

Table 371. Emissions of Greenhouse Gases by Type and Source: 1990 to 2008

[In millions of metric tons (6,187.4 represents 6,187,400,000). Metric ton = 2,204.6 lbs. Emission estimates were mandated by Congress through Section 1605(a) of the Energy Policy Act of 1992 (Title XVI). Data shown below, by type and source, are measured in terms of their carbon dioxide equivalent. Data have been revised for years shown]

Type and source	1990	1995	2000	2004	2005	2006	2007	2008 ¹
CARBON DIOXIDE EQUIVALENT								
Total emissions	6,187.4	6,522.3	7,009.8	7,152.1	7,182.6	7,100.8	7,209.8	7,052.6
Carbon dioxide, total	5,022.3	5,341.5	5,886.4	6,009.9	6,029.0	5,928.7	6,017.0	5,839.3
From energy use by sector								
Residential	958.6	1,035.5	1,179.8	1,221.9	1,254.5	1,186.7	1,235.1	1,220.1
Commercial	785.1	845.1	1,013.1	1,043.3	1,059.6	1,034.9	1,070.3	1,075.1
Industrial	1,689.5	1,739.5	1,784.7	1,728.5	1,671.4	1,657.8	1,655.2	1,589.1
Transportation	1,586.9	1,682.2	1,872.7	1,958.9	1,988.7	2,014.3	2,025.7	1,930.1
Adjustments to energy ²	-82.9	-63.1	-61.7	-44.6	-48.8	-70.9	-74.9	-79.0
Adjusted energy subtotal	4,937.2	5,239.1	5,788.7	5,907.9	5,925.5	5,822.8	5,911.5	5,735.5
Other sources	85.1	102.3	97.8	102.0	103.5	106.0	105.6	103.8
Methane	783.5	756.2	683.0	686.6	691.8	706.3	722.7	737.4
Energy sources	294.4	284.8	277.6	278.9	274.2	276.7	282.8	295.7
Agricultural sources	201.5	219.1	211.1	212.5	218.8	221.8	222.6	225.0
Waste management	283.0	246.8	188.6	189.6	193.7	202.6	212.1	212.1
Industrial processes	4.6	5.6	5.7	5.6	5.1	5.2	5.2	4.7
Nitrous oxide	279.3	305.6	289.8	302.2	304.0	305.2	299.8	300.3
Agricultural sources	196.4	199.2	199.1	213.9	217.9	220.8	213.9	217.9
Energy use	51.6	70.4	71.0	71.4	68.8	67.1	66.8	63.9
Industrial processes	22.8	33.1	16.7	13.7	14.0	14.0	15.9	15.1
Waste management	2.6	2.8	3.1	3.2	3.3	3.3	3.4	3.4
High-GWP gases ³	102.3	119.0	150.5	153.5	157.8	160.5	170.3	175.6

¹ 2008 preliminary data. ² Carbon dioxide (CO₂) emissions from U.S. Territories are added to the U.S. total, and CO₂ emissions from fuels used for international transport (both ocean-going vessels and airplanes) are subtracted to derive total U.S. greenhouse gas emissions. ³ High global warming potential gases: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Source: U.S. Energy Information Administration, *Greenhouse Gas Emissions in the United States, 2008*, Series DOE/EIA-0573 (2008), annual. See also <<http://www.eia.doe.gov/oiat/1605/ggrpt/index.html>>.

Table 372. Carbon Dioxide Emissions by Sector and Source: 1990 to 2008

[In million metric tons (5,022.3 represents 5,022,300,000), except as noted. Data below measured in terms of carbon dioxide equivalent. Data have been revised for years shown]

Sector	1990	2000	2003	2004	2005	2006	2007	2008 ¹
Total ²	5,022.3	5,886.4	5,908.8	6,009.9	6,029.0	5,928.7	6,017.0	5,839.3
Petroleum ³	5,020.1	5,850.4	5,838.6	5,952.5	5,974.3	5,893.7	5,986.4	5,814.4
Natural gas	2,185.9	2,461.3	2,516.7	2,605.4	2,625.7	2,594.9	2,588.6	2,436.0
Coal	1,024.7	1,240.6	1,194.6	1,195.4	1,176.1	1,157.1	1,231.7	1,241.8
Residential	958.6	1,179.8	1,224.9	1,221.9	1,254.5	1,186.7	1,235.1	1,220.1
Petroleum	99.2	108.6	106.8	107.2	101.1	85.5	86.7	80.1
Natural gas	238.3	270.8	277.5	264.5	262.7	237.5	256.8	265.0
Coal	3.0	1.1	1.2	1.1	0.8	0.6	0.7	0.7
Electricity ⁴	618.2	799.3	839.5	849.1	889.9	863.0	890.9	874.4
Commercial	785.1	1,013.1	1,026.1	1,043.3	1,059.6	1,034.9	1,070.3	1,075.1
Petroleum ⁵	70.1	54.7	55.8	54.9	52.4	44.8	44.3	41.4
Natural gas	142.3	172.5	173.7	170.0	163.2	154.0	164.2	169.9
Coal	11.8	8.8	7.8	9.8	9.2	6.2	6.7	6.4
Electricity ⁴	560.8	777.2	788.7	808.6	834.8	830.0	855.2	857.3
Industrial	1,689.5	1,784.7	1,690.3	1,728.5	1,671.4	1,657.8	1,655.2	1,589.1
Petroleum	367.2	373.1	396.5	421.1	419.2	432.5	417.2	385.3
Natural gas	432.5	480.7	431.7	432.0	397.9	394.3	403.6	409.0
Coal	256.8	210.0	190.2	190.7	182.0	178.3	173.7	167.5
Electricity ⁴	632.5	713.4	666.1	668.9	667.2	645.8	657.7	622.6
Transportation	1,586.9	1,872.7	1,897.4	1,958.9	1,988.7	2,014.3	2,025.7	1,930.1
Petroleum ⁶	1,547.7	1,833.4	1,859.5	1,922.2	1,950.7	1,976.4	1,985.1	1,889.4
Natural gas	36.1	35.7	33.4	32.0	33.1	33.2	35.4	35.9
Electricity ⁴	3.2	3.6	4.5	4.7	4.9	4.7	5.2	4.9
Electric power sector ⁷	1,814.6	2,293.5	2,298.8	2,331.3	2,396.8	2,343.5	2,409.1	2,359.1
Petroleum	101.8	91.5	98.1	100.1	102.3	55.6	55.3	39.7
Natural gas	175.5	280.9	278.3	296.8	319.1	338.2	371.7	362.0
Coal	1,531.2	1,910.8	1,910.7	1,922.9	1,963.9	1,937.8	1,970.6	1,945.9

¹ Preliminary. ² Includes other items, not shown separately. ³ This includes carbon dioxide from international bunker fuels, both civilian and military, which are excluded from the accounting of carbon dioxide emissions under the United Nations convention.

⁴ Share of total electric power sector carbon dioxide emissions weighted by sales to this sector. ⁵ Includes small amounts of petroleum coke. ⁶ Includes lease and plant fuel. ⁷ Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Beginning 2005, also includes emissions from municipal solid waste and geothermal electricity generation. Emissions from the electric power sector are apportioned to each end-use sector according to their share of electricity sales.

Source: "State Energy Data Report"; 1990 to 2000, "Emissions of Greenhouse Gases in the U.S., 2006"; and after, *Annual Energy Outlook*. See also <<http://www.eia.doe.gov>>.