

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, which could in turn affect global economic output.

Definition

The indicator presented here refers to the sum of emissions of six GHGs that have direct effects on climate change and are considered responsible for a major part of global warming: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

They show total gross emissions expressed in CO₂ equivalents as well as emission intensities per capita. They refer to GHG emitted within the national territory; CO₂ emissions and removals from land use change and forestry are excluded as are international transactions of emission reduction units or certified emission reductions.

Comparability

These indicators should be read in conjunction with indicators on CO₂ emissions, energy intensity, and energy prices and taxes. Their interpretation should take into account the structure of countries' energy supply and climatic factors.

Overview

GHG emissions are still growing in many countries and overall, although at a slightly lower pace than CO₂ emissions from energy use. CO₂ remains predominant and determines the overall trend. Together with CH₄ and N₂O, 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. Many countries have not succeeded in meeting their commitments under the Kyoto Protocol.

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 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 (2013), *OECD Environment Statistics* (Database).
- United Nations Framework Convention on Climate Change (UNFCCC) (2013), *Greenhouse Gas Inventory Data* (Database).

Further information

Analytical publications

- OECD (2012), *OECD Environmental Outlook*, OECD Publishing.
- OECD (2012b), "Review of the OECD Environmental Strategy for the First Decade of the 21st Century", OECD, Paris.

Statistical publications

- IEA (2013), *CO₂ Emissions from Fuel Combustion*, OECD Publishing.

Methodological publications

- Intergovernmental Panel on Climate Change (IPCC) (1996), *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, London, UK.

Online databases

- OECD Environment Statistics.

Websites

- Climate change, www.oecd.org/env/cc.



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Greenhouse gas emissions

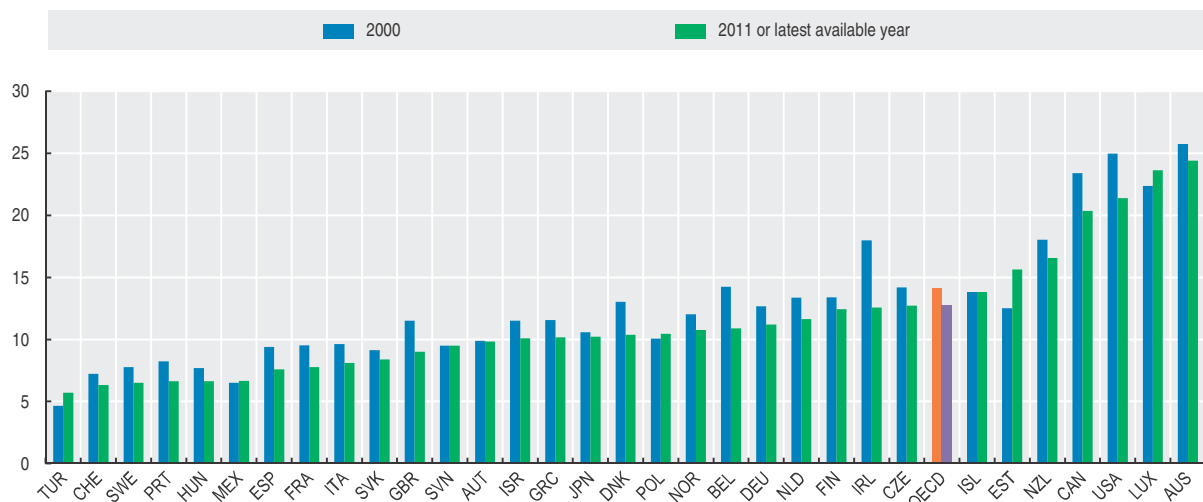
 Thousand tonnes CO₂ equivalent

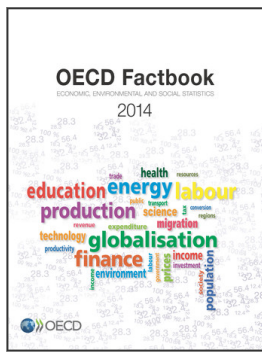
	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	417 742	493 272	504 033	505 443	509 630	525 285	529 321	534 201	542 531	550 339	549 123	548 744	552 286
Austria	78 157	80 198	84 184	85 881	91 876	91 520	92 895	90 092	87 246	86 962	79 956	85 012	82 842
Belgium	143 095	145 992	145 401	144 295	146 226	147 165	143 269	138 505	133 670	136 645	124 468	131 782	120 172
Canada	591 079	717 581	710 970	717 825	738 044	744 390	737 457	727 196	748 840	730 916	689 030	700 849	701 791
Chile	46 968	70 856	69 226	69 553	71 434	76 383	77 821	79 057	..	..	..	..	..
Czech Republic	196 039	145 886	145 672	141 539	144 582	145 950	145 259	147 038	147 625	142 146	133 486	137 423	133 496
Denmark	70 088	69 649	71 302	70 653	75 511	69 718	65 396	73 259	68 678	65 237	62 253	62 779	57 748
Estonia	40 542	17 142	17 531	16 935	18 839	19 176	18 478	17 929	21 047	19 618	16 262	19 989	20 956
Finland	70 452	69 345	74 574	76 742	84 647	80 635	68 763	80 093	78 432	70 225	66 065	74 551	67 033
France	559 492	562 995	560 942	556 227	562 257	560 553	563 065	551 113	541 048	536 318	513 003	519 889	491 497
Germany	1 250 264	1 040 596	1 055 422	1 034 164	1 032 082	1 019 574	997 929	1 000 388	975 946	974 993	911 308	943 518	916 495
Greece	104 587	126 224	127 222	127 048	130 882	131 343	134 921	131 343	134 186	130 334	123 634	117 278	115 045
Hungary	98 981	78 440	80 251	78 144	81 235	80 493	79 454	78 049	76 040	73 588	67 381	67 945	66 148
Iceland	3 508	3 876	3 842	3 876	3 852	3 905	3 833	4 364	4 592	4 994	4 751	4 618	4 413
Ireland	55 247	68 204	70 171	68 260	68 332	68 209	69 452	69 027	68 408	67 610	61 827	61 495	57 515
Israel	..	72 439	..	..	72 135	72 697	73 312	74 656	76 870	77 954	74 111	76 924	78 452
Italy	518 984	551 301	557 228	558 403	573 727	576 989	574 433	563 668	555 367	541 177	490 780	500 314	488 792
Japan	1 266 671	1 342 088	1 317 124	1 349 151	1 352 904	1 348 806	1 351 407	1 333 500	1 365 227	1 281 953	1 206 848	1 257 381	1 307 728
Korea	305 500	534 500	553 800	574 600	586 300	593 800	596 700	602 600	620 100	..	..	..	..
Luxembourg	12 901	9 760	10 260	11 037	11 426	12 843	13 096	12 948	12 359	12 188	11 690	12 252	12 098
Mexico	561 035	639 664	627 549	616 238	629 458	662 838	666 913	695 059	722 208	749 349	737 560	748 252	..
Netherlands	211 849	213 006	214 530	213 535	214 315	215 515	209 474	205 543	204 199	203 313	197 866	209 177	194 379
New Zealand	59 746	69 543	72 174	72 853	75 262	74 604	76 713	76 586	74 518	74 134	71 506	71 941	72 923
Norway	50 362	54 017	55 257	54 104	54 843	55 418	54 276	54 101	56 011	54 344	51 773	54 317	53 364
Poland	457 015	385 381	382 065	369 036	382 014	386 655	390 231	406 012	407 861	400 214	380 587	401 670	399 390
Portugal	60 952	84 303	84 127	88 317	82 975	85 680	88 037	83 008	80 510	78 482	75 216	71 382	69 986
Slovak Republic	71 782	49 299	52 355	51 205	51 544	51 377	50 596	50 503	48 520	49 114	43 956	45 896	45 297
Slovenia	18 443	18 920	19 783	19 937	19 646	19 964	20 309	20 554	20 690	21 406	19 427	19 482	19 509
Spain	282 789	378 776	379 222	395 668	402 630	418 529	432 834	424 247	432 009	398 876	362 713	348 641	350 484
Sweden	72 750	68 902	69 670	70 366	70 797	70 009	67 268	67 164	65 506	63 406	59 476	65 551	61 447
Switzerland	53 049	51 858	52 927	51 856	52 988	53 673	54 376	54 029	52 093	53 841	52 505	54 254	50 163
Turkey	188 434	298 215	279 246	287 218	303 773	313 272	330 982	350 739	380 948	367 207	370 012	402 103	422 416
United Kingdom	770 784	677 489	681 303	661 082	668 015	667 976	661 931	658 333	648 036	633 982	580 382	597 779	556 458
United States	6 169 592	7 045 346	6 935 584	6 979 340	7 019 471	7 147 266	7 169 899	7 109 338	7 225 934	7 021 569	6 566 198	6 790 642	6 665 701
EU 28	5 574 424	5 066 464	5 115 451	5 070 198	5 157 890	5 161 640	5 129 156	5 116 865	5 059 034	4 952 412	4 593 442	4 705 200	4 550 212
OECD	14 858 881	16 162 623	16 064 948	16 120 532	16 311 519	16 519 510	16 536 790	16 489 586	16 684 022	16 342 024	15 447 724	15 912 735	15 700 175
Brazil	..	..	..	..	..	..	..	..	..	..	..	..	..
China	..	..	..	..	..	..	..	..	..	..	..	..	..
India	..	..	..	..	..	..	..	..	..	..	..	..	..
Indonesia	..	..	..	..	..	..	..	..	..	..	..	..	..
Russian Federation	3 351 944	2 047 036	2 070 186	2 072 098	2 110 391	2 145 218	2 128 750	2 196 097	2 199 528	2 237 420	2 121 422	2 217 271	2 320 834
South Africa	..	..	..	..	..	..	..	..	..	..	..	..	..

 StatLink <http://dx.doi.org/10.1787/888933028558>

Greenhouse gas emissions

Tonnes per capita


 StatLink <http://dx.doi.org/10.1787/888933026145>



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