

Greenhouse Gas Emission from Fuel Combustion

1. Sectoral Approach CO₂ Emissions

Unit: thousand tonnes CO₂

Year	Energy	Industrial	Transport	Agriculture	Service	Residential	Total
1990	49,123	30,117	19,646	2,946	3,621	4,005	109,459
1991	55,126	31,956	20,888	2,700	3,529	4,238	118,436
1992	58,529	33,383	24,033	2,672	2,989	4,446	126,052
1993	65,962	33,611	26,103	2,675	2,490	4,359	135,199
1994	70,771	34,586	27,540	2,721	3,018	4,461	143,097
1995	76,400	35,763	28,822	2,777	2,445	4,597	150,803
1996	81,254	36,785	29,801	2,805	3,175	4,754	158,572
1997	91,407	39,075	30,536	2,475	2,482	4,851	170,826
1998	100,414	39,311	31,844	2,041	2,946	4,952	181,509
1999	105,782	41,305	32,772	2,040	3,128	5,410	190,437
2000	121,143	43,934	33,207	2,362	3,205	5,354	209,205
2001	126,142	42,545	33,246	2,455	3,538	5,181	213,107
2002	130,463	44,814	34,542	2,459	3,487	5,107	220,870
2003	141,730	42,788	34,509	2,811	3,952	5,042	230,832
2004	148,677	43,163	35,859	2,977	4,120	5,133	239,929
2005	154,751	42,671	36,846	2,627	4,227	5,235	246,356
2006	161,926	43,994	36,771	1,647	4,272	5,033	253,643
2007	168,230	43,293	35,419	1,091	4,232	5,047	257,313
2008	162,724	39,098	33,216	1,543	4,226	5,017	245,824
2009	153,406	36,693	33,541	1,169	4,264	5,030	234,103
2010	163,969	41,353	34,652	1,113	4,204	4,857	250,147
2011	168,674	42,289	35,107	1,123	3,898	4,786	255,878
2012	166,846	40,991	34,284	1,259	3,635	4,672	251,687
2013	166,645	42,009	34,209	1,274	3,812	4,484	252,434
2014	175,180	38,944	34,667	1,343	3,928	4,411	258,472
2015	175,198	38,065	35,506	1,287	3,941	4,469	258,467
2016	178,402	38,287	36,585	1,276	3,720	4,537	262,806
2017	187,135	36,731	36,202	1,203	3,779	4,402	269,452
2018	189,201	32,856	35,543	1,151	3,640	4,494	266,884

2. Sectoral Approach CH₄ Emissions

Unit: thousand tonnes CH₄

Year	Energy	Industrial	Transport	Agriculture	Service	Residential	Total
1990	1.02	1.83	6.07	0.39	0.48	0.33	10.12
1991	1.15	1.93	6.54	0.36	0.47	0.35	10.79
1992	1.12	2.06	7.46	0.36	0.39	0.36	11.76
1993	1.28	2.06	8.08	0.36	0.32	0.36	12.45
1994	1.40	2.10	8.62	0.37	0.39	0.37	13.24
1995	1.62	2.15	9.13	0.37	0.31	0.38	13.96
1996	1.64	2.24	9.58	0.38	0.41	0.39	14.63
1997	1.82	2.34	9.81	0.33	0.32	0.40	15.02
1998	2.02	2.37	10.28	0.27	0.38	0.41	15.74
1999	2.33	2.53	10.65	0.27	0.40	0.44	16.63
2000	2.63	2.78	10.81	0.32	0.41	0.44	17.39
2001	2.79	2.84	10.89	0.33	0.44	0.43	17.72
2002	2.77	3.00	11.12	0.33	0.44	0.42	18.09
2003	3.13	2.93	11.46	0.38	0.50	0.42	18.82
2004	3.23	3.02	11.80	0.40	0.51	0.42	19.38
2005	3.30	3.00	12.12	0.35	0.52	0.43	19.72
2006	3.45	3.11	11.91	0.22	0.52	0.42	19.63
2007	3.53	3.08	11.58	0.15	0.52	0.42	19.27
2008	3.46	2.82	11.01	0.21	0.52	0.41	18.43
2009	3.20	2.68	11.23	0.16	0.52	0.42	18.21
2010	3.38	2.94	11.38	0.15	0.50	0.40	18.75
2011	3.42	3.15	11.50	0.15	0.47	0.40	19.08
2012	3.39	3.03	11.33	0.17	0.44	0.39	18.75
2013	3.36	3.10	11.34	0.17	0.46	0.37	18.81
2014	3.50	2.97	11.42	0.18	0.47	0.36	18.91
2015	3.65	2.95	11.68	0.17	0.47	0.37	19.29
2016	3.67	2.95	12.03	0.17	0.44	0.37	19.64
2017	3.76	2.78	11.81	0.16	0.45	0.36	19.32
2018	3.74	2.33	11.49	0.15	0.43	0.37	18.52

3. Sectoral Approach N₂O Emissions

Unit: thousand tonnes N₂O

Year	Energy	Industrial	Transport	Agriculture	Service	Residential	Total
1990	0.46	0.30	0.98	0.02	0.03	0.01	1.80
1991	0.53	0.32	1.04	0.02	0.03	0.01	1.94
1992	0.61	0.34	1.19	0.02	0.02	0.01	2.19
1993	0.69	0.34	1.28	0.02	0.02	0.01	2.36
1994	0.75	0.34	1.35	0.02	0.02	0.01	2.49
1995	0.81	0.35	1.40	0.02	0.02	0.01	2.61
1996	0.91	0.37	1.44	0.02	0.02	0.01	2.77
1997	1.01	0.38	1.47	0.02	0.02	0.01	2.90
1998	1.11	0.39	1.53	0.02	0.02	0.01	3.08
1999	1.21	0.41	1.57	0.02	0.02	0.01	3.25
2000	1.44	0.45	1.59	0.02	0.02	0.01	3.53
2001	1.54	0.45	1.59	0.02	0.02	0.01	3.64
2002	1.61	0.48	1.66	0.02	0.02	0.01	3.80
2003	1.80	0.46	1.66	0.02	0.03	0.01	3.99
2004	1.86	0.47	1.72	0.02	0.03	0.01	4.12
2005	1.95	0.47	1.77	0.02	0.03	0.01	4.25
2006	2.04	0.49	1.77	0.01	0.03	0.01	4.35
2007	2.13	0.48	1.71	0.01	0.03	0.01	4.36
2008	2.06	0.44	1.60	0.01	0.03	0.01	4.15
2009	1.98	0.42	1.61	0.01	0.03	0.01	4.05
2010	2.01	0.45	1.67	0.01	0.03	0.01	4.18
2011	2.03	0.48	1.69	0.01	0.02	0.01	4.25
2012	2.01	0.46	1.66	0.01	0.02	0.01	4.17
2013	1.99	0.47	1.66	0.01	0.02	0.01	4.16
2014	2.01	0.45	1.68	0.01	0.02	0.01	4.18
2015	1.96	0.44	1.72	0.01	0.02	0.01	4.17
2016	1.99	0.44	1.77	0.01	0.02	0.01	4.24
2017	2.08	0.41	1.75	0.01	0.02	0.01	4.28
2018	2.12	0.34	1.72	0.01	0.02	0.01	4.22

4. Sectoral Approach CO₂ Emissions (including electricity / heat allocation)

Unit: thousand tonnes CO₂

Year	Energy	Industrial	Transport	Agriculture	Service	Residential	Total
1990	15,569	50,478	19,729	3,601	9,414	10,667	109,459
1991	16,025	55,075	20,975	3,465	10,733	12,163	118,436
1992	15,742	58,896	24,138	3,405	10,966	12,906	126,052
1993	17,213	61,823	26,212	3,533	12,062	14,357	135,199
1994	19,122	64,208	27,645	3,586	13,509	15,028	143,097
1995	20,194	67,407	28,929	3,730	14,127	16,417	150,803
1996	21,152	70,267	29,920	3,843	15,749	17,641	158,572
1997	23,959	77,204	30,703	3,589	16,824	18,548	170,826
1998	25,615	80,650	32,035	3,078	18,622	21,508	181,509
1999	26,055	86,603	32,982	3,138	19,604	22,055	190,437
2000	28,541	97,808	33,452	3,576	21,935	23,893	209,205
2001	29,659	98,788	33,489	3,661	23,031	24,478	213,107
2002	29,296	103,713	34,799	3,718	24,112	25,234	220,870
2003	30,969	107,759	34,768	4,169	26,275	26,891	230,832
2004	32,735	112,782	36,144	4,355	27,054	26,859	239,929
2005	33,817	114,118	37,158	4,005	28,610	28,650	246,356
2006	35,114	119,761	37,103	3,103	29,766	28,797	253,643
2007	35,717	124,541	35,904	2,546	29,605	29,000	257,313
2008	32,420	118,537	33,847	2,980	29,424	28,615	245,824
2009	31,114	109,865	34,161	2,563	28,110	28,290	234,103
2010	33,182	122,643	35,287	2,503	28,596	27,937	250,147
2011	33,871	127,007	35,769	2,573	28,244	28,413	255,878
2012	33,140	125,701	34,953	2,687	27,745	27,461	251,687
2013	32,747	127,605	34,888	2,695	27,504	26,995	252,434
2014	37,262	127,415	35,369	2,805	27,900	27,722	258,472
2015	37,151	125,764	36,234	2,811	28,579	27,928	258,467
2016	37,117	127,016	37,324	2,816	29,023	29,510	262,806
2017	37,868	130,634	37,009	2,876	30,416	30,650	269,452
2018	37,785	132,007	36,323	2,722	28,662	29,385	266,884

5. Sectoral Approach CH₄ Emissions (including electricity / heat allocation)

Unit: thousand tonnes CH₄

Year	Energy	Industrial	Transport	Agriculture	Service	Residential	Total
1990	0.29	2.24	6.07	0.41	0.62	0.49	10.12
1991	0.29	2.41	6.54	0.38	0.64	0.54	10.79
1992	0.27	2.55	7.47	0.37	0.56	0.54	11.76
1993	0.30	2.59	8.09	0.38	0.53	0.57	12.45
1994	0.34	2.68	8.62	0.38	0.61	0.59	13.24
1995	0.38	2.82	9.13	0.40	0.59	0.65	13.96
1996	0.39	2.92	9.58	0.40	0.68	0.67	14.63
1997	0.41	3.12	9.81	0.36	0.62	0.69	15.02
1998	0.44	3.25	10.29	0.30	0.71	0.75	15.74
1999	0.48	3.63	10.66	0.30	0.76	0.80	16.63
2000	0.53	4.05	10.82	0.34	0.81	0.83	17.39
2001	0.56	4.26	10.89	0.36	0.83	0.81	17.72
2002	0.55	4.32	11.13	0.36	0.88	0.85	18.09
2003	0.61	4.41	11.47	0.41	1.00	0.91	18.82
2004	0.64	4.61	11.81	0.43	1.00	0.89	19.38
2005	0.62	4.59	12.13	0.38	1.06	0.95	19.72
2006	0.62	4.80	11.91	0.25	1.09	0.95	19.63
2007	0.61	4.84	11.59	0.18	1.09	0.96	19.27
2008	0.54	4.60	11.02	0.24	1.08	0.95	18.43
2009	0.52	4.30	11.24	0.19	1.04	0.92	18.21
2010	0.52	4.71	11.39	0.18	1.04	0.91	18.75
2011	0.51	4.96	11.51	0.18	1.00	0.91	19.08
2012	0.50	4.85	11.35	0.20	0.97	0.88	18.75
2013	0.46	4.94	11.36	0.20	0.98	0.87	18.81
2014	0.56	4.82	11.43	0.21	1.00	0.88	18.91
2015	0.57	4.86	11.70	0.21	1.05	0.91	19.29
2016	0.56	4.87	12.05	0.21	1.02	0.94	19.64
2017	0.57	4.75	11.82	0.20	1.03	0.94	19.32
2018	0.56	4.36	11.51	0.19	0.98	0.92	18.52

6. Sectoral Approach N₂O Emissions (including electricity / heat allocation)

Unit: thousand tonnes N₂O

Year	Energy	Industrial	Transport	Agriculture	Service	Residential	Total
1990	0.09	0.52	0.98	0.03	0.10	0.09	1.80
1991	0.09	0.57	1.04	0.03	0.11	0.10	1.94
1992	0.10	0.64	1.19	0.03	0.12	0.11	2.19
1993	0.11	0.66	1.28	0.03	0.14	0.13	2.36
1994	0.13	0.69	1.35	0.03	0.15	0.14	2.49
1995	0.14	0.72	1.40	0.03	0.16	0.15	2.61
1996	0.16	0.78	1.44	0.04	0.19	0.17	2.77
1997	0.17	0.84	1.47	0.03	0.20	0.18	2.90
1998	0.19	0.89	1.53	0.03	0.22	0.22	3.08
1999	0.21	0.98	1.58	0.03	0.23	0.22	3.25
2000	0.25	1.12	1.60	0.04	0.27	0.25	3.53
2001	0.27	1.19	1.60	0.04	0.28	0.26	3.64
2002	0.28	1.24	1.67	0.04	0.31	0.28	3.80
2003	0.31	1.32	1.67	0.04	0.34	0.31	3.99
2004	0.31	1.39	1.73	0.04	0.34	0.31	4.12
2005	0.29	1.45	1.77	0.04	0.37	0.33	4.25
2006	0.31	1.52	1.77	0.03	0.38	0.34	4.35
2007	0.32	1.59	1.71	0.03	0.38	0.34	4.36
2008	0.28	1.52	1.61	0.03	0.37	0.33	4.15
2009	0.28	1.44	1.62	0.03	0.35	0.33	4.05
2010	0.28	1.54	1.68	0.03	0.34	0.31	4.18
2011	0.28	1.59	1.70	0.03	0.34	0.31	4.25
2012	0.27	1.57	1.67	0.03	0.33	0.30	4.17
2013	0.25	1.60	1.67	0.03	0.33	0.29	4.16
2014	0.27	1.57	1.69	0.03	0.32	0.30	4.18
2015	0.27	1.53	1.73	0.03	0.32	0.29	4.17
2016	0.27	1.53	1.78	0.03	0.33	0.31	4.24
2017	0.28	1.56	1.76	0.03	0.34	0.32	4.28
2018	0.28	1.56	1.73	0.03	0.32	0.31	4.22

7. Reference Approach CO₂ Emissions

Unit: thousand tonnes CO₂

Year	Coal and Coal Products Total	Crude Oil and Petroleum Products Total	Natural Gas	Waste	Total
1990	41,324	65,190	2,945	-	109,460
1991	44,983	68,667	5,259	12	118,921
1992	52,049	68,696	5,331	107	126,182
1993	57,983	74,621	5,182	120	137,905
1994	60,443	76,827	7,066	238	144,574
1995	62,790	81,363	7,489	357	151,999
1996	71,225	80,689	7,883	453	160,250
1997	81,676	82,360	9,130	611	173,777
1998	88,689	85,463	11,611	1,130	186,893
1999	91,662	89,298	11,560	1,654	194,175
2000	108,203	89,976	13,091	2,118	213,388
2001	113,788	85,075	14,563	2,730	216,156
2002	123,419	83,609	16,575	2,730	226,333
2003	130,698	81,681	17,187	3,461	233,027
2004	136,732	83,434	20,236	3,760	244,163
2005	139,366	84,319	20,895	4,171	248,751
2006	146,361	85,179	21,952	3,960	257,453
2007	152,815	80,622	23,775	4,992	262,204
2008	146,547	72,502	25,407	4,776	249,232
2009	140,064	68,109	24,837	4,874	237,884
2010	149,743	69,727	31,135	4,801	255,405
2011	155,881	67,180	34,297	5,248	262,607
2012	152,155	63,120	35,814	5,186	256,276
2013	154,945	61,632	35,664	5,192	257,433
2014	156,842	62,155	37,895	5,092	261,983
2015	151,977	61,513	40,630	5,036	259,156
2016	152,456	64,063	42,468	4,504	263,491
2017	155,105	63,472	46,695	4,522	269,795
2018	157,414	60,200	47,235	5,299	270,147

8. Reference Approach CH₄ Emissions

Unit: thousand tonnes CH₄

Year	Coal and Coal Products Total	Crude Oil and Petroleum Products Total	Natural Gas	Waste	Total
1990	0.38	2.61	0.05	-	3.05
1991	0.39	2.76	0.09	0.01	3.25
1992	0.46	2.76	0.10	0.03	3.35
1993	0.50	3.00	0.09	0.03	3.63
1994	0.53	3.09	0.13	0.09	3.83
1995	0.59	3.29	0.13	0.15	4.15
1996	0.69	3.27	0.14	0.23	4.33
1997	0.79	3.34	0.16	0.31	4.60
1998	0.87	3.47	0.21	0.40	4.95
1999	0.89	3.63	0.21	0.65	5.37
2000	1.06	3.67	0.23	0.81	5.77
2001	1.12	3.47	0.26	1.09	5.94
2002	1.20	3.40	0.30	1.12	6.01
2003	1.20	3.34	0.31	1.45	6.30
2004	1.36	3.39	0.36	1.51	6.62
2005	1.40	3.44	0.37	1.51	6.71
2006	1.46	3.44	0.39	1.55	6.84
2007	1.48	3.26	0.42	1.63	6.79
2008	1.44	2.95	0.45	1.65	6.49
2009	1.42	2.77	0.44	1.59	6.22
2010	1.47	2.82	0.55	1.61	6.46
2011	1.57	2.73	0.61	1.65	6.56
2012	1.50	2.58	0.64	1.66	6.38
2013	1.51	2.52	0.64	1.66	6.33
2014	1.55	2.51	0.68	1.65	6.39
2015	1.49	2.49	0.72	1.71	6.41
2016	1.51	2.60	0.76	1.68	6.54
2017	1.52	2.57	0.83	1.63	6.55
2018	1.52	2.45	0.84	1.70	6.51

9. Reference Approach N₂O Emissions

Unit: thousand tonnes N₂O

Year	Coal and Coal Products Total	Crude Oil and Petroleum Products Total	Natural Gas	Waste	Total
1990	0.66	0.52	0.01	-	1.18
1991	0.71	0.55	0.01	0.00	1.27
1992	0.83	0.55	0.01	0.00	1.39
1993	0.92	0.60	0.01	0.00	1.53
1994	0.96	0.61	0.01	0.01	1.60
1995	1.00	0.65	0.01	0.02	1.68
1996	1.13	0.65	0.01	0.03	1.82
1997	1.29	0.66	0.02	0.04	2.02
1998	1.41	0.69	0.02	0.05	2.17
1999	1.45	0.72	0.02	0.09	2.28
2000	1.71	0.73	0.02	0.11	2.58
2001	1.80	0.69	0.03	0.15	2.66
2002	1.95	0.68	0.03	0.15	2.81
2003	2.07	0.67	0.03	0.19	2.96
2004	2.17	0.68	0.04	0.20	3.08
2005	2.21	0.68	0.04	0.20	3.13
2006	2.32	0.69	0.04	0.21	3.25
2007	2.42	0.65	0.04	0.22	3.33
2008	2.32	0.59	0.05	0.22	3.17
2009	2.22	0.55	0.04	0.21	3.03
2010	2.37	0.56	0.06	0.21	3.21
2011	2.47	0.54	0.06	0.22	3.29
2012	2.41	0.52	0.06	0.22	3.21
2013	2.45	0.50	0.06	0.22	3.24
2014	2.48	0.50	0.07	0.22	3.27
2015	2.40	0.50	0.07	0.23	3.20
2016	2.41	0.52	0.08	0.22	3.23
2017	2.45	0.51	0.08	0.22	3.27
2018	2.49	0.49	0.08	0.23	3.29

10. Fuel Combustion CO₂ Emission Indicators

Year	CO ₂ Emissions (thousand tonnes CO ₂)	CO ₂ Emissions Intensity (kilogram CO ₂ /NTD)	Emissions Per capita (tonnes of CO ₂ per capita)
1990	109,459	0.02284	5.41
1991	118,436	0.02280	5.79
1992	126,052	0.02241	6.10
1993	135,199	0.02251	6.48
1994	143,097	0.02216	6.80
1995	150,803	0.02193	7.11
1996	158,572	0.02172	7.41
1997	170,826	0.02205	7.92
1998	181,509	0.02248	8.33
1999	190,437	0.02210	8.67
2000	209,205	0.02281	9.46
2001	213,107	0.02354	9.57
2002	220,870	0.02311	9.85
2003	230,832	0.02319	10.23
2004	239,929	0.02263	10.59
2005	246,356	0.02205	10.84
2006	253,643	0.02149	11.11
2007	257,313	0.02047	11.23
2008	245,824	0.01942	10.69
2009	234,103	0.01878	10.14
2010	250,147	0.01814	10.81
2011	255,878	0.01788	11.03
2012	251,687	0.01723	10.82
2013	252,434	0.01691	10.81
2014	258,472	0.01664	11.04
2015	258,467	0.01651	11.02
2016	262,806	0.01654	11.18
2017	269,452	0.01645	11.44
2018	266,884	0.01587	11.32