

## GREENHOUSE GAS EMISSIONS

Emissions of greenhouse gases (GHG) from human activities disturb the radiative energy balance of the earth's atmosphere system. They exacerbate the natural greenhouse effect, leading to temperature changes and other consequences for the earth's climate.

Climate change is of concern mainly as regards its impact on ecosystems (biodiversity), human settlements and agriculture, and on the frequency and scale of extreme weather events. It could have significant consequences for human well-being and socio-economic activities.

### Definition

Emissions refer to the sum of six GHGs that have direct effects on climate change and are considered responsible for a major part of global warming: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>).

They show total gross emissions expressed in CO<sub>2</sub> equivalents as well as emission intensities per capita. They refer to GHG emitted within the national territory; CO<sub>2</sub> emissions and removals from land use change and forestry are excluded as are international transactions of emission reduction units or certified emission reductions.

### Comparability

Data on GHG emissions are reported annually to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) with 1990 as a base year but not by all OECD countries. They display a good level of comparability. The high per capita emissions of

### Overview

Emissions of greenhouse gas emissions have been declining in recent years in almost all OECD countries. They fell by almost 5% since 2008 in the OECD area. This is partly due to a slowdown in economic activity following the 2008 economic crisis, but also to a strengthening of climate policies and changing patterns of energy consumption. CO<sub>2</sub> remains predominant and determines the overall trend. Together with CH<sub>4</sub> and N<sub>2</sub>O, it accounts for about 98% of GHG emissions. The other gases account for about 2%, but their emissions are growing.

Individual OECD countries' contributions to the additional greenhouse effect, and their rates of progress, vary significantly. These differences partly reflect different national circumstances, such as composition and rate of economic growth, population growth, energy resource endowment, and the extent to which the countries have taken steps to reduce emissions from various sources.

Luxembourg result from the lower taxation of road fuels compared to neighbouring countries, which attracts drivers to refuel in the country.

The OECD total does not include Israel.

### Sources

- OECD (2015), *Environment at a Glance*, OECD Publishing.
- OECD (2014), "Greenhouse gas emissions by source", OECD Environment Statistics (Database).
- United Nations Framework Convention on Climate Change (UNFCCC) (2013), *Greenhouse Gas Inventory Data* (Database).

### Further information

#### Analytical publications

- OECD (2015), *Aligning Policies for a Low-Carbon Economy*, OECD Publishing.
- OECD (2015), *The Economic Consequences of Climate Change*, OECD Publishing.
- OECD (2012), "Review of the Implementation of the OECD Environmental Strategy for the First Decade of the 21st Century", OECD, Paris.

#### Statistical publications

- International Energy Agency (IEA) (2015), *CO<sub>2</sub> Emissions from Fuel Combustion: Highlights 2015*, OECD Publishing.

#### Methodological publications

- Intergovernmental Panel on Climate Change (IPCC) (2006), *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds), IGES, Hayama, Japan.

#### Online databases

- CO<sub>2</sub> Emissions from Fuel Combustion.

#### Websites

- Climate change, [www.oecd.org/environment/cc](http://www.oecd.org/environment/cc).



## GREENHOUSE GAS EMISSIONS

## Greenhouse gas emissions

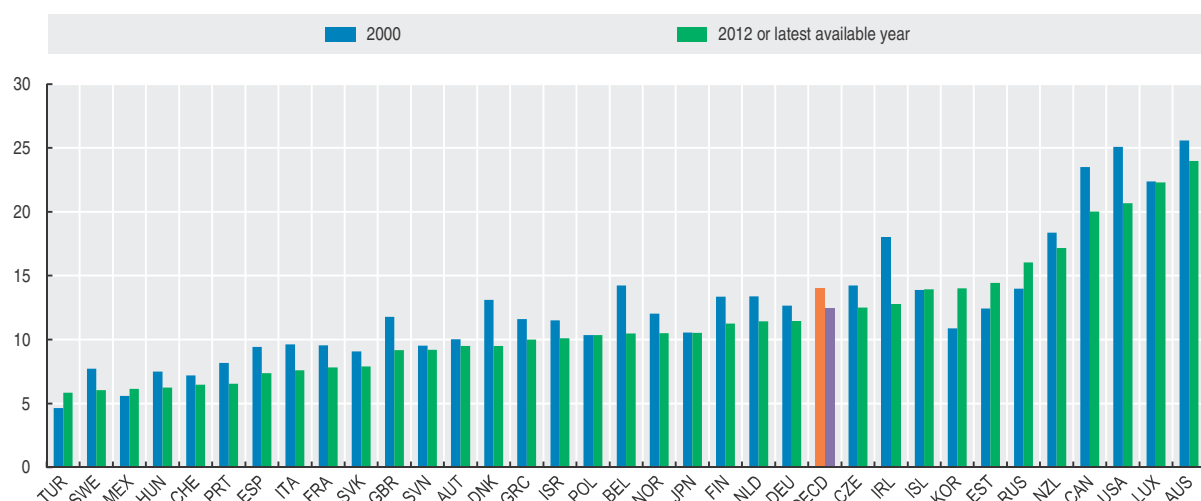
 Thousand tonnes CO<sub>2</sub> equivalent

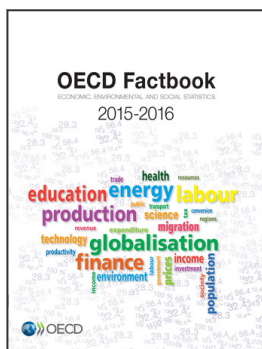
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
Australia	414 974	436 864	489 813	523 479	529 885	537 931	544 574	541 178	540 211	541 543	543 648
Austria	78 086	79 744	80 277	92 581	89 711	86 967	86 882	80 148	84 808	82 761	80 059
Belgium	142 952	150 327	145 857	142 063	138 342	133 440	135 823	123 209	130 611	120 146	116 520
Canada	590 908	639 072	721 362	735 829	727 850	749 289	731 081	689 313	699 302	701 212	698 626
Chile	49 897	59 286	74 488	82 005	83 285	92 828	93 970	90 933	91 576	..	..
Czech Republic	196 146	151 774	146 330	145 965	147 021	147 246	142 185	134 206	137 008	135 277	131 466
Denmark	70 020	77 280	69 955	65 589	73 470	68 920	65 404	62 511	63 007	58 052	53 118
Estonia	40 615	20 064	17 157	18 421	17 837	20 949	19 546	16 189	19 892	20 484	19 188
Finland	70 329	70 768	69 188	68 624	79 900	78 249	70 126	66 003	74 397	66 861	60 966
France	560 384	556 875	564 597	563 577	551 868	542 721	537 953	514 380	522 156	495 982	496 221
Germany	1 248 049	1 117 580	1 040 367	994 460	1 002 426	976 584	979 803	912 606	946 388	928 695	939 083
Greece	104 927	109 718	126 579	135 311	131 794	134 637	130 758	124 110	117 878	114 728	110 985
Hungary	97 603	78 475	76 504	78 376	77 485	75 651	73 328	66 976	67 638	66 034	61 981
Iceland	3 538	3 315	3 903	3 859	4 391	4 619	5 022	4 779	4 646	4 441	4 468
Ireland	55 246	58 903	68 216	69 656	69 166	68 371	68 020	62 312	61 895	57 750	58 531
Israel	..	..	72 439	73 312	74 656	76 870	77 954	74 111	76 924	78 452	..
Italy	519 055	530 333	551 237	574 262	563 373	555 078	540 620	490 113	499 359	486 601	460 083
Japan	1 234 320	1 335 888	1 340 523	1 350 321	1 332 533	1 364 258	1 280 903	1 205 673	1 256 095	1 306 518	1 343 118
Korea	295 683	442 840	511 187	569 466	575 193	591 429	605 407	609 167	667 755	697 708	..
Luxembourg	12 901	10 177	9 762	13 095	12 946	12 361	12 188	11 684	12 250	12 125	11 839
Mexico	458 754	487 432	564 970	614 648	643 362	670 204	699 201	688 927	701 360	..	..
Netherlands	211 850	223 161	213 023	209 448	205 559	204 199	203 314	197 787	209 286	195 064	191 669
New Zealand	60 641	64 465	70 899	78 287	78 186	76 222	75 764	73 101	73 491	74 393	76 048
Norway	50 409	50 242	54 058	54 469	54 288	56 006	54 425	51 809	54 347	53 294	52 733
Poland	466 372	441 103	396 104	398 827	414 148	415 449	406 081	387 700	407 475	405 741	399 268
Portugal	60 767	71 399	84 100	87 686	82 647	80 269	78 032	74 854	70 634	69 317	68 752
Slovak Republic	73 227	53 232	48 947	50 264	50 318	48 395	49 001	44 690	45 382	44 698	42 710
Slovenia	18 444	18 549	18 953	20 314	20 526	20 672	21 384	19 373	19 411	19 463	18 911
Spain	283 749	322 108	380 004	431 393	423 789	432 112	398 444	359 659	347 181	345 887	340 809
Sweden	72 714	74 152	68 563	66 913	66 778	65 233	63 014	59 097	65 072	60 754	57 604
Switzerland	52 890	51 576	51 775	54 209	53 846	51 910	53 653	52 366	54 095	49 973	51 449
Turkey	188 434	238 820	298 091	330 740	350 881	382 378	368 734	371 149	403 495	424 091	439 874
United Kingdom	778 805	726 758	693 693	678 253	675 547	666 079	646 736	593 380	609 147	566 269	584 304
United States	6 219 524	6 597 665	7 075 609	7 228 293	7 150 744	7 287 750	7 090 753	6 642 320	6 854 728	6 716 993	6 487 847
EU 28	..	..	..	..	..	..	..	..	..	..	..
OECD	14 756 908	15 279 204	16 086 790	16 480 697	16 434 113	16 625 965	16 258 947	15 352 402	15 858 726	15 674 979	15 505 620
Brazil	573 079	660 104	756 664	863 895	881 670	881 782	910 098	890 515	954 325	991 691	1 027 739
China	..	..	..	7 465 862	..	..	..	..	..	..	..
India	..	..	1 523 767	..	..	..	..	..	..	..	..
Indonesia	266 818	..	554 334	..	..	..	..	..	..	..	..
Russian Federation	3 363 342	2 207 676	2 053 321	2 135 398	2 201 494	2 206 100	2 245 851	2 130 321	2 221 342	2 284 293	2 295 045
South Africa	347 349	..	..	..	..	..	..	..	..	..	..

 1 2 <http://dx.doi.org/10.1787/888933336230>

## Greenhouse gas emissions

Tonnes per capita


 1 2 <http://dx.doi.org/10.1787/888933335043>



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