

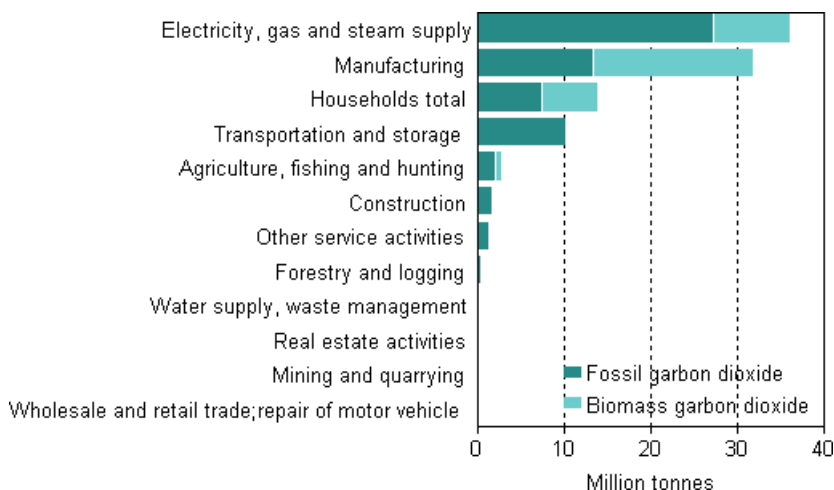
Emissions into air by industry 2010

Carbon dioxide emissions from private motoring larger than those from professional land transport

Carbon dioxide emissions from private motoring amounted to good five million tonnes in 2010. The amount of emissions was larger than in professional land transport, which carbon dioxide emissions were slightly over four million tonnes. In addition, professional water transport generated carbon dioxide emissions to the tune of three million, similarly as did air transport.

In all, carbon dioxide emissions of fossil fuels produced directly by households amounted to 7,6 million tonnes and biofuels to 6,5 million tonnes. In addition to motoring, households' carbon dioxide emissions are generated from heating. Emissions from households' purchased electricity and heating are calculated in the industry of energy production.

Carbon dioxide emissions into air by industry groups 2010



Carbon dioxide emissions from fossil fuels produced by Finnish residents in Finland or abroad totalled 66 million tonnes in 2010. The corresponding emissions from manufacturing were nearly 13,5 million tonnes and from energy production 27 million tonnes. Emissions from energy production are caused by the production of electricity, heating and cooling supplied to production and consumption. In addition, the use of biofuels produced 35 million tonnes of carbon dioxide emissions.

Emissions into air by industry groups 2010, tonnes

Industry (TOL2008)	Fossil carbon dioxide (CO ₂)	Biomass carbon dioxide (CO ₂ -bio)	Nitrous oxide (N ₂ O)	Methane (CH ₄)	Sulphur dioxide (SO ₂)	Nitrogen dioxide (NO ₂)	Carbon monoxide (CO)
Agriculture, fishing and aquaculture, hunting	2 298 410	672 191	12 910	91 213	1 370	14 240	17 858
Manufacturing	13 547 952	18 431 278	1 131	1 020	26 559	33 247	30 493
Electricity, gas, steam and air conditioning	27 327 537	8 889 751	1 075	1 104	31 255	44 239	19 271
Trade, transportation and other service activities	12 346 949	142 694	495	2 233	23 332	96 882	78 962
Other industries	3 004 138	47 692	613	96 875	389	17 492	25 343
Households	7 587 446	6 539 310	383	13 145	3 300	25 791	306 103
Total	66 112 434	34 722 917	16 606	205 590	86 205	231 892	478 030

Emissions into air by industry are new statistics at Statistics Finland and the results are now released for the first time. The statistics are part of the environmental accounts, where the main principle is to describe the interaction between the environment and the economy in such ways that assist decision-making and research. In the statistics on emissions into air by industry, emissions are presented according to the industrial classification used in national accounts. In this way, the data on emissions into air can be directly connected to various monetary variables of national accounts, such as total output and value added.

The statistics on emissions into air by industry include carbon dioxide emissions from biofuels. These emissions are not included in the greenhouse gas emission data submitted to the UNFCCC Secretariat by Finland. Differing from the greenhouse gas inventory and greenhouse gas reporting, the statistics on emissions into air by industry also contain Finnish citizens' emissions from land, water and air transport abroad. In turn, emissions by foreign citizens from land, water and air transport on Finnish territory are subtracted from the emissions into air by industry. The definition of transport also corresponds with the approach of national accounts in which households' transport is included in private consumption.

The industrial classification and division do not correspond with the sector division used in the reporting of the greenhouse gas emissions. The statistics on emissions into air by industry do not either take into consideration the amount of carbon dioxide absorbed by forest or other vegetation.

The European Union's regulation concerning environmental accounts obliges the Member States to compile statistics and report annually on emissions into air by industry; for the first time in September 2013 concerning data for the years 2008 to 2011.

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Appendix tables

Appendix table 1. Fossil carbon dioxide emissions (CO₂) 2008-2010, tonnes¹⁾

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	52 791 703	50 690 878	58 524 988
Agriculture, fishing and aquaculture, hunting	2 348 209	2 247 526	2 298 410
Forestry and logging	600 047	541 021	571 060
Mining and quarrying	159 891	157 057	281 054
Manufacturing	14 586 094	12 061 129	13 547 952
Food industry	179 570	264 260	257 539
Forest industry	3 903 863	3 202 637	3 680 888
Petroleum refining and chemical industry	4 480 368	4 417 271	4 396 041
Metal industry	3 946 801	2 784 896	3 571 013
Other industries	2 075 493	1 392 065	1 642 471
Electricity, gas, steam and air conditioning supply	20 933 772	21 932 310	27 327 537
Water supply; sewerage, waste management and remediation activities	299 663	341 494	339 809
Construction	1 571 295	1 544 947	1 812 216
Wholesale and retail trade; repair of motor vehicles and motorcycles	91 932	80 135	168 090
Transportation and storage	10 635 276	10 241 868	10 327 346
Land transport and transport via pipelines	4 222 459	4 025 957	4 080 191
Water transport	2 600 756	2 713 946	3 056 361
Air transport	3 555 842	3 294 482	3 029 457
Postal activities and support activities for transportation	256 220	207 483	161 336
Real estate activities	245 717	226 468	276 560
Accommodation, communication, financial, administrative, education, social work and other service activities	1 319 807	1 316 923	1 574 954
HOUSEHOLDS TOTAL	7 828 106	7 369 113	7 587 446
Transport	5 711 939	5 243 795	5 220 836
Heating	1 998 017	2 022 301	2 257 511
Other	118 149	103 017	109 099
AIR EMISSIONS TOTAL	60 619 809	58 059 991	66 112 434
(-) Finnish residents' transport emissions abroad	5 958 811	5 801 235	5 871 422
(+) non-residents' transport emissions in Finland	312 782	298 227	302 244
(+/-) other bridging items	3 128 817	2 635 141	3 145 308
Reported emissions as per UNFCCC in 2012	58 102 598	55 192 124	63 688 564

1) Includes emissions from combustion of peat.

Appendix table 2. Biomass carbon dioxide emissions (CO2-bio) 2008-2010, tonnes

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	27 462 468	23 148 735	28 183 607
Agriculture, fishing and aquaculture, hunting	531 687	598 032	672 191
Forestry and logging	516	2 729	4 497
Mining and quarrying	..	..	10
Manufacturing	19 454 307	15 544 514	18 431 278
Food industry	31 813	17 563	26 977
Forest industry	19 308 783	15 397 615	18 267 106
Petroleum refining and chemical industry	87 222	103 026	106 264
Metal industry	196	1 205	1 549
Other industries	26 292	25 105	29 382
Electricity, gas, steam and air conditioning supply	7 331 181	6 856 093	8 889 751
Water supply; sewerage, waste management and remediation activities	13 155	19 305	43 185
Construction	..	..	..
Wholesale and retail trade; repair of motor vehicles and motorcycles	9 636	10 098	24 315
Transportation and storage	43 135	43 072	26 361
Land transport and transport via pipelines	17 701	20 026	13 847
Water transport	..	..	..
Air transport	..	..	..
Postal activities and support activities for transportation	25 433	23 046	12 514
Real estate activities	23 114	19 340	32 310
Accommodation, communication, financial, administrative, education, social work and other service activities	55 737	55 552	59 708
HOUSEHOLDS TOTAL	5 586 552	5 897 361	6 539 310
Transport	5 154	7 132	7 437
Heating	5 581 398	5 890 229	6 531 873
Other	..	..	..
AIR EMISSIONS TOTAL	33 049 020	29 046 096	34 722 917
(-) Finnish residents' transport emissions abroad	..	..	..
(+) non-residents' transport emissions in Finland	..	..	..
(+/-) other bridging items	323 312	534 463	591 981
Reported emissions as per UNFCCC in 2012	33 372 333	29 580 559	35 314 897

Appendix table 3. Nitrous oxide emissions (N₂O) 2008-2010, tonnes

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	20 721	17 460	16 223
Agriculture, fishing and aquaculture, hunting	12 968	12 446	12 910
Forestry and logging	16	14	15
Mining and quarrying	5	4	4
Manufacturing	5 734	3 102	1 131
Food industry	9	11	11
Forest industry	347	292	327
Petroleum refining and chemical industry	5 316	2 752	738
Metal industry	34	27	33
Other industries	28	20	22
Electricity, gas, steam and air conditioning supply	905	845	1 075
Water supply; sewerage, waste management and remediation activities	555	514	530
Construction	49	52	63
Wholesale and retail trade; repair of motor vehicles and motorcycles	4	3	7
Transportation and storage	425	418	414
Land transport and transport via pipelines	195	197	195
Water transport	78	82	93
Air transport	144	133	123
Postal activities and support activities for transportation	7	6	4
Real estate activities	8	8	9
Accommodation, communication, financial, administrative, education, social work and other service activities	52	55	64
HOUSEHOLDS TOTAL	388	372	383
Transport	230	207	200
Heating	157	163	181
Other	1	1	1
AIR EMISSIONS TOTAL	21 109	17 832	16 606
(-) Finnish residents' transport emissions abroad	222	216	216
(+) non-residents' transport emissions in Finland	51	52	51
(+/-) other bridging items	793	736	798
Reported emissions as per UNFCCC in 2012	21 731	18 403	17 239

Appendix table 4. Methane emissions (CH₄) 2008-2010, tonnes

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	195 535	191 447	192 445
Agriculture, fishing and aquaculture, hunting	89 829	90 061	91 213
Forestry and logging	138	139	150
Mining and quarrying	6	6	6
Manufacturing	1 082	994	1 020
Food industry	5	8	9
Forest industry	428	351	400
Petroleum refining and chemical industry	592	588	553
Metal industry	31	25	30
Other industries	26	22	29
Electricity, gas, steam and air conditioning supply	993	921	1 104
Water supply; sewerage, waste management and remediation activities	100 750	96 785	96 620
Construction	93	91	99
Wholesale and retail trade; repair of motor vehicles and motorcycles	31	27	40
Transportation and storage	2 326	2 178	1 913
Land transport and transport via pipelines	1 962	1 823	1 545
Water transport	181	190	218
Air transport	94	88	82
Postal activities and support activities for transportation	88	77	69
Real estate activities	84	76	89
Accommodation, communication, financial, administrative, education, social work and other service activities	203	168	191
HOUSEHOLDS TOTAL	11 581	12 047	13 145
Transport	1 022	998	946
Heating	10 426	10 924	12 069
Other	133	125	130
AIR EMISSIONS TOTAL	207 116	203 493	205 590
(-) Finnish residents' transport emissions abroad	259	260	276
(+) non-residents' transport emissions in Finland	67	62	53
(+/-) other bridging items	636	614	687
Reported emissions as per UNFCCC in 2012	207 560	203 910	206 054

Appendix table 5. Sulphur dioxide emissions (SO₂) 2008-2010, tonnes

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	83 665	74 942	82 905
Agriculture, fishing and aquaculture, hunting	1 360	1 343	1 370
Forestry and logging	4	3	4
Mining and quarrying	198	116	153
Manufacturing	29 567	25 214	26 559
Food industry	551	951	826
Forest industry	7 195	5 285	5 887
Petroleum refining and chemical industry	10 785	10 337	11 044
Metal industry	8 826	7 310	7 476
Other industries	2 210	1 332	1 326
Electricity, gas, steam and air conditioning supply	26 185	27 404	31 255
Water supply; sewerage, waste management and remediation activities	77	60	84
Construction	125	135	149
Wholesale and retail trade; repair of motor vehicles and motorcycles	57	58	136
Transportation and storage	25 595	20 125	22 617
Land transport and transport via pipelines	131	139	103
Water transport	24 442	19 047	21 702
Air transport	872	808	742
Postal activities and support activities for transportation	151	131	70
Real estate activities	137	111	181
Accommodation, communication, financial, administrative, education, social work and other service activities	359	373	398
HOUSEHOLDS TOTAL	2 776	2 920	3 300
Transport	33	29	28
Heating	2 742	2 891	3 271
Other	1	1	1
AIR EMISSIONS TOTAL	86 441	77 862	86 205
(-) Finnish residents' transport emissions abroad	24 078	18 885	21 349
(+) non-residents' transport emissions in Finland	9	9	7
(+/-) other bridging items	6 423	102	2 220
Reported emissions as per UNFCCC in 2012	68 795	59 088	67 083

Appendix table 6. Nitrogen dioxide emissions (NO2) 2008-2010, tonnes

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	198 777	186 953	206 100
Agriculture, fishing and aquaculture, hunting	15 612	14 392	14 240
Forestry and logging	3 142	2 656	2 652
Mining and quarrying	1 205	985	1 014
Manufacturing	37 602	29 991	33 247
Food industry	872	617	562
Forest industry	21 557	16 720	19 692
Petroleum refining and chemical industry	6 475	6 252	5 756
Metal industry	4 041	3 207	3 844
Other industries	4 658	3 196	3 392
Electricity, gas, steam and air conditioning supply	37 940	36 453	44 239
Water supply; sewerage, waste management and remediation activities	1 170	1 252	1 285
Construction	13 096	11 712	12 541
Wholesale and retail trade; repair of motor vehicles and motorcycles	448	380	629
Transportation and storage	82 604	83 180	89 614
Land transport and transport via pipelines	18 702	17 282	16 183
Water transport	52 598	55 505	63 945
Air transport	10 476	9 736	8 961
Postal activities and support activities for transportation	828	657	525
Real estate activities	1 106	1 004	1 084
Accommodation, communication, financial, administrative, education, social work and other service activities	4 852	4 948	5 555
HOUSEHOLDS TOTAL	28 428	25 983	25 791
Transport	20 995	18 256	17 213
Heating	7 296	7 611	8 461
Other	137	115	118
AIR EMISSIONS TOTAL	227 206	212 936	231 892
(-) Finnish residents' transport emissions abroad	57 326	59 096	65 735
(+) non-residents' transport emissions in Finland	3 060	2 828	2 648
(+/-) other bridging items	-4 128	-2 362	-2 210
Reported emissions as per UNFCCC in 2012	168 813	154 307	166 595

Appendix table 7. Carbon monoxide emissions 2008-2010 (CO), tonnes

Industry (TOL2008)	2008	2009	2010
INDUSTRIES TOTAL	177 918	159 101	171 927
Agriculture, fishing and aquaculture, hunting	16 050	16 535	17 858
Forestry and logging	13 845	13 676	14 309
Mining and quarrying	377	352	355
Manufacturing	32 276	25 511	30 493
Food industry	167	138	183
Forest industry	23 640	18 080	22 025
Petroleum refining and chemical industry	1 491	1 464	1 418
Metal industry	6 566	5 514	6 507
Other industries	412	314	360
Electricity, gas, steam and air conditioning supply	16 696	15 976	19 271
Water supply; sewerage, waste management and remediation activities	2 024	2 020	1 588
Construction	8 914	8 649	9 091
Wholesale and retail trade; repair of motor vehicles and motorcycles	2 167	1 698	2 039
Transportation and storage	39 240	36 950	35 863
Land transport and transport via pipelines	11 456	11 319	10 792
Water transport	3 815	3 885	4 184
Air transport	10 552	9 820	9 446
Postal activities and support activities for transportation	13 418	11 927	11 441
Real estate activities	16 823	15 780	16 075
Accommodation, communication, financial, administrative, education, social work and other service activities	29 506	21 954	24 985
HOUSEHOLDS TOTAL	297 095	301 604	306 103
Transport	160 852	161 581	153 941
Heating	108 662	114 070	126 173
Other	27 581	25 952	25 989
AIR EMISSIONS TOTAL	475 012	460 705	478 030
(-) Finnish residents' transport emissions abroad	14 805	14 325	14 121
(+) non-residents' transport emissions in Finland	13 405	13 245	12 628
(+/-) other bridging items	-3 070	-1 614	-2 614
Reported emissions as per UNFCCC in 2012	470 543	458 011	473 922

Appendix table 8. Emissions into air 2010, tonnes

Industry (TOL2008)	Fossil carbon dioxide (CO ₂)	Biomass carbon dioxide (CO ₂ -bio)	Nitrous oxide (N ₂ O)	Methane (CH ₄)	Sulphur dioxide (SO ₂)	Nitrogen dioxide (NO ₂)	Carbon monoxide (CO)
INDUSTRIES TOTAL	58 524 988	28 183 607	16 223	192 445	82 905	206 100	171 927
Agriculture, fishing and aquaculture, hunting	2 298 410	672 191	12 910	91 213	1 370	14 240	17 858
Forestry and logging	571 060	4 497	15	150	4	2 652	14 309
Mining and quarrying	281 054	10	4	6	153	1 014	355
Manufacturing	13 547 952	18 431 278	1 131	1 020	26 559	33 247	30 493
Food industry	257 539	26 977	11	9	826	562	183
Forest industry	3 680 888	18 267 106	327	400	5 887	19 692	22 025
Petroleum refining and chemical industry	4 396 041	106 264	738	553	11 044	5 756	1 418
Metal industry	3 571 013	1 549	33	30	7 476	3 844	6 507
Other industries	1 642 471	29 382	22	29	1 326	3 392	360
Electricity, gas, steam and air conditioning supply	27 327 537	8 889 751	1 075	1 104	31 255	44 239	19 271
Water supply; sewerage, waste management and remediation activities	339 809	43 185	530	96 620	84	1 285	1 588
Construction	1 812 216	..	63	99	149	12 541	9 091
Wholesale and retail trade; repair of motor vehicles and motorcycles	168 090	24 315	7	40	136	629	2 039
Transportation and storage	10 327 346	26 361	414	1 913	22 617	89 614	35 863
Land transport and transport via pipelines	4 080 191	13 847	195	1 545	103	16 183	10 792
Water transport	3 056 361	..	93	218	21 702	63 945	4 184
Air transport	3 029 457	..	123	82	742	8 961	9 446
Postal activities and support activities for transportation	161 336	12 514	4	69	70	525	11 441
Real estate activities	276 560	32 310	9	89	181	1 084	16 075
Accommodation, communication, financial, administrative, education, social work and other service activities	1 574 954	59 708	64	191	398	5 555	24 985
HOUSEHOLDS TOTAL	7 587 446	6 539 310	383	13 145	3 300	25 791	306 103
Transport	5 220 836	7 437	200	946	28	17 213	153 941
Heating	2 257 511	6 531 873	181	12 069	3 271	8 461	126 173
Other	109 099	..	1	130	1	118	25 989
AIR EMISSIONS TOTAL	66 112 434	34 722 917	16 606	205 590	86 205	231 892	478 030
(-) Finnish residents' transport emissions abroad	5 871 422	..	216	276	21 349	65 735	14 121
(+) non-residents' transport emissions in Finland	302 244	..	51	53	7	2 648	12 628
(+/-) other bridging items	3 145 308	591 981	798	687	2 220	-2 210	-2 614
Reported emissions as per UNFCCC in 2012	63 688 564	35 314 897	17 239	206 054	67 083	166 595	473 922

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Source: Emissions into air by industry 2010, Statistics Finland