

Table A18. Energy-related carbon dioxide emissions by sector and source
(million metric tons, unless otherwise noted)

Sector and source	Reference case							Annual growth 2010-2035 (percent)
	2009	2010	2015	2020	2025	2030	2035	
Residential								
Petroleum	81	85	74	69	65	61	59	-1.5%
Natural gas	259	267	264	263	259	257	252	-0.2%
Coal	1	1	1	1	1	1	1	-1.3%
Electricity ¹	819	879	746	769	816	862	907	0.1%
Total residential	1159	1232	1084	1101	1141	1181	1218	-0.0%
Commercial								
Petroleum	49	51	44	44	44	44	44	-0.6%
Natural gas	169	173	181	186	187	191	196	0.5%
Coal	6	6	6	6	6	6	6	0.0%
Electricity ¹	785	805	721	757	806	852	897	0.4%
Total commercial	1009	1035	952	993	1043	1093	1142	0.4%
Industrial²								
Petroleum	339	344	364	350	351	351	358	0.2%
Natural gas ³	383	408	445	454	459	455	456	0.4%
Coal	128	157	154	170	183	190	197	0.9%
Electricity ¹	551	583	540	536	550	535	516	-0.5%
Total industrial	1401	1492	1503	1509	1542	1531	1527	0.1%
Transportation								
Petroleum ⁴	1818	1836	1825	1785	1778	1791	1814	-0.0%
Natural gas ⁵	34	36	39	40	42	44	45	0.9%
Electricity ¹	4	4	4	5	7	9	12	4.2%
Total transportation	1856	1876	1868	1831	1827	1843	1871	-0.0%
Electric power⁶								
Petroleum	34	33	23	23	24	24	25	-1.1%
Natural gas	373	399	438	427	427	459	485	0.8%
Coal	1741	1828	1539	1606	1717	1763	1809	-0.0%
Other ⁷	12	12	12	12	12	12	12	0.0%
Total electric power	2159	2271	2011	2067	2179	2258	2330	0.1%
Total by fuel								
Petroleum ³	2320	2349	2329	2271	2261	2271	2300	-0.1%
Natural gas	1218	1283	1367	1370	1374	1405	1435	0.4%
Coal	1876	1990	1699	1781	1906	1959	2012	0.0%
Other ⁷	12	12	12	12	12	12	12	0.0%
Total	5425	5634	5407	5434	5552	5647	5758	0.1%
Carbon dioxide emissions								
(tons per person)	17.6	18.1	16.6	15.9	15.5	15.1	14.8	-0.8%

¹Emissions from the electric power sector are distributed to the end-use sectors.

²Fuel consumption includes energy for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public.

³Includes lease and plant fuel.

⁴This 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. From 1990 through 2009, international bunker fuels accounted for 90 to 126 million metric tons annually.

⁵Includes pipeline fuel natural gas and natural gas used as vehicle fuel.

⁶Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes emissions from geothermal power and nonbiogenic emissions from municipal waste.

Note: By convention, the direct emissions from biogenic energy sources are excluded from energy-related carbon dioxide emissions. The release of carbon from these sources is assumed to be balanced by the uptake of carbon when the feedstock is grown, resulting in zero net emissions over some period of time. If, however, increased use of biomass energy results in a decline in terrestrial carbon stocks, a net positive release of carbon may occur. See "Energy-Related Carbon Dioxide Emissions by End Use" for the emissions from biogenic energy sources as an indication of the potential net release of carbon dioxide in the absence of offsetting sequestration. Totals may not equal sum of components due to independent rounding. Data for 2009 and 2010 are model results and may differ slightly from official EIA data reports.

Sources: 2009 and 2010 emissions and emission factors: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, October 2011 DOE/EIA-0035(2011/10) (Washington, DC, October 2011). Projections: EIA, AEO2012 National Energy Modeling System run REF2012.D020112C.