factor uncertainty	Uncertainty in trend in national emissions introduced by activity data uncertainty	Uncertainty introduced into the trend in total national emissions
	Gg CO ₂ eq	Gg CO ₂ eq	%	%	%	%	%	%	%	%	%
2F4 Aerosols/Metered dose inhalers	0,77	5,77	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F7 Semiconductor manufacture	0,00	3,73	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F8 Electrical equipment	0,05	0,29	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
2F9 Other	0,00	0,17	5	5	7	0,00	0,000	0,000	0,00	0,00	0,00
1A3C Railways	351,37	181,56	5	5	7	0,10	0,002	0,004	0,01	0,03	0,03
1A3D Navigation	15,55	15,00	5	3	6	0,01	0,000	0,000	0,00	0,00	0,00
2A1 Cement Production	1.668,07	395,19	2	5	5	0,16	-0,002	0,009	-0,01	0,03	0,03
2B1 Ammonia production	1.291,50	2.319,17	2	3	3	0,57	0,044	0,052	0,11	0,15	0,18
1A1 Energy Industries: gaseous fuel	5.811,52	2.399,79	2	2	3	0,58	0,015	0,054	0,04	0,15	0,16
1A1 Energy Industries: liquid fuel	7.549,46	1.955,80	2	2	3	0,48	-0,006	0,044	-0,02	0,12	0,13
1A3B Mobile combustion: road transport	5.323,09	4.091,97	2	2	3	0,88	0,057	0,092	0,12	0,26	0,28
Total emission	44.425,04	13.137,50	Overall uncertainty (%)			42,9	Trend uncertainty (%)				8,5

* Base year for F-gases is 1995

ANNEX III. Lithuanian energy balance according to the fuel type

Table 3-1. Balance of crude oil, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	502	5358	13491	9217	7718	6595	5465	4918	4909	4892	4379
Biofuel blended											
Import	396707	131189	199709	380035	349532	203786	390555	358659	385276	382015	364146
Export		335	13254	6312	4907	6649	5512	4831	4736	3438	3408
International marine bunkers											
Changes in stocks	2093	-4730	-1169	9169	-10033	-890	4826	904	-1081	1857	-90
Gross inland consumption	399302	131482	198777	392109	342310	202842	395334	359650	384368	385326	365027
Statistical difference		-42									
Transformed in power, heat and other plants:	399302	131440	198777	392101	342307	202835	395334	359631	384357	385326	365019
- in public CHP plant											
- in auto-producer heat plant	84	167	99								
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries	399218	131273	198678	392101	342307	202835	395334	359631	384357	385326	365019
Consumed in energy sector, total:				3	3	3					
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries				3	3	3					
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses				5		4		19	11		8
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-2. Balance of motor gasoline, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	87988	37709	68838	112699	98505	72271	123381	119393	123626	124021	115648
Biofuel blended				26	220	483	714	655	445	610	524
Import	220	14328	736	1115	3836	365	303	405	2616	1141	996
Export	42104	23601	50765	95698	89376	54162	104168	105355	114237	114611	105566
International marine bunkers											
Changes in stocks	-2725	-1758	-2012	-3193	2699	275	-1087	982	506	151	-1479
Gross inland consumption	43379	26678	16797	14949	15884	19232	19143	16080	12956	11312	10123
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:			15	5	3						3
- in peat extraction enterprises				1	1						
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises			15	4	2						3
Non-energy use											
Distribution and transmission losses	308	176	68	61	71	33	29	27	22	17	17
Final consumption:	43071	26502	16714	14883	15810	19199	19114	16053	12934	11295	10103
- in industry	44	88	48	31	30	21	28	18	15	17	14
- in construction	439	176	101	69	56	47	50	34	28	29	24
- in transport	41840	25887	16337	14711	15652	19059	18965	15948	12841	11201	10021
- in agriculture	440	307	170	53	59	62	52	41	43	38	33
- in fishing											
- in commercial / public services	308	44	58	19	13	10	19	12	7	10	11
- in households											

Table 3-3. Balance of aviation gasoline, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import			14	20	20	22	23	17	18	18	18
Export											
International marine bunkers											
Changes in stocks											
Gross inland consumption			14	20	20	22	23	18	18	18	18
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:			14	20	20	22	23	18	18	18	18
- in industry											
- in construction											
- in transport			14	20	20	22	23	18	18	18	18
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-4. Balance of gasoline type jet fuel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production						-36	-14				
Biofuel blended											
Import			65	3	22	26	5				
Export								5			
International marine bunkers											
Changes in stocks			-65		-22	10	9	5			
Gross inland consumption				3							
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				3							
- in industry											
- in construction											
- in transport				3							
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-5. Balance of kerosene type jet fuel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	28125	9088	18566	24705	23467	6495	20850	9668	10352	11862	10874
Biofuel blended											
Import	387	948	846		584	669		5	837	303	7263
Export	22956	8442	16673	21406	22091	4669	17443	8090	9062	9882	14527
International marine bunkers											
Changes in stocks	86	129	-1651	-1185	419	502	-11	117	115	222	-846
Gross inland consumption	5642	1723	1088	2114	2379	2997	3396	1700	2242	2505	2764
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses				14	14	4	12	4	5	9	
Final consumption:	5642	1723	1088	2100	2365	2993	3384	1696	2237	2496	2764
- in industry			2								
- in construction											
- in transport	5642	1723	1078	2100	2365	2993	3384	1696	2237	2496	2764
- in agriculture											
- in fishing											
- in commercial / public services			5								
- in households			3								

Table 3-6. Balance of transport diesel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	107712	42490	56232	127985	103670	78465	135302	134283	150168	156497	150718
Biofuel blended				119	589	1761	2127	1597	1478	1600	2142
Import	8923	9475	1670	2840	3113	11840	7336	5127	7882	15451	19016
Export	49416	27364	28516	92877	69973	43871	94200	103262	116251	128505	128727
International marine bunkers			942								
Changes in stocks	-1997	1573	-4819	-2586	724	-1773	-2979	661	31	178	1771
Gross inland consumption	65222	26174	23625	35481	38123	46422	47586	38406	43308	45221	44920
Statistical difference		213	853								
Transformed in power, heat and other plants:	7521	1742	36								
- in public CHP plant											
- in auto-producer heat plant		127	8								
- in auto-producer CHP plant											
-in public heat plant	7521	1615	28								
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:	128	43	136	194	174	127	140	167	144	150	133
- in peat extraction enterprises	128	43	60	125	110	93	110	131	109	107	99
- in crude oil extraction enterprises			22	49	44	24	20	25	23	27	23
- in refineries			5		2	2					
- in electricity, gas, steam and air conditioning enterprises			49	20	18	8	10	11	12	16	11
Non-energy use			6								
Distribution and transmission losses	297	128	55	122	89	74	80	69	73	81	70
Final consumption:	57276	24474	24245	35165	37860	46221	47366	38170	43091	44990	44717
- in industry	2124	1827	510	499	453	378	263	196	190	191	174
- in construction	2507	935	613	589	601	615	670	367	382	425	472
- in transport	34289	14489	21476	32515	35362	43721	44808	36197	41030	42814	42412
- in agriculture	14277	4207	1327	1362	1325	1429	1487	1354	1444	1472	1587
- in fishing				14	7	4	4	7	5	9	10
- in commercial / public services	2889	2804	319	186	112	74	134	52	40	79	62
- in households	1190	212									

Table 3-7. Balance of heating and other gasoil, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				2125	1824	1033	1155	932	1130	1216	3830
Biofuel blended								3	2		104
Import		717		915	818	660	585	617	854	934	874
Export				985	1075	192	108	9		6	
International marine bunkers				770	637	617	617	693	756	867	850
Changes in stocks		-717	65	-225	-17	-48	-45	28	-7	-59	40
Gross inland consumption			65	1060	913	836	970	878	1223	1218	3998
Statistical difference											
Transformed in power, heat and other plants:			22	102	26	33	31	33	55	40	51
- in public CHP plant									1		9
- in auto-producer heat plant				38	6	3	4	4	2	2	1
- in auto-producer CHP plant											
-in public heat plant			22	64	20	30	27	29	52	38	41
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:									5	3	3
- in peat extraction enterprises									5	3	3
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:			43	958	879	803	940	845	1163	1175	3944
- in industry			7	405	240	198	233	188	220	214	240
- in construction			7	25	22	31	33	26	47	49	63
- in transport				226	247	235	251	214	235	179	2686
- in agriculture			23	137	122	153	174	167	230	237	287
- in fishing				59	157	108	101	79	73	65	72
- in commercial / public services			6	55	53	58	77	57	69	72	87
- in households				51	38	20	71	111	289	359	509

Table 3-8. Balance of liquefied petroleum gases (LPG), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	12006	7636	11026	21046	18812	13254	18439	12679	12720	11507	10235
Biofuel blended											
Import	2208	1056	3972	3110	4182	5621	3725	4008	5024	5202	5208
Export	7038	4646	5793	11596	10235	6928	11363	7183	8114	7526	6647
International marine bunkers											
Changes in stocks	46	230	-420	163	-59	-44	-74	231	-111	-27	100
Gross inland consumption	7222	4276	8785	12723	12700	11903	10727	9735	9519	9156	8896
Statistical difference											
Transformed in power, heat and other plants:	46		51	90	101	80	78	88	90	79	80
- in public CHP plant								1	3		
- in auto-producer heat plant	46		31	71	82	63	62	70	69	49	49
- in auto-producer CHP plant											
-in public heat plant			21	19	19	17	16	17	18	30	31
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:	552	138	36	4	2	3					
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries	552	138	22			2					
- in electricity, gas, steam and air conditioning enterprises			14	4	2	1					
Non-energy use											
Distribution and transmission losses	322	92	103	47	47	38	32	39	26	15	21
Final consumption:	6302	4046	8595	12580	12550	11782	10617	9608	9403	9062	8795
- in industry			201	229	292	324	292	250	273	259	320
- in construction	92	46	74	77	93	94	133	98	122	48	32
- in transport	920	1058	5032	9593	9810	9708	8615	7681	7275	6790	6400
- in agriculture	230	46	19	38	41	43	43	46	41	63	68
- in fishing											
- in commercial / public services	460	92	62	23	22	22	16	8	6	25	14
- in households	4600	2804	3207	2620	2292	1591	1518	1525	1686	1877	1961

Table 3-9. Balance of fuel oil – high sulphur (>1%), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	133867	33356	39422	71994	77669	55306	72632	61764	65373	67961	66546
Biofuel blended											
Import	293464	47887	4110	5056	4860	3748	3059	6288	7883	1707	813
Export	277769	8148	16608	56627	66524	44361	68981	56675	60139	64685	63173
International marine bunkers	3894	5780	2857	4712	4471	3622	2878	4017	2801	1281	812
Changes in stocks	-8951	-11159	-4689	-1824	2202	159	3576	994	-3450	1270	5997
Gross inland consumption	136717	56156	19378	13887	13736	11230	7408	8354	6866	4972	9371
Statistical difference		40	5592								
Transformed in power, heat and other plants:											
- in public CHP plant	70406	39377	14650	5536	6668	3439	2954	4742	4648	1564	5811
- in auto-producer heat plant	44195	20511	7233	3837	5201	666	2383	4160	4157	942	5284
- in auto-producer CHP plant	5379	2047	577	40	36	59	29	1		0	
- in public heat plant	642	201	27		2	1400				405	279
- in geothermal plants	20190	16618	6813	1659	1429	1314	542	581	491	217	248
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises	8068	3693	4899	6716	5746	7474	4136	3468	2005	3255	3396
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises	8068	3693	4899	6716	5746	7474	4136	3468	2005	3255	3392
- in electricity, gas, steam and air conditioning enterprises											4
Non-energy use											
Distribution and transmission losses	361			38	3	2	4				3
Final consumption:	57882	13126	5421	1597	1319	315	314	144	213	153	161
- in industry	43993	11520	5202	1486	1238	241	245	140	148	79	155
- in construction	1044	201	11	17	14	9	9				
- in transport			3	4	10	6	4	4			
- in agriculture	1084	201	114	80	50	44	35		41	40	
- in fishing											
- in commercial / public services	11641	1204	91	10	7	15	21		24	34	6
- in households	120										

Table 3-10. Balance of fuel oil – low sulphur (<1%), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production						183	4838	5028	4306	2413	1563
Biofuel blended											
Import			1407	1191	1105	1634	1821	1123	2779	4630	5339
Export				23		2		6	40	46	55
International marine bunkers			29	451	573	705	227	575	2224	3735	3344
Changes in stocks			56	-60	23	-449	-585	447	-308	-338	-1515
Gross inland consumption			1434	657	555	661	5847	6017	4513	2924	1988
Statistical difference											
Transformed in power, heat and other plants:			755	328	468	296	1547	2090	1232	818	727
- in public CHP plant							292	377	18		262
- in auto-producer heat plant			42	10		22		24		3	2
- in auto-producer CHP plant							987	1426	1017	602	181
-in public heat plant			713	318	468	274	268	263	197	213	282
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:							4022	3697	3042	1787	948
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries							4022	3697	3042	1787	948
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses						5					
Final consumption:			679	329	87	360	278	231	239	319	313
- in industry			363	220	40	241	162	153	147	210	237
- in construction			47	93	38	87	100	54	75	72	35
- in transport					4	3	4	7			
- in agriculture			15	2	2	13	5	4	5	22	19
- in fishing				9							
- in commercial / public services			254	5	3	16	7	13	12	15	22
- in households											

Table 3-11. Balance of refinery gas (not liquefied), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	11032	5318	8253	15250	12884	9409	14029	13418	14127	13324	13300
Biofuel blended											
Import											
Export											
International marine bunkers											
Changes in stocks											
Gross inland consumption	11032	5318	8253	15250	12884	9409	14029	13418	14127	13324	13300
Statistical difference											
Transformed in power, heat and other plants:						71	92	88	109	101	172
- in public CHP plant											
- in auto-producer heat plant						71	92	88	109	101	
- in auto-producer CHP plant											172
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:	11032	5318	8253	15250	12884	9338	13937	13330	14018	13223	13128
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries	11032	5318	8253	15250	12884	9338	13937	13330	14018	13223	13128
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-12. Balance of bitumen, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	9534	1108	3117	6804	6421	3957	5829	4576	4938	5158	4288
Biofuel blended											
Import	40	791	474	1150	1836	3965	3321	828	1814	2208	1623
Export	1662	356	839	2587	2746	1729	2884	2359	2896	3736	2757
International marine bunkers											
Changes in stocks	40	39	71	28	-35	-155	176	110	-165	162	-286
Gross inland consumption	7952	1582	2823	5395	5476	6038	6442	3155	3691	3792	2868
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use	7952	1582	2823	5395	5476	6038	6442	3155	3691	3792	2868
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-13. Balance of lubricants, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production			1226	847	931	1093	1218	1257	1504	1675	1790
Biofuel blended											
Import	413	620	602	1121	1296	1252	1175	1150	1709	2181	2891
Export			924	843	1113	1352	1444	1711	2350	2950	3795
International marine bunkers					12						
Changes in stocks			129	-14	-53	16	39	58	-17	-34	-53
Gross inland consumption	413	620	1033	1111	1049	1009	988	754	846	872	833
Statistical difference			-84								
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use	413	620	949	1111	1049	1009	988	754	846	872	833
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-14. Balance of petroleum coke, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	1962	1393	2740	3940	3345	3199	4113	3892	3856	3882	3433
Biofuel blended											
Import				1100			1006		9		13
Export											
International marine bunkers											
Changes in stocks				-1054	325	793	-788	685	102	1	
Gross inland consumption	1962	1393	2740	3986	3670	3992	4331	4577	3967	3883	3446
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:	1962	1393	2740	3940	3345	3199	4113	3892	3856	3883	3433
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries	1962	1393	2740	3940	3345	3199	4113	3892	3856	3883	3433
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				46	325	793	218	685	111		13
- in industry				46	325	793	218	685	111		13
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-15. Balance of refinery feedstock, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production		8513	418	1827	1108	34	370	126	0		
Biofuel blended											
Import	1304	17209	13934	3568	13464	44038	13120	12327	12171	18931	23087
Export											9
International marine bunkers											
Changes in stocks	-1220	-8470	213	-1121	-1335	663	152	670	614	673	-352
Gross inland consumption	84	17252	14565	4274	13237	44735	13642	13123	12785	19604	22726
Statistical difference		-43									
Transformed in power, heat and other plants:	84	17209	14565	4274	13237	44735	13642	13123	12785	19604	22726
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries	84	17209	14565	4274	13237	44735	13642	13123	12785	19604	22726
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-16. Balance of naphtha, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				3477	2436	2071	1890	2031			
Biofuel blended											
Import											
Export				3257	2656	2071	1890	2031			
International marine bunkers											
Changes in stocks				-220	220						
Gross inland consumption											
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-17. Balance of orimulsion, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import		729	1383	1681	1655						
Export											
International marine bunkers											
Changes in stocks			-734	700	-461	1508	40				
Gross inland consumption		729	649	2381	1194	1508	40				
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant		729	649	2381	1194	1508	40				
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-18. Balance of shale oil, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import				73	90	81	172	103	19		
Export							77	36	18		
International marine bunkers											
Changes in stocks				-7	-2	-7	-9	-7	31		
Gross inland consumption				66	88	73	86	60	32		
Statistical difference											
Transformed in power, heat and other plants:				9	29	18	8	9	10		
- in public CHP plant											
- in auto-producer heat plant					21	10	8	8	9		
- in auto-producer CHP plant											
-in public heat plant				9	8	8		1	1		
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:							7				
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises							7				
Non-energy use											
Distribution and transmission losses											
Final consumption:				57	59	55	71	51	22		
- in industry				13	40	22	27				
- in construction											
- in transport											
- in agriculture				23		4	8	15	4		
- in fishing											
- in commercial / public services				21	19	29	36	36	18		
- in households											

Table 3-19. Balance of coking coal, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import	31752	6506	176	53	176	25	728	2167	4343	8929	8010
Export		50						27	438	464	575
International marine bunkers											
Changes in stocks	980	2889							-275	-970	-4
Gross inland consumption	32732	9345	176	53	176	25	728	2140	3630	7495	7431
Statistical difference											
Transformed in power, heat and other plants:	1834	452	25	53	50	25	50	58	55	51	71
- in public CHP plant											
- in auto-producer heat plant	930	326							23	7	
- in auto-producer CHP plant											
-in public heat plant	904	126	25	53	50	25	50	58	32	44	71
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use		25									
Distribution and transmission losses		25							0	8	9
Final consumption:	30898	8843	151		126		678	2082	3575	7436	7351
- in industry	1583	703	137		126		301	1240	2860	3750	4353
- in construction	226	25	14						0	11	7
- in transport											
- in agriculture	1557	50							3	23	16
- in fishing											
- in commercial / public services	12359	6632					176	566	406	2105	1302
- in households	15173	1433					201	276	305	1547	1673

Table 3-20. Balance of anthracite, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import			100				75	396	90	21	33
Export									1	1	5
International marine bunkers											
Changes in stocks									-74	71	-4
Gross inland consumption			100				75	396	15	91	24
Statistical difference											
Transformed in power, heat and other plants:			100					24			
- in public CHP plant											
- in auto-producer heat plant								24			
- in auto-producer CHP plant											
-in public heat plant			100								
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:							75	372	15	91	24
- in industry							75	372	5	91	24
- in construction									2		
- in transport											
- in agriculture									3		
- in fishing											
- in commercial / public services									4		
- in households									1		

Table 3-21. Balance of sub-bituminous coal, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import			2698	6618	8781	8193	7960	2567	3248	857	24
Export				37	71	181	195	359	406	127	
International marine bunkers											
Changes in stocks			11	-168	115	579	-1133	1009	672	-46	346
Gross inland consumption			2709	6413	8825	8591	6632	3217	3514	684	370
Statistical difference											
Transformed in power, heat and other plants:			150	207	205	200	141	52	100	85	49
- in public CHP plant											
- in auto-producer heat plant			69	60	64	67	49	16	34		
- in auto-producer CHP plant											
-in public heat plant			81	147	141	133	92	36	66	85	49
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:			4								
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises			4								
Non-energy use			7	3							
Distribution and transmission losses			11	6	17	12	7	10	8		
Final consumption:			2537	6197	8603	8379	6484	3155	3406	599	321
- in industry			5	3059	4316	4610	3736	688	207	16	19
- in construction				18	23	17	11	5	2	1	1
- in transport											
- in agriculture			14	36	50	19	15	14	8	3	2
- in fishing											
- in commercial / public services			1867	2036	2762	2053	1290	1257	1417	22	6
- in households			651	1048	1452	1680	1432	1191	1772	557	293

Table 3-22. Balance of coke, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import			445	440	786	712	456	294	466	517	543
Export											
International marine bunkers											
Changes in stocks			-52	96	-69	-2	31	27	7	5	11
Gross inland consumption			393	536	717	710	487	321	473	522	554
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use			47	2							
Distribution and transmission losses											
Final consumption:			346	534	717	710	487	321	473	522	554
- in industry			346	534	717	710	487	321	473	522	554
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-23. Balance of lignite, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import			15	40	36		1		14	22	
Export											
International marine bunkers											
Changes in stocks			1	2	4	3			-6	-10	2
Gross inland consumption			16	42	40	3	1		8	12	2
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:			16	42	40	3	1		8	12	2
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services			16	25	28	2	1			4	
- in households				17	12	1			8	8	2

Table 3-24. Balance of peat, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	580	600	494	825	640	616	790	616	364	492	709
Biofuel blended											
Import					6					2	
Export			76	1	36	14	59	81	104	142	153
International marine bunkers											
Changes in stocks	116	222	51	-235	-60	182	-282	-159	94	140	-68
Gross inland consumption	696	822	469	589	550	784	449	376	354	492	488
Statistical difference											
Transformed in power, heat and other plants:	445	357	258	299	380	688	345	285	202	135	103
- in public CHP plant					22	302	6	1			4
- in auto-producer heat plant	39	10	14			40				3	
- in auto-producer CHP plant											
-in public heat plant	67	96	80	128	133	149	111	135	102	132	99
- in geothermal plants											
- in other industries	339	251	163	171	225	197	228	149	100	113	85
Consumed in energy sector, total:		126	36	11	7	3				13	25
- in peat extraction enterprises			20	11	5	3					
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises		126	15		2					13	25
Non-energy use											
Distribution and transmission losses	9	10	5	7		24					
Final consumption:	242	329	170	272	163	69	104	91	152	231	275
- in industry	155	174	43	7	3	5	6	5	9	37	40
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services	87	58		21	15	10	26	24	44	85	112
- in households		97	127	244	145	54	72	62	99	109	123

Table 3-25. Balance of peat briquettes and peat pellets, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	264	205	152	166	216	198	228	144	95	114	83
Biofuel blended											
Import		132	2	161	217	354	525	600	785	1014	1138
Export					6	2	2	1		25	194
International marine bunkers											
Changes in stocks	-59	-15	-1	-39	6	-2	-19	42	-49	-181	76
Gross inland consumption	205	322	153	288	433	548	732	785	831	922	1103
Statistical difference											
Transformed in power, heat and other plants:				11	3		6	15	4		2
- in public CHP plant											
- in auto-producer heat plant				8	2		3	12	3		1
- in auto-producer CHP plant											
-in public heat plant				3	1		3	3	1		1
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:			2								
- in peat extraction enterprises			2								
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:	205	322	151	277	429	548	726	770	827	922	1101
- in industry	15	59		9	12	21	18	8	30	31	38
- in construction						1					
- in transport											
- in agriculture				3	3	11	7	5	18	19	21
- in fishing											
- in commercial / public services	29	59	1	32	43	128	176	208	218	269	333
- in households	161	204	150	233	371	387	525	549	561	603	709

Table 3-26. Balance of paraffin and waxes, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import				176	151	165	249	295	520	857	1139
Export				106	101	79	153	204	384	647	906
International marine bunkers											
Changes in stocks					4	-1		2	3	-46	-61
Gross inland consumption				70	54	85	96	93	139	164	172
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use				70	54	85	96	93	139	164	172
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-27. Balance of natural gas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production											
Biofuel blended											
Import	201957	84929	86453	104363	103830	124570	104651	91655	104017	114115	111200
Export	6102										
International marine bunkers											
Changes in stocks			-37	-671	-1081	-3501	4022	-326	304	-298	-68
Gross inland consumption	195855	84929	86416	103692	102749	121069	108673	91329	104321	113817	111132
Statistical difference											
Transformed in power, heat and other plants:	105124	41480	47241	57134	53699	50067	45905	45311	58186	48005	43280
- in public CHP plant	62825	17664	29650	42536	39866	36504	34538	34377	45755	37219	31684
- in auto-producer heat plant	6265	1391	688	667	578	590	746	521	558	568	470
- in auto-producer CHP plant	1787	473	324	1160	1053	940	256	990	1003	954	1881
-in public heat plant	34248	21952	16272	11414	11391	11918	10034	8818	10525	8994	8977
- in geothermal plants				819	420	90	30	503	345	270	268
- in other industries			307	538	391	25	301	102			
Consumed in energy sector, total:			140	130	100	99	98	72	65	199	130
- in peat extraction enterprises											
- in crude oil extraction enterprises			3	3	3	3	2	2	3	3	3
- in refineries			28	28	5	5	1	6	4	2	19
- in electricity, gas, steam and air conditioning enterprises			109	99	92	91	95	64	58	194	108
Non-energy use	26934	20167	22716	24288	25024	46416	39254	24153	22309	43370	44773
Distribution and transmission losses	1688	1935	1119	420	69	30		4	5	4	3
Final consumption:	62109	21347	15200	21720	23857	24457	23416	21789	23756	22239	22946
- in industry	36065	8916	8285	11620	12455	11819	11326	10540	11500	11055	11648
- in construction	1030	219	266	513	611	655	677	424	501	459	490
- in transport				647	1092	1145	1004	1015	1028	862	1330
- in agriculture	2946	1197	991	1192	1581	1653	1431	1132	1309	1273	1156
- in fishing											
- in commercial / public services	12831	3319	1302	2118	2254	3020	2874	2603	2793	2520	2652
- in households	9237	7696	4356	5630	5864	6165	6104	6075	6625	6070	5670

Table 3-28. Balance of charcoal, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				18	19	13	13	9	24	19	19
Biofuel blended											
Import				14	25	38	70	69	61	58	43
Export				15	16	16	18	43	38	36	34
International marine bunkers											
Changes in stocks				3	-4	1	-2	5	1		
Gross inland consumption				20	24	36	63	40	48	41	28
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				20	24	36	63	40	48	41	28
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services				20	24	36	63	40	48	41	28
- in households											

Table 3-29. Balance of wood and wood waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	11930	19632	27324	35293	37650	36839	39022	41787	41734	40955	41291
Biofuel blended											
Import		61	4	727	1003	957	1227	1972	2008	4603	4623
Export			255	710	1695	1923	2224	4705	5102	5431	4871
International marine bunkers											
Changes in stocks	-14	-381	-54	-498	-503	15	-113	123	444	-2044	722
Gross inland consumption	11916	19312	27019	34812	36455	35888	37912	39177	39084	38083	41765
Statistical difference				457	225						
Transformed in power, heat and other plants:	527	558	1640	6273	7272	7552	8899	10375	10408	9756	12910
- in public CHP plant				191	784	1597	1864	2331	2472	2359	3785
- in auto-producer heat plant	253	402	580	1128	939	992	813	680	772	706	1149
- in auto-producer CHP plant											
-in public heat plant	274	156	1060	4906	5501	4927	6195	7349	7121	6691	7976
- in geothermal plants											
- in other industries				48	48	36	27	15	43	36	42
Consumed in energy sector, total:			25	13	16	6	2	4	19	12	11
- in peat extraction enterprises				13	9	4		0	4	4	6
- in crude oil extraction enterprises											
- in refineries					4	1	1	1	1	2	4
- in electricity, gas, steam and air conditioning enterprises			25		3	1	1	3	14	6	1
Non-energy use											
Distribution and transmission losses			12	4	17						
Final consumption:	11389	18754	25342	28979	29375	28330	29011	28798	28657	28279	28802
- in industry	453	756	1218	4007	3586	3480	3273	2631	2920	3027	3400
- in construction	51	105	100	185	232	217	177	125	143	145	157
- in transport											
- in agriculture	187	211	272	253	264	320	371	400	399	463	437
- in fishing											
- in commercial / public services	1699	1104	1703	1278	1256	1189	1197	1185	1178	1276	1344
- in households	8999	16578	22049	23256	24037	23124	23993	24457	24017	23368	23464

Table 3-30. Balance of agricultural waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				96	104	150	174	184	228	212	242
Biofuel blended											
Import											
Export											
International marine bunkers											
Changes in stocks				16	-31	33	-39	-9	11	-9	-34
Gross inland consumption				112	73	183	135	175	239	203	208
Statistical difference											
Transformed in power, heat and other plants:				64	60	63	88	109	144	113	112
- in public CHP plant											1
- in auto-producer heat plant				9	17	11	11	15	13	13	10
- in auto-producer CHP plant											
-in public heat plant				55	43	52	77	94	131	100	101
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:					1			7	3	1	
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries								7			
- in electricity, gas, steam and air conditioning enterprises					1				3	1	
Non-energy use											
Distribution and transmission losses											
Final consumption:				48	12	120	47	59	92	89	96
- in industry				41	10	76	19	8	11	7	6
- in construction											
- in transport											
- in agriculture				2		44	28	51	56	56	59
- in fishing											
- in commercial / public services									18	25	28
- in households				5	2				7	1	3

Table 3-31. Balance of bioethanol, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				195	268	402	463	661	1060	565	656
Biofuel blended											
Import					70	116	250	94	106	234	286
Export				162	115	8	66	106	649	320	483
International marine bunkers											
Changes in stocks				-7	2	-16	9	-46	-3	-14	6
Gross inland consumption				26	225	494	656	603	514	465	465
Statistical difference											
Transformed in power, heat and other plants:					153	294	311	1			
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries					153	294	311	1			
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use							11	18	78	68	100
Distribution and transmission losses											
Final consumption:				26	72	200	334	584	436	397	365
- in industry											
- in construction											
- in transport				26	72	200	334	584	436	397	365
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-32. Balance of biodiesel, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				260	383	917	2390	3873	3299	2956	3948
Biofuel blended											
Import					227	1156	1639	1222	527	1273	1413
Export				168		235	1955	3434	2538	2726	3131
International marine bunkers											
Changes in stocks				27	-21	-76	-158	-80	166	-22	-62
Gross inland consumption				119	589	1762	1916	1581	1454	1481	2168
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				119	589	1762	1916	1581	1454	1481	2168
- in industry											
- in construction											
- in transport				119	589	1762	1916	1581	1454	1481	2168
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-33. Balance of biogas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				77	83	103	125	195	418	463	484
Biofuel blended											
Import											
Export											
International marine bunkers											
Changes in stocks											
Gross inland consumption				77	83	103	125	195	418	463	484
Statistical difference											
Transformed in power, heat and other plants:				43	42	48	66	108	229	335	353
- in public CHP plant				17	30	33	21	9	43	165	134
- in auto-producer heat plant											
- in auto-producer CHP plant				10	12	15	45	99	186	170	219
- in public heat plant				16							
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				34	41	55	59	87	189	128	131
- in industry				0	6	13	10	18	104	41	52
- in construction											
- in transport											
- in agriculture				13	9	12	14	17	15	6	
- in fishing											
- in commercial / public services				21	26	30	35	52	70	81	79
- in households											

Table 3-34. Balance of sludge biogas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				57	62	69	70	89	125	129	130
Biofuel blended											
Import											
Export											
International marine bunkers											
Changes in stocks											
Gross inland consumption				57	62	69	70	89	125	129	130
Statistical difference											
Transformed in power, heat and other plants:											
- in public CHP plant				36	36	39	35	37	55	56	52
- in auto-producer heat plant				17	30	33	21	9	8	13	10
- in auto-producer CHP plant				3	6	6	14	28	47	43	42
-in public heat plant				16							
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				21	26	30	35	52	70	73	78
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services				21	26	30	35	52	70	73	78
- in households											

Table 3-35. Balance of landfill biogas, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production							17	56	83	245	257
Biofuel blended											
Import											
Export											
International marine bunkers											
Changes in stocks											
Gross inland consumption							17	56	83	245	257
Statistical difference											
Transformed in power, heat and other plants:							17	56	83	237	256
- in public CHP plant									35	152	124
- in auto-producer heat plant											
- in auto-producer CHP plant							17	56	48	85	132
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:										8	1
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services										8	1
- in households											

Table 3-36. Balance of other biogas from agricultural waste, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production				20	21	34	38	50	210	89	97
Biofuel blended											
Import											
Export											
International marine bunkers											
Changes in stocks											
Gross inland consumption				20	21	34	38	50	210	89	97
Statistical difference											
Transformed in power, heat and other plants:				7	6	9	14	15	91	42	45
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant				7	6	9	14	15	91	42	45
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:				13	15	25	24	35	119	47	52
- in industry					6	13	10	18	104	41	52
- in construction											
- in transport											
- in agriculture				13	9	12	14	17	15	6	
- in fishing											
- in commercial / public services											
- in households											

Table 3-37. Balance of emulsified vacuum residue, TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production							557			19	
Biofuel blended											
Import											
Export										19	
International marine bunkers											
Changes in stocks											
Gross inland consumption							557				
Statistical difference											
Transformed in power, heat and other plants:							557				
- in public CHP plant							557				
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use											
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

Table 3-38. Balance of sulphur (from oil), TJ

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Production	960	400	1228	2971	2445	1705	2956	2789	2939	3068	2922
Biofuel blended											
Import											
Export			14	154			38	561	49		19
International marine bunkers											
Changes in stocks		-280	-101	-75	78	-90	102	11	6	3	-65
Gross inland consumption	960	120	1113	2742	2523	1615	3020	2239	2896	3071	2838
Statistical difference		280									
Transformed in power, heat and other plants:											
- in public CHP plant											
- in auto-producer heat plant											
- in auto-producer CHP plant											
-in public heat plant											
- in geothermal plants											
- in other industries											
Consumed in energy sector, total:											
- in peat extraction enterprises											
- in crude oil extraction enterprises											
- in refineries											
- in electricity, gas, steam and air conditioning enterprises											
Non-energy use	960	400	1113	2742	2523	1615	3020	2239	2896	3071	2838
Distribution and transmission losses											
Final consumption:											
- in industry											
- in construction											
- in transport											
- in agriculture											
- in fishing											
- in commercial / public services											
- in households											

ANNEX IV. Summary of study on "Determination of national GHG emission factors for energy sector", performed by Lithuanian Energy Institute in August 2012

During combustion a great share of carbon is removed immediately as CO₂, therefore conditions of combustion process practically have not influence on CO₂ emission factors. CO₂ emission factors depend on type of fuel, i.e. on the amount of carbon content in this fuel. After the summarization of performed comparative analysis of applied emission factors in other EU countries, summarization of data provided by the operators under the EU ETS system and aggregation of results provided by the accredited research laboratories, in this chapter of the study determined country specific CO₂ emission factors for energy sector (fuel combustion). Recommended values of country specific CO₂ emission factors are set considering to the results of analysis performed. Besides, determined values of emission factors have to assure low as possible uncertainty of emission factors.

CH₄ and N₂O emission factors are influenced by type of technology, operating conditions, age of equipment and other combustion conditions, therefore values of these emission factors significantly differ between the individual technologies. Seeking to precisely set country specific CH₄ and N₂O emission factors of energy technologies used in Lithuania, it is essential to perform comprehensive and multiplex measurements of emissions by differencing in accordance to the group of equipment and fuel type. However, the measurements have to be long-lasting, therefore in this study recommended values of CH₄ and N₂O emission factors are based in accordance to the results of analysis performed and default IPCC (1996) values.

Recommended CO₂, CH₄ and N₂O emission factors for energy sector are provided in Tables 1–4.

Recommended country specific CO₂ emission factor for natural gas is determined considering to the chemical composition of natural gas that was provided by Central Calibration and Test Laboratory of JSC "Lietuvos dujos", and considering the carbon content in natural gas.

Values of national CO₂ emission factors for coking coal, residual fuel oil, petroleum coke, orimulsion, non liquefied petroleum gas and coke are set on the basis of data provided by the operators under EU ETS and considering to the Tier 3 reliability that ensures the lowest uncertainty of emission factor. Sustaining to data base of EU ETS, in the some cases it is possible to apply emission factors set at the plant-specific level. For example, this can be applied for orimulsion combusted in Lithuania Thermal Power Plant or residual fuel oil combusted in CHP of the JSC "ORLEN Lietuva". For the national GHG inventory preparation it is essential to consider the possibility to apply plant-specific emission factors, because the application of these emission factors enables to use higher Tiers in national GHG inventory.

Values of national CO₂ emission factors for gasoline, diesel, gasoil, jet kerosene and liquefied petroleum gas are determined on the basis of measurement performed by accredited Laboratory of Quality Research Centre of JSC „ORLEN Lietuva“.

Value of CO₂ emission factor for shale oil is based on national Estonian emission factor considering to the fact that shale oil is imported to Lithuania from Estonia.

Country specific CO₂ emission factors for crude oil, waste oil and peat are determined taking into consideration results of performed measurements and calculations provided in various national studies.

Country specific CO₂ emission factor for wood and wood waste is specified by performed measurements in Laboratory of Heat Equipment Research and Testing (Lithuanian Energy Institute).

Recommended value of CO₂ emission factor for biogas is chosen in accordance to the results of analysis on applied emission factors in other EU countries and considering to the results of long-lasting research analysis performed in other countries. However, seeking to ensure low uncertainty of emission factor for biogas, it is essential to perform long-lasting measurements for different types of biogas in Lithuania.

Table 4-1. Recommended GHG emission factors for energy industries

1.AA.1 Energy industries sector	CO₂, t/TJ	CH₄, t/TJ	N₂O, t/TJ
Waste oil	77,11	0,003	0,0006
Gasoline	72,97	0,003	0,0006
Diesel	72,89	0,003	0,0006
Gasoil	72,89	0,003	0,0006
Residual fuel oil	77,60	0,003	0,0006
Petroleum coke	94,06	0,003	0,0006
Non liquefied petroleum gas	55,82	0,003	0,0006
Orimulsion	81,74	0,003	0,0006
Shale oil	77,40	0,003	0,0006
Liquefied petroleum gas	65,42	0,003	0,0006
Crude oil	77,74	0,003	0,0006
Coking coal	94,90	0,001	0,0014
Peat	104,34	0,001	0,0015
Natural gas	55,23	0,001	0,0001
Biogas	58,45	0,001	0,0001
Wood and wood waste	109,90	0,03	0,004

The reliabilities of recommended national CO₂ emission factors are assessed considering to the default IPCC (1996) emission factors and results of the comparative analysis of emission factors applied in other EU countries. The comparison of recommended national CO₂ emission factors with default IPCC (1996) emission factors is presented in Figure 1.

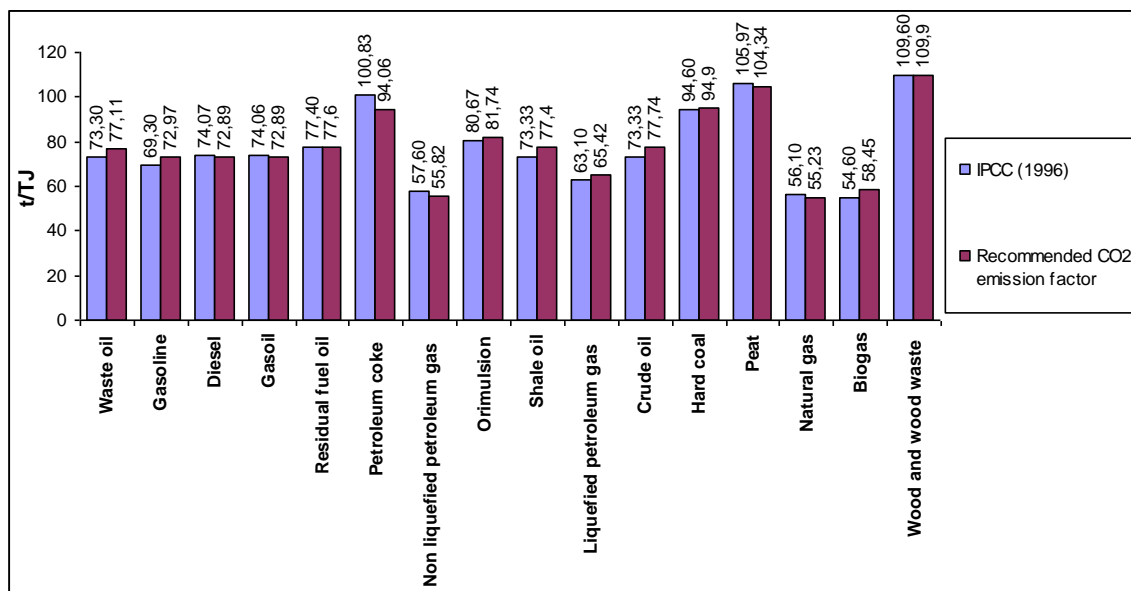


Figure 4-1. Comparison of recommended national CO₂ emission factors and default IPCC (1996) emission factors: energy industries

As it is seen from Figure 1, recommended values of national CO₂ emission factors are higher than default IPCC (1996) for many types of fuels. Recommended values of national CO₂ emission factors for diesel, gasoil, petroleum coke, non liquefied petroleum gas, peat and natural gas are lower than default IPCC (1996) values. Recommended national CO₂ emission factors of petroleum coke and non liquefied petroleum gas are lower than default values by 6,71% and 3,09%, respectively.

CO₂ emission factors for manufacturing industries and construction are recommended the same as for energy industries sector (Table 2). CH₄ and N₂O emission factors are selected considering to the results of analysis performed and default IPCC (1996) values.

Table 4-2. Recommended GHG emission factors for manufacturing industries and construction

1.AA.2 Manufacturing industries and construction	CO₂, t/TJ	CH₄, t/TJ	N₂O, t/TJ
Gasoil	72,89	0,002	0,0006
Residual fuel oil	77,60	0,002	0,0006
Petroleum coke	94,06	0,002	0,0006
Shale oil	77,40	0,002	0,0006
Liquefied petroleum gas	65,42	0,002	0,0006
Jet kerosene	72,24	0,002	0,0006
Coking coal	94,90	0,01	0,0015
Peat	104,34	0,002	0,0015
Coke	109,11	0,01	0,0015
Natural gas	55,23	0,005	0,0001
Biogas	58,45	0,001	0,0001
Wood and wood waste	109,9	0,03	0,004

Recommended values of CO₂, CH₄ and N₂O emission factors for transport sector are presented in Table 3. CO₂ emission factors of fuels (except aviation gasoline) used in transport sector are determined on the basis of measurement performed by accredited Laboratory of Quality Research Centre of JSC „ORLEN Lietuva“. Aviation gasoline is not produced in Lithuania. Minor volume of this fuel is imported from Sweden and other EU countries, therefore it is recommended for aviation gasoline to apply average value of emission factors applied in EU countries.

Table 4-3. Recommended GHG emission factors for transport sector

1.AA.3 Transport	CO₂, t/TJ	CH₄, t/TJ	N₂O, t/TJ
Aviation gasoline	71,62	0,0005	0,002
Gasoline	72,97	0,02	0,0006
Diesel	72,89	0,005	0,0006
Residual fuel oil	77,60	0,005	0,0006
Liquefied petroleum gas	65,42	0,005	0,0006
Jet kerosene	72,24	0,0005	0,002

The comparison of recommended national CO₂ emission factors with default IPCC (1996) emission factors are presented in Figure 2.

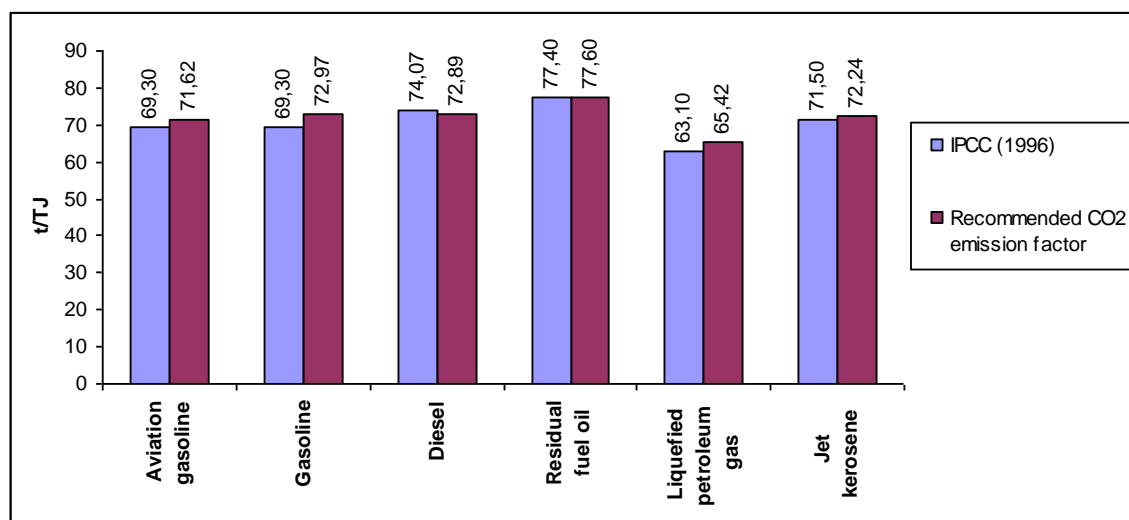


Figure 4-2. Comparison of recommended national CO₂ emission factors with default IPCC (1996) emission factors: transport sector

As it is seen from Figure 2, only in the case of diesel, recommended value of national CO₂ emission factor is lower than the default value (by 1,59%). In all other cases, recommended values of national CO₂ emission factors exceed default IPCC (1996) values by 0,26% (residual fuel oil) – 5,30% (gasoline).

Recommended values of CO₂, CH₄ and N₂O emission factors for service, household, agriculture and fishing sector are presented in Table 4.

Table 4-4. Recommended GHG emission factors for commercial/institutional, household, agriculture and fishing sectors

1.AA.3 Other sectors	Fuel type	CO₂, t/TJ	CH₄, t/TJ	N₂O, t/TJ
Commercial/ institutional sector	Coking coal	94,9	0,01	0,0014
	Biogas	58,45	0,005	0,0001
	Peat	104,34	0,01	0,0014
	Natural gas	55,23	0,005	0,0001
	Gasoil	72,89	0,01	0,0006
	Lignite	101,2	0,01	0,0014
	Wood and wood waste	109,9	0,3	0,004
	Residual fuel oil	77,6	0,01	0,0006
	Charcoal	109,9	0,2	0,001
	Shale oil	77,4	0,01	0,0006
	Liquefied petroleum gas	65,42	0,01	0,0006
Household sector	Coking coal	94,9	0,3	0,0014
	Peat	104,34	0,3	0,0014
	Natural gas	55,23	0,005	0,0001
	Gasoil	72,89	0,01	0,0006
	Lignite	101,2	0,3	0,0014
	Wood and wood waste	109,9	0,3	0,004
	Residual fuel oil	77,6	0,01	0,0006
	Liquefied petroleum gas	65,42	0,01	0,0006
Agriculture and fishing sector	Coking coal	94,9	0,3	0,0014
	Biogas	58,45	0,005	0,0001
	Peat	104,34	0,3	0,0014
	Natural gas	55,23	0,005	0,0001
	Gasoil	72,89	0,01	0,0006
	Wood and wood waste	109,9	0,3	0,004
	Residual fuel oil	77,6	0,01	0,0006
	Shale oil	77,4	0,01	0,0006
	Liquefied petroleum gas	65,42	0,01	0,0006

Recommended CO₂ emission factors for the main types of fuel are the same as for energy industries sector. Only in the case of lignite it is recommended to apply the default IPCC (1996) value.

Preparing the national GHG inventory, it is essential to evaluate the overall inventory uncertainty. For this purpose it is needed to have uncertainty estimates of emission factors, therefore in this study expert valuations of determined national emission factors uncertainties are performed.

Considering to international practice, uncertainty assessment of CO₂, N₂O and CH₄ emission factors is performed at aggregated sector-specific and fuel type-specific (liquid, solid, gaseous fuel and biomass) levels. Uncertainty estimations of recommended GHG emission factors are presented in Table 5.

Table 4-5. Uncertainties of recommended GHG emission factors

<i>IPCC source category</i>	<i>Fuel type</i>	CO ₂	CH ₄	N ₂ O
1.AA.1 Energy industries	Liquid fuel	± 2,5%	± 50%	± 50%
	Solid fuel	± 7%	± 50%	± 50%
	Natural gas	± 2,5%	± 50%	± 50%
	Biomass	± 50%	± 150%	± 150%
1.AA.2 Manufacturing industry and construction	Liquid fuel	± 2,5%	± 50%	± 50%
	Solid fuel	± 7%	± 50%	± 50%
	Natural gas	± 2,5%	± 50%	± 50%
	Biomass	± 50%	± 150%	± 150%
1.AA.3 Transport	Liquid fuel	± 2,5%	± 100%	± 150%
1.AA.3 Other sectors: commercial/institutional, household, agriculture and fishing	Liquid fuel	± 2,5%	± 50%	± 50%
	Solid fuel	± 7%	± 50%	± 50%
	Natural gas	± 2,5%	± 50%	± 50%
	Biomass	± 50%	± 150%	± 150%

Assessment of uncertainty of CO₂ emission factors is performed considering to the fact that carbon share of some types of fuels is relatively stable (for example, in the case of natural gas). Therefore uncertainties of CO₂ emission factors of these type of fuels are fairly small (±2,5%). Emission factors for liquid fuels mainly are identified at the accredited laboratory that satisfies the requirements of LST EN ISO/IEC 17025:2005 standard or are based on data provided by EU ETS applying the Tier 3. This has an influence on low uncertainties of emission factors for liquid fuel (±2,5%). Uncertainties of emission factors for solid fuel are remarkably higher, because, for example, carbon share in peat is variable, therefore uncertainties of emission factors for solid fuels are estimated considering to the recommendations provided in IPCC methodology. Uncertainty of CO₂ emission factor for biomass is the highest and reaches ±50%.

Uncertainties of aggregated CH₄ and N₂O emission factors are very high, since these emission factors highly depend on type of combustion technologies. Assessment of uncertainties of these emission factors are performed considering to IPCC Guidelines for National GHG inventories (2006).

ANNEX V. CO₂ emissions from the installations registered in the GHG Emission Allowance Registry, 2012

Table 5-1. CO₂ emissions from the installations registered in the GHG Emission Allowance Registry, 2012

No	Company	Installation ID	Name of the installation	EUA Allocations	Verified emissions, t CO ₂	Corresponding CRF Sector (Fuel combustion)
1	AB Akmenės cementas	LT-1	Boiler house, cement production furnace	985617	815541	1.AA.2.F Other
2	AB Naujasis kalcitas	LT-2	Whitewash production furnace	102722	47151	1.AA.2.F Other
3	UAB Švenčionėlių keramika	LT-3	Furnace for ceramics	10601	1390	1.AA.2.F Other
4	UAB Tauragės keramika	LT-4	Ceramics combustion furnace	10907	0	1.AA.2.F Other
5	UAB Rokų keramika	LT-6	Ceramics combustion furnace	6076	1424	1.AA.2.F Other
6	AB Palemono keramika	LT-7	Ceramics combustion furnace	7950	3934	1.AA.2.F Other
7	AB Dvarčionių keramika	LT-8	Ceramics combustion furnace	11225	5542	1.AA.2.F Other
8	AB Alytaus keramika	LT-10	Ceramics combustion furnace	1563	631	1.AA.2.F Other
9	UAB Kauno stiklas	LT-12	Glass melting furnace	38116	14833	1.AA.2.F Other
10	AB Guartis	LT-13	Glass melting furnace	23802	22142	1.AA.2.F Other
11	AB ORLEN Lietuva	LT-14	Oil refining factory	2320645	1731630	1.AA.1.B Petroleum Refining
12	AB Klaipėdos kartonas	LT-15	Boiler house	32312	34955	1.AA.2. D Pulp, Paper and Print
13	AB Grigiškės	LT-16	Boiler house	85930	51	1.AA.2. D Pulp, Paper and Print
14	AB Simega	LT-17	Boiler house	13045	0	1.AA.4.C Agriculture/ Forestry/ Fisheries
15	AB Achema	LT-18	Boiler house	425479	212377	1.AA.2.C Chemicals
16	AB Nordic Sugar Kėdainiai	LT-20	Boiler house, oilcake desiccation	55599	30554	1.AA.2.E Food processing, Beverages and Tobacco
17	AB Anykščių vynas	LT-22	Boiler house	2987	2648	1.AA.2.E Food processing, Beverages and Tobacco
18	AB Lifosa	LT-23	Boiler house	99939	848	1.AA.2.C Chemicals
19	UAB Lino apdaila	LT-24	Boiler house	10607	0	1.AA.2.F Other
20	AB Klaipėdos nafta	LT-27	Boiler house	19691	23851	1.AA.1.A Public electricity and heat production
21	Ū.B. Dembavos šiltnamiai	LT-29	Boiler house	4879	158	1.AA.4.C Agriculture/ Forestry/ Fisheries
22	UAB ARVI cukrus	LT-30	Boiler house	17153	16233	1.AA.2.E Food processing, Beverages and Tobacco
23	AB Įmonių grupė "Alita"	LT-31	Boiler house, desiccation of apple oilcake	7457	1373	1.AA.2.E Food processing, Beverages and Tobacco
24	UAB Pasodėlė	LT-32	Boiler house	4663	0	1.AA.4.C Agriculture/ Forestry/ Fisheries
25	AB Klaipėdos mediena	LT-33	Boiler house	28551	13774	1.AA.4.C Agriculture/ Forestry/ Fisheries
26	UAB Matuizų plytinė	LT-35	Boiler house	14911	0	1.AA.2.F Other

No	Company	Installation ID	Name of the installation	EUA Allocations	Verified emissions, t CO ₂	Corresponding CRF Sector (Fuel combustion)
27	AB Jonavos šilumos tinklai	LT-36	Jonava boiler house	28261	30385	1.AA.1.A Public electricity and heat production
28	AB Jonavos šilumos tinklai	LT-37	Girele boiler house	8532	0	1.AA.1.A Public electricity and heat production
29	UAB Mažeikių šilumos tinklai	LT-38	Mazeikiai boiler house	43068	5739	1.AA.1.A Public electricity and heat production
30	UAB Raseinių šilumos tinklai	LT-39	Raseiniai boiler house No 4	8817	1673	1.AA.1.A Public electricity and heat production
31	UAB Ukmergės šiluma	LT-40	Ukmerge boiler house No 1	5941	5568	1.AA.1.A Public electricity and heat production
32	UAB Molėtų šiluma	LT-42	Moletai boiler house	7643	0	1.AA.1.A Public electricity and heat production
33	UAB Šilutės šilumos tinklai	LT-43	Šilute boiler house	18726	3308	1.AA.1.A Public electricity and heat production
34	UAB Vilniaus energija	LT-44	Vilnius power plant No 2 (E-2)	461733	362067	1.AA.1.A Public electricity and heat production
35	UAB Vilniaus energija	LT-45	Vilnius power plant No 3 (E-3)	599578	297312	1.AA.1.A Public electricity and heat production
36	UAB Vilniaus energija	LT-46	Vilnius boiler house No 2	26017	4567	1.AA.1.A Public electricity and heat production
37	UAB Vilniaus energija	LT-48	Vilnius boiler house No 8	17944	4322	1.AA.1.A Public electricity and heat production
38	UAB Širvintų šiluma	LT-49	Širvintu boiler house No 3	9846	22	1.AA.1.A Public electricity and heat production
39	AB Šiaulių energija	LT-50	Šiauliai southern boiler house	144617	65655	1.AA.1.A Public electricity and heat production
40	AB Klaipėdos energija	LT-54	Gargždai boiler house no. 4	8466	8139	1.AA.1.A Public electricity and heat production
41	AB Klaipėdos energija	LT-55	Power plant	92021	61430	1.AA.1.A Public electricity and heat production
42	UAB Radviliškio šiluma	LT-56	Radviliškis city boiler house	12328	1330	1.AA.1.A Public electricity and heat production
43	UAB Utenos šilumos tinklai	LT-57	Utena boiler house	39985	8878	1.AA.1.A Public electricity and heat production
44	UAB Tauragės šilumos tinklai	LT-58	Taurage - Berže boiler house	20149	1291	1.AA.1.A Public electricity and heat production
45	UAB Šalčininkų šilumos tinklai	LT-60	Šalčininkai boiler house	6013	5557	1.AA.1.A Public electricity and heat production
46	VI Pravieniškų 2-ieji pataisos namai	LT-61	Katiline	4966	4162	1.AA.1.A Public electricity and heat production
47	UAB Varėnos šiluma	LT-62	Varena boiler house	19408	910	1.AA.1.A Public electricity and heat production
48	AB Panevėžio energija	LT-63	Panevėžys boiler house No 2	58222	21484	1.AA.1.A Public electricity and heat production
49	AB Panevėžio energija	LT-64	Rokiškis region boiler house	31806	3243	1.AA.1.A Public electricity and heat production
50	AB Panevėžio energija	LT-65	Panevėžys region boiler house No 1	63048	28929	1.AA.1.A Public electricity and heat production
51	AB Panevėžio energija	LT-66	Pasvalys region boiler house	7360	5868	1.AA.1.A Public electricity and heat production
52	AB Panevėžio energija	LT-67	Zarasai boiler house No 4	8158	1280	1.AA.1.A Public electricity and heat production
53	UAB Geoterma	LT-68	Klaipėda geothermal PP	44552	15216	1.AA.1.A Public electricity and heat production
54	AB Kauno energija	LT-69	Petrašiunai PP	21390	3320	1.AA.1.A Public electricity and heat production
55	AB Kauno energija	LT-70	Pergale boiler house	5687	2627	1.AA.1.A Public electricity and heat production

No	Company	Installation ID	Name of the installation	EUA Allocations	Verified emissions, t CO ₂	Corresponding CRF Sector (Fuel combustion)
56	AB Kauno energija	LT-71	Šilkas boiler house	2965	9608	1.AA.1.A Public electricity and heat production
57	AB Kauno energija	LT-72	Noreikiškes region boiler house	9976	3327	1.AA.1.A Public electricity and heat production
58	AB Kauno energija	LT-73	Garliava region boiler house	7264	1953	1.AA.1.A Public electricity and heat production
59	AB Kauno energija	LT-74	Jurbarkas region boiler house	9054	8220	1.AA.1.A Public electricity and heat production
60	UAB Ignalinos šilumos tinklai	LT-75	Ignalina boiler house No 2	8999	0	1.AA.1.A Public electricity and heat production
61	UAB Plungės šilumos tinklai	LT-76	Plunge boiler house No 1	19131	532	1.AA.1.A Public electricity and heat production
62	UAB Birštono šiluma	LT-77	Birštonas region boiler house	5014	904	1.AA.1.A Public electricity and heat production
63	UAB Litesko filialas "Druskininkų šiluma"	LT-78	Druskininkai industry boiler house	40450	26713	1.AA.1.A Public electricity and heat production
64	UAB Litesko filialas "Biržų šiluma"	LT-79	Boiler house of Biržai city hall	10896	879	1.AA.1.A Public electricity and heat production
65	UAB Litesko filialas "Vilkaviškio šiluma"	LT-80	Vilkaviškis boiler house	8027	3953	1.AA.1.A Public electricity and heat production
66	UAB Litesko filialas "Telšų šiluma"	LT-81	Luokeboiler house	14835	6634	1.AA.1.A Public electricity and heat production
67	UAB Litesko filialas "Kelmės šiluma"	LT-82	Mackevicius boiler house	5694	763	1.AA.1.A Public electricity and heat production
68	UAB Litesko filialas "Palangos šiluma"	LT-83	Palanga boiler house	19052	6830	1.AA.1.A Public electricity and heat production
69	UAB Litesko filialas "Marijampolės šiluma"	LT-84	Kazlu Ruda boiler house	5422	860	1.AA.1.A Public electricity and heat production
70	UAB Litesko filialas "Marijampolės šiluma"	LT-85	Marijampole region boiler house	37160	17430	1.AA.1.A Public electricity and heat production
71	UAB Litesko filialas "Alytaus energija"	LT-86	Alytus region boiler house	110422	39987	1.AA.1.A Public electricity and heat production
72	AB Lietuvos elektrinė	LT-87	Lietuvos PP	635895	919143	1.AA.1.A Public electricity and heat production
73	UAB Kauno termofikacijos elektrinė	LT-88	Kaunas PP	562250	395603	1.AA.1.A Public electricity and heat production
74	UAB Kaišiadorių šiluma	LT-89	Kaišiadoriai boiler house	8585	2275	1.AA.1.A Public electricity and heat production
75	UAB Kretingos šilumos tinklai	LT-90	Kretinga boiler house No 2	9914	0	1.AA.1.A Public electricity and heat production
76	AB Klaipėdos energija	LT-91	Klaipeda region boiler house	75096	44847	1.AA.1.A Public electricity and heat production
77	AB Klaipėdos energija	LT-92	Lypkiai regiopn boiler house	21436	38976	1.AA.1.A Public electricity and heat production
78	AB Klaipėdos energija	LT-93	Gargždai boiler house	2210	283	1.AA.1.A Public electricity and heat production
79	AB Pagirių šiltnamiai	LT-94	boiler house	26326	2	1.AA.1.A Public electricity and heat production
80	AB Prienų šilumos tinklai	LT-95	Prienai boiler house No 2	200	0	1.AA.1.A Public electricity and heat production
81	UAB Pramonės energija	LT-96	CHP-1	55193	0	1.AA.1.A Public electricity and heat production
82	VI Ignalinos atominė elektrinė	LT-97	Boiler house	18791	5913	1.AA.1.A Public electricity and heat production
83	UAB Prienų energija	LT-99	Lentvaris boiler house	3236	1625	1.AA.1.A Public electricity and heat production
84	UAB Gargždų plytų gamykla	LT-100	Boiler house	3436	0	1.AA.2.F Other

No	Company	Installation ID	Name of the installation	EUA Allocations	Verified emissions, t CO ₂	Corresponding CRF Sector (Fuel combustion)
85	UAB Akmenės energija	LT-101	Zalgoris boiler house	16294	2583	1.AA.1.A Public electricity and heat production
86	AB Panevėžio energija	LT-102	Panevežys thermal PP	100300	50104	1.AA.1.A Public electricity and heat production
87	UAB Swedspan Girių Bizonas	LT-103	Fuel combustion plants	67436	17237	1.AA.4.C Agriculture/ Forestry/ Fisheries
88	AB Grigiškės PGC Naujieji Verkiai	LT-104	Boiler house	8151	0	1.AA.2. D Pulp, Paper and Print
89	UAB NEO GROUP	LT-105	Boiler house	59231	38495	1.AA.2.C Chemicals
90	AB Panevėžio energija	LT-106	Kedaniai region boiler house	20963	669	1.AA.1.A Public electricity and heat production
91	UAB Paroc	LT-107	Plants producing stone-wool	70149	61250	1.AA.2.C Chemicals
92	UAB Vilniaus energija	LT-109	Region boiler house No 7	1367	332	1.AA.1.A Public electricity and heat production
93	AB Vilniaus GKG-3	LT-108	Boiler DE-14-25 GM	550	0	1.AA.1.A Public electricity and heat production
94	UAB Agro Neveronys	LT-112	Boiler house	34192	0	1.AA.4.C Agriculture/ Forestry/ Fisheries
95	UAB Pramonės energija	LT-114	Boiler house	23275	728	1.AA.1.A Public electricity and heat production
96	VĮ "Visagino energija"	LT-115	Thermal boiler house	66236	74057	1.AA.1.A Public electricity and heat production
			Total:	8371774	5718037	

Annex VI. LULUCF AREA MATRIX, RESULTED FROM STUDIES PRESENTED IN CHAPTER 7.1.1

1990

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2054182	399	3994	2396	399	0	2061370	7188
Cropland	0	2402468	22367	0	799	399	2426033	-39541
Grassland	0	61110	1237381	3595	799	4793	1307678	42339
Wetlands	0	399	399	362268	0	0	363066	-5193
Settlements	0	1198	1198	0	321128	799	324323	1198
Other land	0	0	0	0	0	47530	47530	-5991
Initial	2054182	2465574	1265339	368259	323125	53521	6530000	0

1991

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2061370	399	3994	2396	399	0	2068559	7189
Cropland	0	2362926	22367	0	799	399	2386492	-39541
Grassland	0	61110	1279719	3595	799	4793	1350015	42337
Wetlands	0	399	399	357075	0	0	357874	-5192
Settlements	0	1198	1198	0	322326	799	325521	1198
Other land	0	0	0	0	0	41539	41539	-5991
Initial	2061370	2426033	1307678	363066	324323	47530	6530000	0

1992

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2068559	399	3195	1997	0	399	2074550	5991
Cropland	0	2320189	25562	0	0	799	2346550	-39942
Grassland	0	62308	1320858	2396	1598	4793	1391954	41939
Wetlands	0	399	0	353480	0	2396	356276	-1598
Settlements	0	2396	399	0	323924	399	327119	1598
Other land	0	799	0	0	0	32752	33551	-7988
Initial	2068559	2386492	1350015	357874	325521	41539	6530000	0

1993

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2074550	1198	3994	0	0	0	2079742	5192
Cropland	0	2283842	23565	1198	799	1598	2311003	-35547
Grassland	0	59513	1363595	1598	1598	5192	1431496	39542
Wetlands	0	399	399	353480	0	399	354679	-1597
Settlements	0	799	399	0	324723	0	325921	-1198
Other land	0	799	0	0	0	26361	27160	-6391
Initial	2074550	2346550	1391954	356276	327119	33551	6530000	0

1994

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2079343	0	2396	399	399	0	2082538	2796
Cropland	0	2239508	29157	0	0	799	2269464	-41539
Grassland	0	67501	1398344	799	799	5592	1473034	41538
Wetlands	0	799	0	353480	0	399	354679	0
Settlements	0	2796	1598	0	324723	0	329116	3195
Other land	399	399	0	0	0	20370	21169	-5991
Initial	2079742	2311003	1431496	354679	325921	27160	6530000	0

1995

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2082538	0	1598	799	0	0	2084935	2397
Cropland	0	2206756	25962	0	0	399	2233117	-36347
Grassland	0	59513	1444277	2396	2796	4394	1513375	40341
Wetlands	0	799	1198	351483	0	1198	354679	0
Settlements	0	1997	0	0	326320	399	328717	-399
Other land	0	399	0	0	0	14778	15178	-5991
Initial	2082538	2269464	1473034	354679	329116	21169	6530000	0

1996

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2084935	399	3195	1598	0	0	2090127	5192
Cropland	0	2207555	8388	0	0	0	2215942	-17175
Grassland	0	25163	1501792	399	0	0	1527355	13980
Wetlands	0	0	0	352682	0	0	352682	-1997
Settlements	0	0	0	0	328717	0	328717	0
Other land	0	0	0	0	0	15178	15178	0
Initial	2084935	2233117	1513375	354679	328717	15178	6530000	0

1997

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2090127	799	2396	399	0	0	2093722	3595
Cropland	0	2163619	19571	0	0	399	2183590	-32352
Grassland	0	51125	1504588	0	0	0	1555713	28358
Wetlands	0	0	399	352282	0	0	352682	0
Settlements	0	399	399	0	328317	0	329116	399
Other land	0	0	0	0	399	14778	15178	0
Initial	2090127	2215942	1527355	352682	328717	15178	6530000	0

1998

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2093722	0	3195	0	0	399	2097317	3595
Cropland	0	2096518	37944	0	0	0	2134462	-49128
Grassland	0	86273	1514174	0	0	0	1600447	44734
Wetlands	0	0	0	352282	0	0	352282	-400
Settlements	0	399	399	399	329116	0	330314	1198
Other land	0	399	0	0	0	14778	15178	0
Initial	2093722	2183590	1555713	352682	329116	15178	6530000	0

1999

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2096917	399	1598	1198	0	0	2100113	2796
Cropland	0	2036606	51924	0	0	0	2088530	-45932
Grassland	0	97057	1546127	0	0	0	1643184	42737
Wetlands	399	0	0	351084	0	0	351483	-799
Settlements	0	399	799	0	330314	0	331513	1199
Other land	0	0	0	0	0	15178	15178	0
Initial	2097317	2134462	1600447	352282	330314	15178	6530000	0

2000

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2100113	399	2396	2396	0	399	2105704	5591
Cropland	0	1978292	51125	0	0	0	2029416	-59114
Grassland	0	107841	1588465	399	399	0	1697105	53921
Wetlands	0	0	0	348687	0	0	348687	-2796
Settlements	0	1997	1198	0	331113	0	334309	2796
Other land	0	0	0	0	0	14778	14778	-400
Initial	2100113	2088530	1643184	351483	331513	15178	6530000	0

2001

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2105704	799	2396	0	0	0	2108900	3196
Cropland	0	1925170	42338	0	0	0	1967507	-61909
Grassland	0	103049	1651572	399	399	399	1755819	58714
Wetlands	0	0	0	348288	0	0	348288	-399
Settlements	0	399	399	0	333909	399	335107	798
Other land	0	0	399	0	0	13979	14379	-399
Initial	2105704	2029416	1697105	348687	334309	14778	6530000	0

2002

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2108900	0	3994	399	0	0	2113293	4393
Cropland	0	1878438	40341	0	0	0	1918779	-48728
Grassland	0	88270	1711084	0	0	0	1799355	43536
Wetlands	0	0	399	347889	0	799	349087	799
Settlements	0	799	0	0	335107	0	335906	799
Other land	0	0	0	0	0	13580	13580	-799
Initial	2108900	1967507	1755819	348288	335107	14379	6530000	0

2003

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2112894	799	3595	1198	399	0	2118885	5592
Cropland	0	1853275	23565	0	0	0	1876841	-41938
Grassland	0	64705	1771396	0	0	399	1836500	37145
Wetlands	399	0	0	347889	0	0	348288	-799
Settlements	0	0	399	0	335507	0	335906	0
Other land	0	0	399	0	0	13181	13580	0
Initial	2113293	1918779	1799355	349087	335906	13580	6530000	0

2004

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2118486	399	6391	1598	0	0	2126873	7988
Cropland	0	1825716	29157	0	0	0	1854873	-21968
Grassland	0	50326	1800154	399	0	0	1850879	14379
Wetlands	399	0	799	346291	0	399	347889	-399
Settlements	0	399	0	0	335906	0	336306	400
Other land	0	0	0	0	0	13181	13181	-399
Initial	2118885	1876841	1836500	348288	335906	13580	6530000	0

2005

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2126474	799	5592	1598	0	399	2134861	7988
Cropland	0	1815331	19971	0	0	0	1835302	-19571
Grassland	0	37545	1824917	0	0	0	1862462	11583
Wetlands	0	0	399	346291	0	399	347090	-799
Settlements	399	1198	0	0	336306	0	337903	1597
Other land	0	0	0	0	0	12382	12382	-799
Initial	2126873	1854873	1850879	347889	336306	13181	6530000	0

2006

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2134063	799	5592	1598	0	0	2142051	7190
Cropland	0	1802949	90267	0	0	0	1893217	57915
Grassland	0	31154	1764206	799	0	0	1796159	-66303
Wetlands	0	399	399	344693	0	0	345492	-1598
Settlements	399	0	1598	0	337903	0	339900	1997
Other land	399	0	399	0	0	12382	13181	799
Initial	2134861	1835302	1862462	347090	337903	12382	6530000	0

2007

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2142051	2796	3195	1997	0	399	2150439	8388
Cropland	0	1866057	86673	0	0	0	1952729	59512
Grassland	0	24364	1705093	0	0	0	1729457	-66702
Wetlands	0	0	399	343495	0	0	343894	-1598
Settlements	0	0	799	0	339900	0	340699	799
Other land	0	0	0	0	0	12781	12781	-400
Initial	2142051	1893217	1796159	345492	339900	13181	6530000	0

2008

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2150439	1598	4793	399	0	0	2157229	6790
Cropland	0	1925969	100253	0	399	0	2026621	73892
Grassland	0	24764	1622015	399	0	0	1647178	-82279
Wetlands	0	0	799	343096	0	0	343894	0
Settlements	0	399	799	0	340300	0	341498	799
Other land	0	0	799	0	0	12781	13580	799
Initial	2150439	1952729	1729457	343894	340699	12781	6530000	0

2009

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2156829	0	3195	0	0	0	2160024	2795
Cropland	0	2009046	71495	0	0	0	2080541	53920
Grassland	0	17175	1570891	0	799	399	1589264	-57914
Wetlands	399	0	399	343894	0	0	344693	799
Settlements	0	399	799	0	340699	0	341897	399
Other land	0	0	399	0	0	13181	13580	0
Initial	2157229	2026621	1647178	343894	341498	13580	6530000	0

2010

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2160024	399	5592	399	0	0	2166415	6391
Cropland	0	2078944	5991	0	0	0	2084935	4394
Grassland	0	1198	1577681	799	0	0	1579678	-9586
Wetlands	0	0	0	343495	0	0	343495	-1198
Settlements	0	0	0	0	341897	0	341897	0
Other land	0	0	0	0	0	13580	13580	0
Initial	2160024	2080541	1589264	344693	341897	13580	6530000	0

2011

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2166415	1997	4793	0	0	0	2173205	6790
Cropland	0	2076547	13979	0	0	0	2090527	5592
Grassland	0	6391	1560905	399	0	0	1567695	-11983
Wetlands	0	0	0	343096	0	0	343096	-399
Settlements	0	0	0	0	341897	0	341897	0
Other land	0	0	0	0	0	13580	13580	0
Initial	2166415	2084935	1579678	343495	341897	13580	6530000	0

2012

Land category	Forest land	Cropland	Grassland	Wetlands	Settlements	Other land	Final	Net change
Forest land	2173205	1997	8787	799	0	0	2184788	11583
Cropland	0	2083337	30335	0	0	0	2113692	30355
Grassland	0	5192	1527355	0	0	0	1532547	5192
Wetlands	0	0	0	342297	0	0	342297	0
Settlements	0	0	799	0	341897	0	342696	799
Other land	0	0	399	0	0	13580	13979	399
Initial	2173205	2090527	2090527	343096	341897	13580	6530000	0

Annex VII IMPROVEMENTS IN RESPONSE TO PROVISIONAL MAIN FINDINGS AND RECOMMENDATIONS PROVIDED DURING REVIEW OF LITHUANIA'S 2013 ANNUAL SUBMISSION

Category	Provisional issue	Potential recommendation	Lithuania's response	Where in the NIR/CRF
<i>Cross-cutting issues</i>				
Key categories	In the NIR Annex 1, Lithuania presents its tier 1 and tier 2 key category analyses. The ERT noted that the tier 2 analyses were not performed in line with the IPCC good practice guidance. The ERT believes that the introduction of the tier 2 key category analysis has resulted in incorrect key categories in the Lithuanian inventory, e.g. N ₂ O from other sectors. In response to a question raised by the ERT during the review, Lithuania provided underlying calculations sheets. The ERT concluded that LTU was not calculating the parameters "percentage contribution to level" and "cumulative total" correctly. In addition, Lithuania uses a 95 per cent threshold also for the tier 2 assessment without justifying it, which is not in line with IPCC good practice guidance.	The ERT recommends Lithuania to perform the key category analyses tier 2 in line with IPCC good practice guidance in its next annual submission	The tier 2 key categories analyses were performed in line with IPCC good practice guidance in this submission.	Chapter 1.5, Annex I
<i>Energy</i>				
Feedstocks and non-energy use of fuels	The previous ERT recommended to cross-check the data reported as non-energy use in the energy sector and the data reported under the industrial processes. In annex VIII of the NIR Lithuania states that it has done so and has provided information in the NIR. However, for 2011 the ERT noted that the calculated CO ₂ non-emitted from the use of natural gas	The ERT recommends to cross-check the data further in the future and include information on these cross-checks in the appropriate section of the NIR.	Lithuania performed cross-check of the data and included information in the NIR.	NIR (Chapter 3.2.3)

Category	Provisional issue	Potential recommendation	Lithuania`s response	Where in the NIR/CRF
	for non-energy purposes in table 1A(d) differs from CO ₂ emissions from ammonia production in 2B1. In response to a question raised during the review week, Lithuania responded that they did do a cross-check between the natural gas data used in IP and in table 1A(d). The small difference results from the use the net calorific value used for the natural gas. In the IP sector a specific calorific value is based on average annual lower calorific value of natural gas which is calculated on the basis of reports from the natural gas supplier AB Lietuvos dujos, which measures the calorific value twice a month. In the energy sector calculations are based on data provided by Lithuanian Statistics where fuel is calculated in terms of tonnes of oil equivalent and terajoules using the net calorific value (see table 3-12 in the NIR, page 85).			
Feedstocks and non-energy use of fuels	The previous ERT recommended to include in 1A(d) in the documentation box more information on the energy use of gaseous fuels (and allocation of possible related emissions). Lithuania states in annex VIII that it has included information on the non-energy use of gaseous fuels in the NIR.	However, the ERT does not find this information sufficient and recommends to include more information in the NIR and/or in table 1A(d), along with a documented cross-check between the energy sector and industrial processes where applicable.	Lithuania included information in the CRF table 1A(d).	CRF table 1A(d)
1.A.3 e Other transportation	Lithuania has used in the last submission a CS emission factor for natural gas of 55.23 t CO ₂ /TJ in all energy subsectors, except in other transportation where 56.90 t CO ₂ /TJ was used. In response to a question raised by the ERT during the review, Lithuania agreed that there is no reason to use a	The ERT recommends Lithuania to perform this recalculation and include it in the next submission	In this year submission the updated country-specific CO ₂ EF (55.23 t CO ₂ /TJ) based on the results of national study “Determination of national GHG emission factors for energy sector” prepared by Lithuanian Energy Institute was used. Lithuania included information on	NIR Chapter 3.4.5. Other (CRF 1.A.3.e; 1.A.5.b) (Table 3-56).

Category	Provisional issue	Potential recommendation	Lithuania`s response	Where in the NIR/CRF
	different emission factor in this subsectors, and that in the next submission the emissions will be recalculated using the CS emission factor of 55.23 t CO ₂ /TJ.		recalculations in the NIR.	
Industrial processes				
2.F.1 Refrigeration and Air Conditioning Equipment (commercial refrigeration)	Lithuania reports for the disposal emissions of commercial refrigeration NO. As the usage started in 1995 and the lifetime is according the NIR of Lithuania p. 227 to 228 between 10 to 15 years, disposal must have started by 2010. The ERT consider this is as a potential underestimation.	ERT strongly recommends to calculate emissions from disposal from commercial refrigeration in the next submission based on the IPCC good practice guidance and/or the Revised 1996 IPCC guidelines. If Lithuania choses a method not based on the IPCC good practice guidance and/or the Revised 1996 IPCC guidelines, Lithuania has to provide justification that it is not a potential underestimation and why this method is better representing the situation in Lithuania.	HFC emissions from disposal from Commercial refrigeration subcategory (CRF 2.F.1.2) were calculated in this submission.	Chapter 4.7.1.2
2.F.1 Refrigeration and Air Conditioning Equipment (industrial refrigeration)	Lithuania reports for the disposal emissions of industrial refrigeration NO. As the usage started in 1995 and the lifetime is according the NIR of Lithuania p. 227 to 228 between 10 to 15 years, disposal must have started. The ERT consider this is as a potential underestimation.	ERT strongly recommends to calculate emissions from disposal from industrial refrigeration in the next submission based on the IPCC good practice guidance and/or the Revised 1996 IPCC guidelines. If Lithuania choses a method not based on the IPCC good practice guidance and/or the Revised 1996 IPCC guidelines, Lithuania has to provide justification that it is not a potential underestimation and why this method is better representing the situation in Lithuania.	HFC emissions from disposal from Industrial refrigeration subcategory (CRF 2.F.1.4) were calculated in this submission.	Chapter 4.7.1.4
2.F.1	Lithuania reports for the disposal	ERT strongly recommends to	HFC emissions from disposal from	Chapter 4.7.1.5

Category	Provisional issue	Potential recommendation	Lithuania`s response	Where in the NIR/CRF								
Refrigeration and Air Conditioning Equipment (stationary air-conditioning)	emissions of stationary air-conditioning as not estimated ("NE"). The ERT consider this is as a potential underestimation. During the review week Lithuania provided preliminary estimations based on the 2006 IPCC guidelines method for the disposal emissions.	calculate the emissions of stationary air-conditioning from disposal for the next submission based on the IPCC good practice guidance and/or the Revised 1996 IPCC guidelines. If Lithuania chooses a method not based on the IPCC good practice guidance and/or the Revised 1996 IPCC guidelines, Lithuania has to proof that it is not a potential underestimation and why this method is better to present the situation in Lithuania.	Stationary air-conditioning subcategory (CRF 2.F.1.5) were calculated in this submission.									
Agriculture												
4. B. Manure Management	For a number of years (i.e., 1991, 1995, 1997, 1999-2005, 2007, and 2009-2011) Table 4.B(a)s2 has incorrect values for the per cent of manure allocated to the different animal waste management systems.	While the ERT is confident that Lithuania used the correct per cent values in their calculations, the ERT recommends that Lithuania improve its QC of the CRF tables to ensure the appropriate values are populated in the CRF tables.	This error was corrected in 2014 submission.	CRF 4.B(a)s2								
Waste												
6.B.Waste water handling	In table 8-36 on p458 in the NIR 2013 the values on methane recovery of sewage sludge are declined compared with previous submission (NIR 2012 p 348 table 8-20). The NIR 2013 does not mention a recalculation.	The ERT recommends Lithuania to report recalculations in a more transparent in the next annual submission.	Data on methane recovery from sewage sludge were modified taking into consideration information reported by the Statistics Lithuania. Data provided by the companies in volume were recalculated to weight (Gg) using mass/volume ratio calculated from statistical data (see NIR, p. 458). Impact of recalculations of CH ₄ recovery from sewage sludge is provided in Table below.									
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Category	Provisional issue	Potential recommendation	Lithuania`s response					Where in the NIR/CRF
				submis sion	us submis sion	Gg	%	
			1999	0.22	0.28	-0.06	-20.0%	
			2000	0.84	1.01	-0.17	-16.6%	
			2001	0.85	1.02	-0.17	-16.5%	
			2002	0.85	1.02	-0.17	-16.5%	
			2003	0.91	1.09	-0.18	-16.4%	
			2004	0.94	1.13	-0.19	-16.7%	
			2005	1.14	1.36	-0.22	-16.1%	
			2006	1.24	1.48	-0.24	-16.1%	
			2007	1.38	1.57	-0.19	-12.0%	
			2008	1.40	1.68	-0.28	-16.5%	
			2009	1.78	2.12	-0.34	-16.0%	
			2010	2.50	2.84	-0.34	-12.0%	
6.B.Waste water handling	Lithuania has reported in the NIR on p 456 paragraph 8.3.2 on wastewater discharge that wastewater discharge in 1990 was estimated by linear extrapolation of 1991-1993 data with the reason of the very substantial decrease in water usage and water discharge after the restoration of independence. The sentence before last on NIR p456 says the BOD discharge in 1990 was assumed to be the same as in 1991 and also in table 8-35 on p 457 the Gg BOD is the same for 1990 and 1991. The information in the two paragraphs is not consistent.	The ERT recommends Lithuania to correct the information in the NIR for the next submission.	The information was corrected in submission 2014. BOD discharge in 1990 was assumed to be the same as in 1991.					NIR Chapter 8.3.2
KP-LULUCF								
Deforestation	The ERT noted that the carbon gains and losses in above ground and below ground biomass are reported as "IE". According to paragraph 21 of the Annex ot16/CMP.1, five carbon pools should be reported.	Thus, the carbon gains and losses in above ground and below ground biomass must be reported in CRF table 5(KP-I)A.2.	Corrections were made in the relevant CRF tables (KP.A.2) and explanation provided in the NIR 2014.					NIR Chapter 11.3, CRF table KP.A.2

