

Annual Energy Outlook 2006 with Projections to 2030

Release Date: December 2005

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Table 18. Carbon Dioxide Emissions by Sector and Source
(million metric tons carbon dioxide equivalent, unless otherwise stated)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Residential										
Petroleum	103	108	110	103	101	102	102	102	102	102
Natural Gas	277	266	268	272	273	277	279	281	284	287
Coal	1	1	1	1	1	1	1	1	1	1
Electricity	828	833	867	867	876	899	918	930	937	956
Total	1209	1208	1246	1243	1251	1278	1299	1315	1324	1346
Commercial										
Petroleum	54	58	57	54	55	54	55	55	55	56
Natural Gas	175	163	164	159	160	162	165	168	171	174
Coal	8	8	8	8	8	8	8	8	8	8
Electricity	780	792	826	823	841	867	893	911	924	948
Total	1017	1020	1055	1044	1063	1092	1121	1142	1159	1186
Industrial 1/										
Petroleum	409	441	411	406	433	435	436	441	446	449
Natural Gas 2/	429	442	436	449	458	467	475	478	483	486
Coal	189	187	198	193	194	194	193	193	197	200
Electricity	655	658	664	663	662	668	672	675	676	683
Total	1682	1727	1709	1710	1748	1763	1777	1787	1802	1818
Transportation										
Petroleum 3/	1834	1891	1901	1926	1964	1995	2029	2067	2101	2129
Natural Gas 4/	37	37	40	39	38	38	38	37	38	39
Electricity	16	16	16	16	16	16	17	17	17	17
Total	1887	1945	1957	1981	2018	2049	2084	2121	2156	2185
Electric Power Sector 5/										
Petroleum	97	97	87	83	72	72	73	74	74	76
Natural Gas	278	296	292	279	281	292	289	297	312	334
Coal	1892	1894	1982	1995	2030	2073	2124	2148	2154	2182
Other 6/	12	11	12	12	12	13	13	13	13	13
Total	2279	2299	2373	2369	2394	2450	2500	2533	2554	2604
Carbon Dioxide Emissions by Primary Fuel 7/										
Petroleum 3/	2497	2595	2566	2571	2625	2658	2696	2740	2778	2811
Natural Gas	1196	1203	1200	1197	1209	1236	1245	1262	1288	1320
Coal	2090	2090	2190	2197	2234	2276	2327	2350	2361	2391
Other 6/	12	11	12	12	12	13	13	13	13	13
Total	5795	5900	5967	5978	6080	6182	6281	6365	6440	6536
Carbon Dioxide Emissions (tons per person)	19.9	20.1	20.1	20.0	20.1	20.3	20.4	20.5	20.6	20.7

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	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Residential										
Petroleum	101	101	101	100	99	99	98	98	96	96
Natural Gas	288	289	292	295	296	297	298	300	300	301
Coal	1	1	1	1	1	1	1	1	1	1
Electricity	962	969	976	987	995	1008	1021	1036	1045	1057
Total	1352	1360	1369	1383	1391	1405	1418	1434	1442	1455
Commercial										
Petroleum	56	56	56	56	57	57	57	57	57	57
Natural Gas	177	179	183	186	188	191	192	195	197	199
Coal	8	8	8	8	8	8	8	8	8	8
Electricity	962	974	986	1001	1019	1039	1060	1079	1100	1123
Total	1203	1218	1233	1252	1273	1295	1317	1339	1363	1387
Industrial 1/										
Petroleum	453	456	457	462	466	470	472	475	479	482
Natural Gas 2/	488	490	497	501	503	505	508	510	511	514
Coal	203	205	206	208	211	215	217	236	255	272
Electricity	684	683	683	685	690	696	701	703	708	713
Total	1828	1834	1843	1856	1870	1886	1899	1924	1953	1980
Transportation										
Petroleum 3/	2156	2184	2212	2241	2271	2302	2331	2357	2383	2409
Natural Gas 4/	40	40	43	46	46	47	47	47	47	47
Electricity	17	17	17	17	17	17	18	18	18	18
Total	2212	2242	2272	2303	2335	2367	2396	2422	2448	2474
Electric Power Sector 5/										
Petroleum	76	76	74	73	73	73	75	75	76	76
Natural Gas	355	369	386	395	398	402	406	403	401	395
Coal	2181	2184	2188	2209	2237	2272	2304	2344	2381	2427
Other 6/	13	13	14	14	14	14	14	14	14	14
Total	2624	2643	2661	2690	2721	2761	2799	2835	2872	2911
Carbon Dioxide Emissions by Primary Fuel 7/										
Petroleum 3/	2842	2874	2900	2932	2967	3001	3033	3061	3091	3119
Natural Gas	1347	1369	1400	1422	1431	1441	1451	1455	1456	1455
Coal	2393	2398	2404	2426	2457	2496	2531	2589	2645	2708
Other 6/	13	13	14	14	14	14	14	14	14	14
Total	6595	6654	6718	6794	6869	6952	7030	7119	7206	7296
Carbon Dioxide Emissions (tons per person)	20.7	20.7	20.8	20.8	20.9	21.0	21.0	21.1	21.2	21.3

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	2023	2024	2025	2026	2027	2028	2029	2030	2004-2030
Residential									
Petroleum	95	94	93	92	92	91	90	89	-0.7%
Natural Gas	302	303	303	304	305	307	307	307	0.6%
Coal	1	1	1	1	1	1	1	1	-0.4%
Electricity	1071	1088	1100	1114	1131	1150	1164	1178	1.3%
Total	1468	1487	1497	1511	1528	1549	1561	1576	1.0%
Commercial									
Petroleum	58	58	58	58	58	58	59	59	0.1%
Natural Gas	201	203	205	208	210	212	215	217	1.1%
Coal	8	8	8	8	8	8	8	8	0.0%
Electricity	1147	1172	1197	1222	1250	1279	1309	1336	2.0%
Total	1414	1441	1469	1496	1526	1558	1590	1620	1.8%
Industrial 1/									
Petroleum	483	492	497	503	511	518	523	524	0.7%
Natural Gas 2/	518	519	522	525	526	528	531	536	0.7%
Coal	283	295	303	316	324	331	340	341	2.3%
Electricity	719	727	736	745	756	766	776	784	0.7%
Total	2003	2033	2058	2088	2117	2143	2170	2184	0.9%
Transportation									
Petroleum 3/	2437	2466	2496	2528	2562	2595	2631	2667	1.3%
Natural Gas 4/	48	48	48	47	47	47	47	47	0.9%
Electricity	18	18	19	19	19	19	19	20	0.8%
Total	2503	2532	2562	2594	2628	2662	2698	2734	1.3%
Electric Power Sector 5/									
Petroleum	75	76	76	79	81	81	82	82	-0.7%
Natural Gas	390	386	381	375	366	357	346	344	0.6%
Coal	2474	2530	2579	2630	2694	2761	2825	2877	1.6%
Other 6/	15	15	15	15	15	15	15	15	1.1%
Total	2954	3006	3052	3099	3156	3215	3268	3318	1.4%
Carbon Dioxide Emissions by Primary Fuel 7/									
Petroleum 3/	3148	3186	3221	3260	3303	3344	3383	3421	1.1%
Natural Gas	1459	1459	1459	1459	1455	1451	1446	1452	0.7%
Coal	2766	2834	2892	2955	3026	3102	3175	3226	1.7%
Other 6/	15	15	15	15	15	15	15	15	1.1%
Total	7387	7494	7587	7690	7799	7912	8019	8114	1.2%
Carbon Dioxide Emissions (tons per person)	21.4	21.5	21.6	21.8	21.9	22.0	22.2	22.2	0.4%

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(million metric tons carbon dioxide equivalent, unless otherwise stated)

- 1/ Fuel 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 utility sector.
 - 2/ Includes lease and plant fuel
 - 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. From 1990 through 2003, international bunker fuels accounted for 83 to 115 million metric tons annually.
 - 4/ Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel
 - 5/ Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public utility sector.
 - 6/ Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste
 - 7/ Emissions from the electric power sector are distributed to the primary fuels
- N/A = Not applicable.
- Note: Totals may not equal sum of components due to independent rounding. Data for 2003 and 2004 are model results and may differ slightly from official EIA data report.
- Sources: 2003 and 2004 emissions and emission factors: Energy Information Administration (EIA), Emissions of Greenhouse Gases in the United States 2004 (DOE/EIA-0573(2004) (Washington, DC, December 2005). Projections: EIA, AEO2006 National Energy Modeling System run aeo2006.d111905