

Table B19. Carbon Emissions by Sector and Source
(Million Metric Tons per Year)

Sector and Source	1996	Projections						
		2005						
		Reference Case	24 Percent Above	14 Percent Above	9 Percent Above	1990 Level	3 Percent Below	7 Percent Below
Residential								
Petroleum	27.3	24.0	24.0	23.4	23.1	23.0	22.9	22.8
Natural Gas	77.4	79.6	79.4	77.1	75.6	75.1	74.8	74.3
Coal	1.4	1.4	1.4	1.2	1.2	1.1	1.1	1.1
Electricity	179.9	217.6	212.3	199.3	187.5	181.0	178.6	174.4
Total	286.0	322.6	317.1	301.0	287.3	280.2	277.4	272.5
Commercial								
Petroleum	15.3	12.6	12.6	12.2	12.0	11.9	11.9	11.8
Natural Gas	47.4	52.3	52.2	50.5	49.3	48.8	48.6	48.1
Coal	2.1	2.3	2.3	2.3	2.2	2.2	2.2	2.2
Electricity	164.8	196.4	191.7	179.5	168.0	161.4	159.6	155.5
Total	229.6	263.6	258.8	244.5	231.5	224.4	222.2	217.5
Industrial¹								
Petroleum	104.8	110.5	110.1	109.7	108.2	107.5	107.0	106.6
Natural Gas ²	142.8	155.9	156.0	156.5	158.0	158.3	158.6	158.4
Coal	59.3	66.0	65.5	58.2	54.0	52.8	52.2	51.6
Electricity	169.2	203.4	198.4	188.3	178.0	171.5	169.2	164.9
Total	476.1	535.7	530.0	512.8	498.2	490.0	487.0	481.6
Transportation								
Petroleum ³	457.9	549.4	548.7	545.6	543.0	541.2	539.9	538.5
Natural Gas ⁴	10.5	14.0	14.5	14.4	14.3	14.4	14.5	14.5
Other ⁵	0.0	1.4	1.5	1.5	1.5	1.5	1.5	1.5
Electricity	2.8	4.2	4.1	3.9	3.7	3.6	3.6	3.5
Total³	471.2	569.0	568.7	565.4	562.5	560.6	559.5	557.9
Total Carbon Emissions⁶								
Petroleum ³	605.3	696.4	695.4	691.0	686.3	683.6	681.6	679.7
Natural Gas	278.1	301.9	302.1	298.6	297.2	296.5	296.5	295.2
Coal	62.8	69.7	69.2	61.7	57.4	56.1	55.5	54.8
Other ⁵	0.0	1.4	1.5	1.5	1.5	1.5	1.5	1.5
Electricity	516.7	621.5	606.4	571.0	537.1	517.5	511.0	498.3
Total³	1462.9	1690.9	1674.6	1623.7	1579.5	1555.2	1546.1	1529.6
Electric Generators⁷								
Petroleum	15.5	8.8	8.4	7.7	7.3	7.0	6.5	7.2
Natural Gas	40.3	77.8	82.5	86.3	92.3	96.3	101.8	102.3
Coal	460.9	534.9	515.5	476.9	437.5	414.3	402.7	388.9
Total	516.7	621.5	606.4	571.0	537.1	517.5	511.0	498.3
Total Carbon Emissions⁸								
Petroleum ³	620.8	705.2	703.8	698.7	693.6	690.5	688.1	686.9
Natural Gas	318.4	379.7	384.6	384.9	389.4	392.8	398.3	397.5
Coal	523.7	604.6	584.7	538.7	494.9	470.4	458.2	443.7
Other ⁵	0.0	1.4	1.5	1.5	1.5	1.5	1.5	1.5
Total³	1462.9	1690.9	1674.6	1623.7	1579.5	1555.2	1546.1	1529.6
Carbon Emissions (tons per person)								
	5.5	5.9	5.8	5.7	5.5	5.4	5.4	5.3

Table B19. Carbon Emissions by Sector and Source (Continued)
(Million Metric Tons per Year)

Projections													
2010							2020						
Reference Case	24 Percent Above	14 Percent Above	9 Percent Above	1990 Level	3 Percent Below	7 Percent Below	Reference Case	24 Percent Above	14 Percent Above	9 Percent Above	1990 Level	3 Percent Below	7 Percent Below
23.3	22.5	21.7	21.4	20.5	20.0	19.5	22.2	21.0	20.8	20.6	19.8	19.3	18.6
82.3	78.3	74.2	72.0	68.0	66.8	64.9	86.1	78.4	75.1	73.4	70.4	69.2	67.4
1.4	1.2	1.0	1.0	0.9	0.9	0.9	1.4	1.1	1.0	1.0	0.9	0.9	0.9
230.3	198.8	164.7	143.9	117.9	111.1	101.9	265.7	190.3	149.9	129.5	99.2	91.1	81.3
337.3	300.7	261.7	238.3	207.3	198.7	187.1	375.4	290.8	246.8	224.4	190.3	180.5	168.1
12.5	12.0	11.5	11.3	10.7	10.4	10.0	12.1	11.4	11.2	11.1	10.7	10.4	10.0
54.6	51.7	48.4	46.4	42.1	40.5	38.1	56.6	51.1	48.6	47.1	44.4	43.1	40.9
2.5	2.3	2.1	2.1	1.9	1.8	1.7	2.6	2.3	2.2	2.1	2.0	1.8	1.7
207.6	178.0	145.8	126.3	101.1	94.4	85.6	227.3	160.4	125.3	107.8	81.7	74.4	65.8
277.2	244.1	207.9	186.1	155.7	147.1	135.3	298.6	225.2	187.4	168.1	138.7	129.8	118.3
115.7	113.7	113.1	113.5	110.5	108.6	109.2	120.7	121.9	124.8	127.0	125.5	123.6	120.2
162.4	163.1	163.7	164.1	162.7	162.5	158.2	167.4	165.6	162.6	160.7	160.5	159.7	161.6
67.1	56.4	50.1	48.4	43.9	42.7	41.4	66.9	53.6	51.8	50.4	46.1	43.7	41.1
214.3	185.6	154.0	135.6	110.1	104.2	95.2	226.6	163.8	128.5	110.8	84.7	77.7	69.5
559.4	518.7	480.9	461.5	427.3	418.0	403.9	581.6	504.9	467.7	449.0	416.8	404.7	392.4
592.9	580.9	561.7	552.6	527.6	514.4	495.7	644.1	618.8	606.6	598.9	574.6	562.5	547.2
16.2	16.4	16.5	17.1	16.8	16.8	16.6	19.0	19.7	20.2	20.3	20.1	19.8	19.3
2.5	2.6	2.5	2.5	2.4	2.3	2.3	3.8	3.8	3.8	3.7	3.6	3.5	3.4
5.1	4.6	3.8	3.4	2.8	2.6	2.4	6.4	4.8	3.8	3.3	2.5	2.3	2.0
616.7	604.5	584.5	575.6	549.6	536.2	517.1	673.2	647.1	634.3	626.3	600.8	588.2	571.9
744.3	729.1	708.1	698.7	669.3	653.3	634.3	799.1	773.1	763.5	757.6	730.6	715.9	696.0
315.5	309.5	302.8	299.7	289.7	286.6	277.8	329.0	314.8	306.5	301.6	295.4	291.8	289.1
70.9	59.8	53.3	51.4	46.7	45.4	43.9	70.8	57.0	55.0	53.6	49.0	46.5	43.6
2.5	2.6	2.5	2.5	2.4	2.3	2.3	3.8	3.8	3.8	3.7	3.6	3.5	3.4
657.4	567.0	468.3	409.1	331.9	312.4	285.0	726.0	519.4	407.5	351.3	268.0	245.5	218.6
1790.6	1667.9	1535.0	1461.5	1340.0	1300.0	1243.4	1928.7	1668.0	1536.2	1467.8	1346.7	1303.3	1250.8
7.5	6.2	5.1	5.0	5.1	6.9	7.9	5.9	3.8	4.6	9.3	13.8	10.7	6.1
99.5	114.2	136.5	156.4	174.5	179.3	182.3	138.8	179.8	201.0	215.0	218.4	215.6	206.1
550.4	446.6	326.7	247.7	152.3	126.1	94.8	581.3	335.8	201.9	127.0	35.9	19.2	6.4
657.4	567.0	468.3	409.1	331.9	312.4	285.0	726.0	519.4	407.5	351.3	268.0	245.5	218.6
751.8	735.3	713.2	703.8	674.4	660.3	642.2	805.0	776.9	768.1	767.0	744.4	726.6	702.1
415.0	423.7	439.3	456.1	464.2	465.9	460.2	467.8	494.6	507.5	516.5	513.8	507.4	495.3
621.3	506.4	379.9	299.1	199.1	171.5	138.7	652.1	392.8	256.9	180.5	84.9	65.7	50.0
2.5	2.6	2.5	2.5	2.4	2.3	2.3	3.8	3.8	3.8	3.7	3.6	3.5	3.4
1790.6	1667.9	1535.0	1461.5	1340.0	1300.0	1243.4	1928.7	1668.0	1536.2	1467.8	1346.7	1303.3	1250.8
6.0	5.6	5.1	4.9	4.5	4.3	4.2	6.0	5.2	4.7	4.5	4.2	4.0	3.9

¹Includes consumption by cogenerators.

²Includes lease and plant fuel.

³This includes international bunker fuels which, by convention, are excluded from the international accounting of carbon emissions. In the years from 1989 through 1996, international bunker fuels account for 22 to 24 million metric tons of carbon annually.

⁴Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.

⁵Includes methanol and liquid hydrogen.

⁶Measured for delivered energy consumption.

⁷Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy.

⁸Measured for total energy consumption, with emissions for electric power generators distributed to the primary fuels.

Note: Totals may not equal sum of components due to independent rounding.

Sources: Carbon coefficients from Energy Information Administration, (EIA) *Emissions of Greenhouse Gases in the United States 1996*, DOE/EIA-0573(96) (Washington, DC, October 1997). 1996 consumption estimates based on: EIA, *Short Term Energy Outlook, August 1997*, Online. <http://www.eia.doe.gov/emeu/steo/pub/upd/aug97/index.html> (August 21, 1997). Projections: EIA, AEO98 National Energy Modeling System run KYBASE.D080398A, FD24ABV.D080398B, FD1998.D080398B, FD09ABV.D080398B, FD1990.D080398B, FD03BLW.D080398B, and FD07BLW.D080398B.

Table B20. Macroeconomic Indicators
(Billion 1992 Chain-Weighted Dollars, Unless Otherwise Noted)

Indicators	1996	Projections						
		2005						
		Reference Case	24 Percent Above	14 Percent Above	9 Percent Above	1990 Level	3 Percent Below	7 Percent Below
GDP Chain-Type Price Index (1992=1.000)	1.102	1.380	1.382	1.393	1.401	1.404	1.406	1.408
Real Gross Domestic Product	6928	8525	8520	8495	8474	8464	8462	8454
Real Consumption	4714	5738	5735	5730	5724	5721	5722	5719
Real Investment	1069	1513	1509	1488	1473	1464	1462	1457
Real Government Spending	1258	1386	1386	1385	1384	1383	1383	1383
Real Exports	857	1753	1753	1749	1746	1745	1744	1744
Real Imports	971	1859	1857	1854	1853	1851	1852	1852
Real Disposable Personal Income	5077	6206	6205	6218	6224	6225	6230	6228
AA Utility Bond Rate (percent)	7.57	7.14	7.17	7.39	7.55	7.62	7.66	7.70
Real Yield on Government 10 Year Bonds (percent)	4.99	3.78	3.79	3.89	3.97	4.00	4.02	4.04
Energy Intensity (thousand Btu per 1992 dollar of GDP)								
Delivered Energy	10.14	9.36	9.36	9.26	9.18	9.15	9.13	9.11
Total Energy	13.54	12.42	12.37	12.17	12.00	11.94	11.92	11.86
Consumer Price Index (1982-84=1.00)	1.57	2.04	2.04	2.06	2.07	2.08	2.08	2.09
Unemployment Rate (percent)	5.38	5.70	5.72	5.80	5.87	5.91	5.91	5.94
Unit Sales of Light-Duty Vehicles (million)	15.10	15.69	15.60	15.19	14.91	14.79	14.73	14.64
Millions of People								
Population with Armed Forces Overseas	266.1	287.1	287.1	287.1	287.1	287.1	287.1	287.1
Population (aged 16 and over)	204.2	223.8	223.8	223.8	223.8	223.8	223.8	223.8
Labor Force	133.9	149.7	149.7	149.7	149.6	149.6	149.6	149.6

Table B20. Macroeconomic Indicators (Continued)
(Billion 1992 Chain-Weighted Dollars, Unless Otherwise Noted)

Projections													
2010							2020						
Reference Case	24 Percent Above	14 Percent Above	9 Percent Above	1990 Level	3 Percent Below	7 Percent Below	Reference Case	24 Percent Above	14 Percent Above	9 Percent Above	1990 Level	3 Percent Below	7 Percent Below
1.606	1.628	1.645	1.655	1.679	1.688	1.701	2.281	2.303	2.308	2.317	2.327	2.333	2.337
9429	9333	9268	9241	9137	9102	9032	10865	10815	10808	10796	10799	10793	10782
6347	6292	6258	6248	6207	6198	6160	7599	7573	7582	7583	7615	7631	7636
1745	1714	1716	1719	1692	1682	1662	2100	2101	2099	2098	2101	2100	2095
1499	1486	1473	1468	1454	1450	1442	1636	1622	1623	1622	1623	1622	1621
2337	2318	2296	2283	2248	2232	2215	3333	3316	3296	3282	3252	3233	3218
2519	2509	2520	2532	2541	2550	2548	4123	4153	4179	4195	4247	4274	4290
6891	6835	6794	6783	6752	6751	6719	8192	8144	8151	8153	8188	8209	8214
7.31	7.42	7.38	7.36	7.43	7.47	7.66	8.50	8.37	8.33	8.34	8.30	8.31	8.27
3.58	3.55	3.64	3.71	3.74	3.81	3.95	4.10	4.15	4.17	4.20	4.29	4.33	4.33
8.98	8.82	8.63	8.54	8.30	8.21	8.08	8.31	7.99	7.87	7.79	7.59	7.49	7.36
11.80	11.42	11.00	10.78	10.43	10.33	10.16	10.78	10.05	9.78	9.62	9.35	9.27	9.17
2.43	2.46	2.49	2.51	2.56	2.57	2.60	3.56	3.61	3.62	3.63	3.65	3.66	3.68
5.58	6.06	6.38	6.51	7.01	7.16	7.49	5.78	5.90	5.91	5.94	5.86	5.84	5.85
16.57	16.06	15.96	15.96	15.61	15.48	15.16	17.04	16.69	16.70	16.66	16.69	16.68	16.51
298.9	298.9	298.9	298.9	298.9	298.9	298.9	323.5	323.5	323.5	323.5	323.5	323.5	323.5
235.4	235.4	235.4	235.4	235.4	235.4	235.4	255.6	255.6	255.6	255.6	255.6	255.6	255.6
156.5	156.0	155.6	155.4	154.9	154.7	154.4	162.2	162.0	161.9	161.9	161.9	161.8	161.8

GDP = Gross domestic product.

Btu = British thermal unit.

Source: Simulations of the Data Resources, Inc. (DRI) Model of the U.S. Economy.