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Monthly Energy Review

September 1994

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Commercial Buildings Energy Consumption and Expenditures 1992

Preliminary Estimates

Preliminary estimates indicate that in 1992 the total site consumption (the amount of energy delivered) of natural gas, electricity, fuel oil, and district heat for approximately 4.8 million commercial buildings was 5.8 quadrillion Btu. However, the total primary consumption (site consumption plus the conversion losses in the electricity generation process at the utility plant) was approximately 11.1 quadrillion Btu. (For a discussion of energy conversion factors for electricity, see Appendix A of this publication.)

- Natural gas accounted for approximately 43 percent of site consumption and 22 percent of primary consumption.
- Electricity accounted for approximately 45 percent of site consumption and 71 percent of primary consumption.
- Fuel oil accounted for approximately 5 percent of site consumption and 2 percent of primary consumption.
- District heat accounted for approximately 7 percent of site consumption and 4 percent of primary consumption.

Energy consumption patterns varied by geographic location, reflecting differences in climate, construction patterns, and energy source preferences (Figure 1). Various other building characteristics also affected energy consumption in 1992 (Table 1).

These preliminary estimates are based on data from the 1992 Commercial Buildings Energy Consumption Survey (CBECS). The CBECS, which the Energy Information Administration (EIA) conducts every 3 years, provides data on energy consumption and expenditures for U.S. commercial buildings and on the energy-related characteristics of those buildings. Data are collected through personal interviews with building managers, tenants, or owners and through a mail survey of the energy suppliers to the buildings. The 1992 survey collected data for the first time on whether the buildings were part of any demand-side management program or had energy managers; whether the buildings had such energy-related equipment as water heaters and computers; and whether the buildings had computer rooms, rooms with special ventilation, or other space functions that would affect energy consumption.

The final estimates of energy consumption and expenditures in 1992 commercial buildings will be published in EIA's *Commercial Buildings Energy Consumption and Expenditures 1992*. This report will also provide detailed estimates of site and primary energy consumption.

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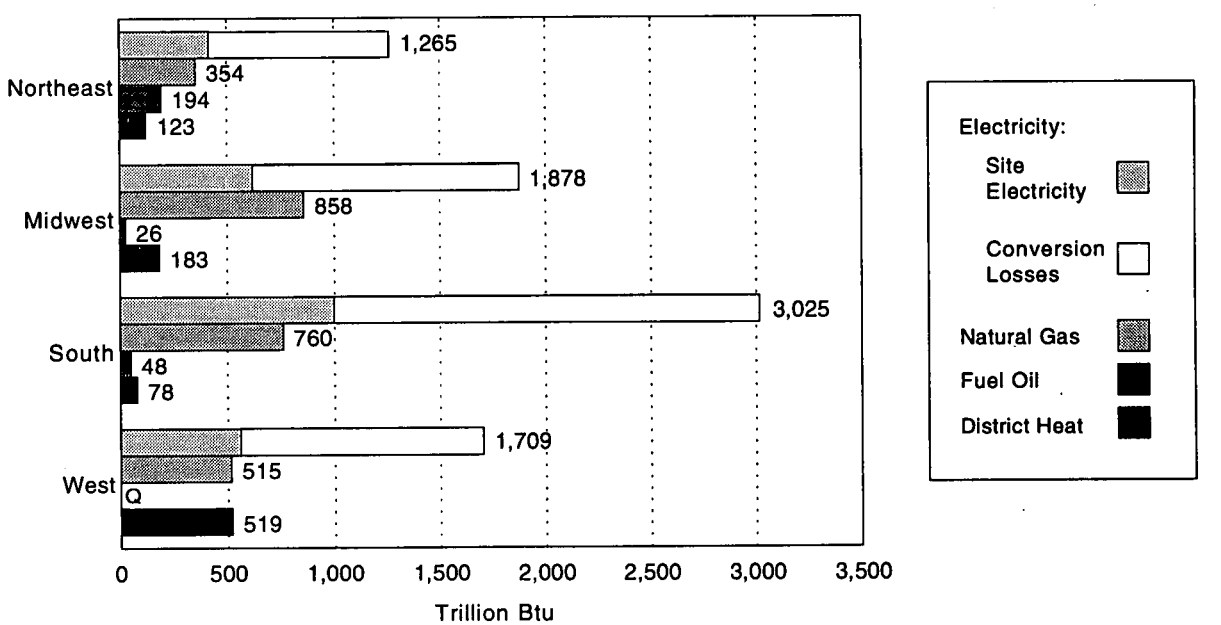
Figure 1. Commercial Buildings Consumption of Major Energy Sources by Region, 1992



Q = Data withheld because either the relative standard error was greater than 50 percent or the sample contained fewer than 20 buildings.
Source: Energy Information Administration, Forms EIA–871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Table 1. Total Site Energy Consumption and Expenditures, Preliminary Estimates, 1992

Building Characteristics	Commercial Buildings		Site Consumption		Expenditures	
	Number of Buildings (thousand)	Floorspace (million square feet)	Total (trillion Btu)	Per Square Foot (trillion Btu)	Total (million dollars)	Per Square Foot (dollars)
All Buildings	4,806	67,876	5,803	86	72,599	1.07
Building Floorspace (square feet)						
1,001 to 5,000	2,681	7,327	715	98	10,604	1.45
5,001 to 10,000	975	7,199	682	95	8,481	1.18
10,001 to 25,000	647	10,375	1,038	100	10,373	1.00
25,001 to 50,000	280	10,069	794	79	9,864	0.98
50,001 to 100,000	116	8,062	642	80	8,483	1.05
100,001 to 200,000	71	9,678	640	66	8,413	0.87
200,001 to 500,000	26	7,889	711	90	8,457	1.07
Over 500,000	9	7,278	581	80	7,924	1.09
Principal Building Activity						
Education	301	8,470	637	75	7,389	0.87
Food Sales	130	757	137	182	2,389	3.16
Food Service	260	1,491	447	299	4,811	3.23
Health Care	63	1,763	403	229	3,733	2.12
Lodging	154	2,891	463	160	5,459	1.89
Mercantile and Service	1,272	12,402	892	72	12,907	1.04
Office	749	12,319	1,272	103	18,125	1.47
Parking Garage	24	1,652	52	31	811	0.49
Public Assembly	278	4,556	310	68	4,163	0.91
Public Order and Safety	60	820	91	111	998	1.22
Religious Worship	366	3,747	109	29	1,299	0.35
Warehouse and Storage	761	11,484	590	51	6,750	0.59
Other	69	1,130	270	239	2,178	1.93
Vacant	319	4,396	131	30	1,585	0.36
Year Constructed						
1899 or Before	169	1,721	118	69	1,447	0.84
1900 to 1919	255	3,608	213	59	2,516	0.70
1920 to 1945	724	8,712	878	101	8,244	0.95
1946 to 1959	880	10,421	825	79	9,820	0.94
1960 to 1969	783	12,612	1,200	95	14,576	1.16
1970 to 1979	982	14,014	1,261	90	16,459	1.17
1980 to 1989	884	14,287	1,133	79	16,834	1.18
1990 to 1992	128	2,502	173	69	2,702	1.08
Census Region and Division						
Northeast	771	13,400	1,090	81	16,226	1.21
New England	186	3,265	299	92	4,063	1.24
Middle Atlantic	585	10,135	791	78	12,163	1.20
Midwest	1,202	17,280	1,688	98	17,204	1.00
East North Central	749	10,712	1,034	97	11,063	1.03
West North Central	453	6,568	654	100	6,140	0.93
South	1,963	24,577	1,888	77	22,843	0.93
South Atlantic	755	10,586	775	73	10,893	1.03
East South Central	454	5,375	472	88	4,728	0.88
West South Central	754	8,616	641	74	7,222	0.84
West	870	12,619	1,137	90	16,326	1.29
Mountain	297	3,645	487	134	4,902	1.35
Pacific	574	8,974	651	73	11,424	1.27
Climate Zone: 45-Year Average						
Fewer than 2,000 Cooling Degree-Days (CDD) and More than 7,000 Heating Degree-Days (HDD)	399	5,623	689	123	5,516	0.98
5,500 to 7,000 HDD	1,134	18,024	1,679	93	19,586	1.09
4,000 to 5,499 HDD	1,077	16,162	1,275	79	16,998	1.05
Fewer than 4,000 HDD	1,101	15,251	1,241	81	17,400	1.14
More than 2,000 CDD and Fewer than 4,000 HDD	1,095	12,816	919	72	13,098	1.02
Energy End Uses (more than one may apply)						
Heated Buildings	4,178	61,996	5,677	92	70,156	1.13
Air-Conditioned Buildings	3,502	57,041	5,345	94	67,207	1.18
Buildings with Water Heating	3,502	58,479	5,571	95	68,704	1.17
Buildings with Cooking	734	23,065	2,546	110	31,370	1.36
Buildings with Manufacturing	121	3,174	356	112	3,736	1.18

Table 1. Total Site Energy Consumption and Expenditures, Preliminary Estimates, 1992 (Continued)

Building Characteristics	Commercial Buildings: Number of Buildings (thousand)	Commercial Buildings: Floorspace (million square feet)	Site Consumption: Total (trillion Btu)	Site Consumption: Per Square Foot (trillion Btu)	Expenditures: Total (million dollars)	Expenditures: Per Square Foot (dollars)
Percent of Floorspace Heated						
Not Heated	628	5,880	126	21	2,442	0.42
1 to 50	713	11,525	467	41	7,115	0.62
51 to 99	618	10,211	885	87	12,165	1.19
100	2,846	40,260	4,325	107	50,876	1.26
Percent of Floorspace Cooled						
Not Cooled	1,304	10,835	457	42	5,391	0.50
1 to 50	1,176	21,715	1,648	76	16,382	0.75
51 to 99	658	13,872	1,432	103	19,454	1.40
100	1,668	21,454	2,265	106	31,372	1.46
Heating Equipment (more than one may apply)						
Heat Pumps	449	8,269	704	85	10,355	1.25
Furnaces	1,692	16,909	1,446	86	16,440	0.97
Individual Space Heaters	1,464	22,380	1,786	80	22,391	1.00
District Heat	93	5,225	829	159	9,008	1.72
Boilers	624	20,664	2,215	107	23,474	1.14
Packaged Heating Units[a]	870	16,000	1,369	86	20,070	1.25
Other	42	903	171	190	2,049	2.27
Cooling Equipment (more than one may apply)						
Residential-Type Central Air-Conditioners	816	9,021	898	100	9,791	1.09
Heat Pumps	454	8,406	753	90	10,729	1.28
Individual Air-Conditioners	1,023	17,979	1,479	82	17,725	0.99
District Chilled Water	28	2,066	309	150	3,220	1.56
Central Chillers	142	12,991	1,482	114	18,581	1.43
Packaged Air-Conditioning Units[a]	1,459	27,830	2,801	101	35,686	1.28
Swamp Coolers[b]	179	2,085	240	115	2,887	1.38
Other	8	268	17	63	249	0.93
Water-Heating Equipment (both may apply)						
Centralized System	1,994	31,599	3,349	106	39,699	1.26
Distributed System	1,557	29,502	2,454	83	31,957	1.08
Weekly Operating Hours						
39 or Fewer	1,039	8,246	278	34	3,233	0.39
40 to 48	1,278	14,998	1,011	67	13,455	0.90
49 to 60	1,004	14,046	960	68	12,701	0.90
61 to 84	645	12,062	962	80	13,532	1.12
85 to 167	478	8,467	1,126	133	12,780	1.51
Open Continuously	362	10,057	1,467	146	16,896	1.68
Ownership and Occupancy						
Nongovernment Owned	4,206	52,752	4,370	83	56,855	1.08
Owner Occupied	3,192	38,403	3,502	91	44,199	1.15
Nonowner Occupied	817	12,273	832	68	12,156	0.99
Unoccupied	197	2,077	36	17	500	0.24
Government Owned	599	15,124	1,432	95	15,743	1.04
Predominant Exterior Wall Material						
Masonry	3,115	48,585	4,139	85	51,688	1.06
Siding or Shingles	764	3,873	389	100	4,492	1.16
Metal Panels	745	7,392	568	77	5,861	0.79
Concrete Panels	87	4,961	408	82	5,841	1.18
Window Glass	46	2,028	195	96	3,347	1.65
Other	47	1,037	105	101	1,370	1.32
Predominant Roof Material						
Built-Up	1,642	30,257	2,779	92	34,978	1.16
Shingles (Not Wood)	1,381	10,570	861	81	10,299	0.97
Metal Surfacing	1,037	9,019	550	61	6,427	0.71
Synthetic or Rubber	386	11,702	1,165	100	14,644	1.25
Other	359	6,328	448	71	6,251	0.99
Percent Window Glass						
25 or Less	4,193	51,356	4,204	82	50,642	0.99
26 to 50	490	11,815	1,126	95	14,770	1.25
51 to 75	94	3,206	312	97	4,580	1.43
76 to 100	29	1,499	161	107	2,606	1.74

[a]Packaged units are built and assembled at a factory and installed as self-contained units.
[b]Swamp coolers (evaporative coolers) remove heat by evaporating water.

Table 1. Total Site Energy Consumption and Expenditures, Preliminary Estimates, 1992 (Continued)

Building Characteristics	Commercial Buildings		Site Consumption		Expenditures	
	Number of Buildings (thousand)	Floorspace (million square feet)	Total (trillion Btu)	Per Square Foot (trillion Btu)	Total (million dollars)	Per Square Foot (dollars)
Energy-Related Space Functions (more than one may apply)						
Commercial Food Preparation	735	22,166	2,504	113	30,774	1.39
Computer Room	223	14,199	1,539	108	20,434	1.44
Rooms with Special Ventilation	236	8,042	1,034	129	11,678	1.45
Activities Using Large Amounts of Hot Water	203	6,862	964	140	10,083	1.47
Energy Conservation Features (more than one may apply)						
Any Conservation Feature	4,357	64,403	5,723	89	71,498	1.11
Building Shell	4,223	62,056	5,533	89	69,605	1.12
Heating, Ventilation, and Air-Conditioning	2,604	50,281	4,884	97	61,211	1.22
Lighting	1,178	29,453	2,960	101	37,883	1.29
Other	264	5,952	565	95	6,965	1.17
Energy Management Practices (more than one may apply)						
Energy Management and Control System	236	14,320	1,571	110	19,830	1.38
Demand-Side Management Participation	315	11,310	1,327	117	15,493	1.37
Energy Audit	521	14,779	1,479	100	19,319	1.31
Building Energy Manager	49	2,311	297	128	3,156	1.37

Source: Energy Information Administration, Forms EIA–871A through F, 1992 Commercial Buildings Energy Consumption Survey.

Carbon Dioxide Emission Factors for Coal: A Summary*

Coal represents an important energy source in the United States, providing the fuel for over 50 percent of the Nation's electricity since 1980.[1] However, the amount of carbon dioxide, a greenhouse gas, emitted into the atmosphere as a result of coal combustion is significant and has raised a concern over its possible contribution to global warming.

The need to produce accurate estimates of carbon dioxide emissions resulting from coal consumption has led the Energy Information Administration (EIA) to develop carbon dioxide emission factors.[2] This article presents the factors developed by EIA for use in estimating the carbon dioxide emissions from coal, and introduces a new appendix to the *Monthly Energy Review* (see page xv). It describes the relationship between the carbon content and the heat value of coal, and the development of basic emission factors by coal rank and State of origin of the coal. It also describes how these basic emission factors are weighted by the specific rank and origin of the coal consumed by sector and State to produce a second set of emission factors that reflect accurate estimates of carbon dioxide emissions.

The weighted factors, which were statistically tested by EIA, are the first factors to account for State-by-State variations within a given rank of coal. Carbon dioxide emission factors are expressed in pounds per million Btu of energy. (The Btu, or British thermal unit, is a unit of measure of heat that allows analysts to compare different forms of energy.)

*The Energy Information Administration (EIA) gratefully acknowledges the contribution of Mr. John Burnett, an energy writer for EIA's Office of Energy Markets and End Use, to this article. Comments may be directed to Mr. B.D. Hong of EIA's Office of Coal, Nuclear, Electric and Alternate Fuels at 202–254–5365, via fax at 202–254–5765, or via Internet E–Mail at bhong@eia.doe.gov.

[1]Energy Information Administration, *The Changing Structure of the Electric Power Industry 1970–1991*, DOE/EIA–0562 (Washington, DC, March 1993), p. 11.

[2]B.D. Hong and E. R. Slatick, Energy Information Administration, "Carbon Dioxide Emission Factors for Coal, "*Quarterly Coal Report*, January–March 1994, DOE/EIA–0121 (94/IQ) (Washington, DC, September 1994), pp. 1–8.

Basic Emission Factors

A study of 5,426 of over 60 thousand coal analyses on file[3] at EIA indicated that the carbon-to-heat-content ratio of coal varied not only by coal rank but also by State of origin. These carbon-to-heat-content ratio differences reflect a geographic pattern of increasing coalification from west to east in the United States.

Coalification—the process whereby plant material is transformed into coal as a result of heat and pressure—is measured by the fixed carbon content of coal; the greater the degree of transformation of the coal, the higher its fixed carbon content, and, consequently, the higher its rank. Anthracite and bituminous coal, for example, are higher rank coals. The lower rank coals, subbituminous coal and lignite, have undergone less transformation.

Carbon is the principal source of heat in coal, making up between 60 and 80 percent of the weight of coal and generating about 14.5 thousand Btu per pound. In the combustion of coal, one atom of carbon combines with two atoms of oxygen to produce carbon dioxide. However, variations in the hydrogen content of coal, given its higher heating value (62.0 thousand Btu per pound), primarily explain variations in the carbon-to-heat-content of different coals. Although hydrogen usually makes up less than 5 percent of the weight of coal, its higher heating value provides a significant portion of the overall heating value of coal. The lower a coal's hydrogen content, the more a coal's heating value is attributable to its carbon content, thereby increasing its carbon dioxide emissions.

This carbon and hydrogen relationship illustrates why the lower carbon and hydrogen contents of subbituminous coal and lignite produce higher average carbon dioxide emissions in pounds per million Btu (211.9 and 216.3, respectively) than does the higher carbon and hydrogen content of bituminous coal (205.3) (Table 1). This relationship

[3]EIA maintains the Coal Analysis File, one of the largest databases of its kind.

also explains why the high carbon and low hydrogen content of Pennsylvania anthracite results in a high carbon dioxide emission factor (227.4).

Within coal ranks, carbon dioxide emission factors also vary among States. While bituminous coal is predominant in States east of the Mississippi River, subbituminous coal and lignite are predominant in States west of the Mississippi River. However, within each of these coal ranks, carbon dioxide emission factors vary widely by State of origin:

Table 1. Average Carbon Dioxide Emission Factors for Coal by Rank and State of Origin, 1992
(Pounds of Carbon Dioxide per Million Btu)

State of Origin	Anthracite	Bituminous Coal	Sub-bituminous Coal	Lignite
Alabama	—	205.5	—	—
Alaska	—	—	[a]214.0	—
Arizona	—	209.7	—	—
Arkansas	—	211.6	—	[b]213.5
California	—	—	—	[c]216.3
Colorado	—	206.2	212.7	—
Georgia	—	206.1	—	—
Idaho	—	205.9	—	—
Illinois	—	203.5	—	—
Indiana	—	203.6	—	—
Iowa	—	201.6	[d]207.2	—
Kansas	—	202.8	—	—
Kentucky:				
East	—	204.8	—	—
West	—	203.2	—	—
Louisiana	—	—	—	[b]213.5
Maryland	—	210.2	—	—
Missouri	—	201.3	—	—
Montana	—	209.6	213.4	220.6
Nevada	—	201.8	—	—
New Mexico	—	205.7	[e]208.8	—
North Dakota	—	—	—	218.8
Ohio	—	202.8	—	—
Oklahoma	—	205.9	—	—
Oregon	—	—	210.4	—
Pennsylvania	227.4	205.7	—	—
South Dakota	—	—	—	217.0
Tennessee	—	204.8	—	—
Texas	—	[f]204.4	—	213.5
Utah	—	204.1	207.1	—
Virginia	—	206.2	—	—
Washington	—	203.6	208.7	211.7
West Virginia	—	207.1	—	—
Wyoming	—	206.5	212.7	215.6
U.S. Average	**227.4**	**205.3**	**211.9**	**216.3**

[a]Based on carbon and heat content data supplied by Usibelli Coal Mining Company for the subbituminous coal currently being produced in the State.
[b]Based on the carbon dioxide emission factor for Texas lignite.
[c]Based on the carbon dioxide emission factor for U.S. lignite.
[d]Derived from "Element Geochemistry of Cherokee Group Coals (Middle Pennsylvanian) from South-Central and Southeastern Iowa," *Technical Paper No. 5*, Iowa Geological Survey (Iowa City, IA, 1984), pp. 15, 48, and 49.
[e]Based on the carbon dioxide emission factor for subbituminous coal.
[f]Based on the carbon dioxide ratio for U.S. high-volatile bituminous coal.
Source: Science Applications International Corp., "Analysis of the Relationship Between the Heat and Carbon Content of U.S. Coals," unpublished final report prepared for the Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels (Norristown, PA, September 1992).

- Emission factors for bituminous coal produced in the Appalachian Coal Basin range from a low of 202.8 in Ohio to a high of 210.2 in Maryland.
- Emission factors for bituminous coal produced west of the Mississippi River range from 201.3 in Missouri to 209.7 in Arizona.
- The emission factors for subbituminous coal range from 207.1 in Utah to 214 in Alaska.
- Most of the Nation's subbituminous coal is produced in Wyoming's Powder River Basin, where it has an emission factor of 212.7.
- Lignite from the Gulf Coast Coal Region (Arkansas, Texas, and Louisiana) has an emission factor of 213.5, significantly lower than that of lignite from the Fort Union Coal Region in Montana, where its emission factor is 220.6.

Weighted Emission Factors

Recent environmental concerns over sulfur dioxide emissions have influenced a movement away from the consumption of high-sulfur bituminous coal toward the use of low-sulfur subbituminous coal and lignite. This movement can be observed in changing patterns of coal production between 1980 and 1992. From 1980 through 1992, bituminous coal's share of total production fell from 76 percent to 65 percent. By contrast, subbituminous coal's share rose from 18 percent in 1980 to 25 percent of all coal produced in 1992. Likewise, lignite's share grew from 6 percent to 9 percent of the total during the same period. Anthracite's share of production remained at about 1 percent of the total throughout the period. That increased use of higher carbon dioxide western coals caused the national average carbon dioxide emission factor to rise from 206.5 in 1980 to 207.6 in 1992 (Table 2).

Given the changing mix of coal consumed in the United States, more accurate regional estimates of carbon dioxide emissions are obtained by weighting the emission factors for the coal distributed to consuming sectors by rank and State of origin. The data used to weight these emission factors, which detail coal distribution to each State by volume, rank, and State of origin, are reported to EIA by the different consuming sectors. Consuming-sector detailed emission factors are calculated on the basis of the mix of coal received by that sector in a given year.

From 1980 through 1992, consumption of low-rank coals by electric utilities, for example, increased significantly. During that period, electric utility consumption of subbituminous coal rose from 24 percent to 31 percent of all coal used at electric utilities, while consumption of lignite in this sector grew from a 7-percent share to a 10-percent share. That period was also marked by a corresponding decrease in the consumption of bituminous coal by electric utilities, from a 69-percent share to a 58-percent share of total consumption of coal. The increase in the consumption of higher emission, low-rank coals by electric utilities is reflected in higher weighted carbon dioxide emission

Table 2. Average Carbon Dioxide Emission Factors for Coal by Coal-Consuming Sector and State, 1980 and 1992

(Pounds of Carbon Dioxide per Million Btu)

State	Residential and Commercial		Industrial				Electric Utilities		State Average[b]	
			Coke Plants[a]		Other Coal					
	1980	1992	1980	1992	1980	1992	1980	1992	1980	1992
Alabama	205.4	205.5	205.5	206.1	205.5	205.7	205.0	205.3	205.1	205.4
Alaska	—	214.0	—	—	—	—	214.0	214.0	214.0	214.0
Arizona	—	208.6	—	—	209.2	206.7	208.0	207.7	208.1	207.6
Arkansas	205.3	222.3	—	—	201.4	205.2	212.7	212.7	210.7	212.5
California	204.5	204.1	208.7	—	205.6	204.2	—	—	207.5	204.1
Colorado	212.6	211.0	212.6	—	212.6	212.5	211.5	209.8	211.7	209.9
Connecticut	226.1	220.2	—	—	—	204.7	—	204.9	226.1	205.2
Delaware	221.8	221.1	—	—	205.9	207.4	206.0	206.9	206.0	207.0
District of Columbia	205.5	206.3	—	—	205.0	—	—	—	205.4	206.3
Florida	205.0	205.7	—	—	204.2	205.1	204.0	204.4	204.0	204.5
Georgia	204.7	204.9	—	—	204.9	204.9	204.3	204.8	204.3	204.8
Hawaii	—	—	—	—	—	204.4	—	—	—	204.4
Idaho	205.4	205.0	—	—	212.6	212.2	—	—	210.7	211.3
Illinois	203.9	203.9	205.2	206.5	204.2	203.7	207.1	206.2	206.7	205.9
Indiana	203.7	203.8	205.0	206.0	203.7	204.5	204.0	205.6	204.3	205.5
Iowa	205.1	204.2	—	—	205.7	208.3	207.2	211.1	207.0	210.7
Kansas	202.2	202.9	—	—	201.9	205.3	209.2	210.9	209.0	210.8
Kentucky	204.6	204.6	204.6	206.3	205.4	205.4	204.0	204.1	204.1	204.2
Louisiana	201.3	—	—	—	203.9	210.9	212.7	212.9	212.1	212.8
Maine	216.2	213.0	—	—	206.0	204.9	—	—	207.9	205.3
Maryland	210.6	211.7	205.9	—	206.1	208.4	206.6	207.0	206.3	207.1
Massachusetts	218.2	214.1	—	—	206.3	207.0	206.4	206.8	207.6	206.9
Michigan	205.0	205.0	205.5	—	204.8	205.3	206.0	208.9	205.7	208.5
Minnesota	208.6	212.3	—	—	211.6	211.8	212.9	213.0	212.7	212.9
Mississippi	202.6	227.4	—	—	204.0	204.6	204.7	204.5	204.7	204.5
Missouri	202.1	203.4	205.2	—	203.6	204.5	204.5	206.2	204.5	206.1
Montana	205.6	213.3	—	—	211.2	211.4	213.9	213.5	213.7	213.5
Nebraska	212.6	219.2	—	—	212.3	213.1	211.7	212.7	211.7	212.7
Nevada	208.4	204.1	—	—	204.5	204.1	208.2	208.4	208.1	208.3
New Hampshire	227.2	225.4	—	—	207.0	207.1	206.9	206.3	207.0	206.5
New Jersey	227.2	227.1	—	—	218.3	207.3	206.6	206.6	207.1	206.8
New Mexico	209.8	206.3	—	—	212.0	212.7	205.7	205.7	205.7	205.7
New York	218.9	218.0	205.5	206.1	206.9	207.0	205.7	206.1	206.3	206.5
North Carolina	204.9	206.2	—	—	204.8	205.7	205.6	205.8	205.6	205.8
North Dakota	218.5	216.8	—	—	218.8	218.3	218.8	218.8	218.8	218.6
Ohio	203.8	205.5	205.4	206.4	204.0	204.5	204.4	204.4	204.5	204.6
Oklahoma	205.7	207.0	—	—	202.2	207.5	210.5	212.6	210.0	212.3
Oregon	205.6	204.1	—	—	212.7	211.5	212.7	212.9	212.5	212.8
Pennsylvania	221.2	219.7	205.7	206.1	207.9	208.5	206.1	206.2	206.4	206.7
Rhode Island	223.9	227.4	—	—	210.0	—	—	—	217.2	227.4
South Carolina	204.8	205.3	—	—	205.0	205.3	204.9	205.0	204.9	205.0
South Dakota	212.0	212.8	—	—	210.5	212.7	218.1	218.8	217.6	217.9
Tennessee	204.5	204.6	210.2	—	204.8	205.5	204.0	204.0	204.1	204.2
Texas	213.7	211.0	209.8	—	212.3	212.3	213.0	212.9	212.8	212.9
Utah	204.1	204.1	210.8	205.6	205.2	204.1	204.1	204.3	205.7	204.4
Vermont	227.4	227.4	—	—	207.8	212.2	—	—	216.0	216.8
Virginia	205.0	206.3	206.2	206.2	205.1	206.2	205.9	206.0	205.7	206.1
Washington	204.3	206.9	—	—	206.3	205.8	208.7	209.3	208.3	209.1
West Virginia	205.0	210.2	205.3	206.7	205.4	206.6	206.9	207.0	206.6	207.0
Wisconsin	205.8	204.9	205.4	—	205.5	206.1	207.0	209.9	206.8	209.5
Wyoming	212.3	212.7	—	—	212.0	212.5	212.7	212.0	212.6	212.1
U.S. Average[b]	**210.6**	**211.2**	**205.8**	**206.2**	**205.9**	**207.1**	**206.7**	**207.7**	**206.5**	**207.6**

[a]

[b]Weighted averages. The weights used are consumption values by sector.

— = Not applicable.

Source: Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

factors assigned by EIA: a national average of 207.7 in 1992, up from 206.7 in 1980 (Table 2).

State average emission factors are derived by weighting all coals consumed by the various sectors in the State by rank and by the State of origin of the coal.

Since electric utilities are often a State's major coal consumer, changing patterns of coal consumption by this sector will affect a State's average carbon dioxide emission factor:

- In 1980, Michigan electric utilities received over 11 million short tons of bituminous coal from Kentucky (of a total of 22 million short tons of coal). Also in 1980, Michigan electric utilities received over 3 million short tons of subbituminous coal from Montana. By 1992, electric utilities in Michigan had received over 10 million short tons of subbituminous coal from Montana, and slightly over 6 million short tons of bituminous coal from Kentucky (of a total of nearly 28 million short tons of coal). Increased emission factors from western coal received by this sector caused the State average emission factor to rise from 205.7 to 208.5.[4]
- In 1980, electric utilities in Wisconsin received over 6 million short tons of bituminous coal from Kentucky and Illinois (of a total of 14.5 millions short tons of coal). By 1992, Wisconsin electric utilities received only 1.3 million short tons of bituminous coal from these States but were being supplied with over 10 million short tons of subbituminous coal from Wyoming (of a total of 17.6 million short tons of coal), more than twice the amount received from that State in 1980. During the period 1980 to 1992, Wisconsin's State average emission factor rose from 206.8 to 209.5, a difference largely influenced by increased consumption of higher emission coal from Wyoming by the electric utilities sector.[5]
- Relatively little coal is consumed in the States of Rhode Island and Vermont. In 1992, residential and commercial consumption of mostly high-emission Pennsylvania anthracite produced State average emission factors of 227.4 and 216.8, respectively.

EIA's carbon dioxide emission factors by coal-consuming sector and State will be updated periodically to reflect changing patterns of U.S. coal consumptions. Updated factors, as well as the most recent annual factors, will appear as a new appendix (see next page) in the *Monthly Energy Review*. The updated factors also will appear in EIA's *Quarterly Coal Report*, *State Energy Data Report*, and *Emissions of Greenhouse Gases in the United States*.

[4]Energy Information Administration, *Cost and Quality of Fuels for Electric Utility Plants 1980 Annual*, DOE/EIA-0191 (80) (Washington, DC, June 1981), pp. 31–34, 88–89, and Energy Information Administration, *Cost and Quality of Fuels for Electric Utility Plants 1992*, DOE/EIA-0191 (92)(Washington, DC, August 1993), pp 12, 37–44.

[5]Ibid.

Appendix. Carbon Dioxide Emission Factors for Coal

The need for accurate estimates of carbon dioxide emissions produced during the combustion of coal has led the Energy Information Administration (EIA) to develop basic emission factors. Basic emission factors reflect the carbon-to-heat-content ratio of coal, a ratio which measures carbon dioxide emissions per unit of energy (pounds per million Btu), assuming complete combustion. These basic factors are derived from 5,426 sample analyses maintained in EIA's Coal Analysis File. Variations in the carbon-to-heat-content of different coals were observed to follow coal rank and geographic origin, leading EIA to develop basic emission factors specific to the rank and the State of origin of the coal.

On the basis of these rank- and State-specific basic emission factors for coal, EIA has also developed emission factors by sector. These sectoral emission factors weight the coal consumed in a given sector by its rank and State of origin. Table A presents the U.S. average carbon dioxide emission factors for coal by sector:

- A higher average emission factor in the residential and commercial sector can be attributed to the steady consumption of bituminous coal and anthracite (presumably for home heating).
- The coke plants sector receives virtually all of its coal from only a few States in the Appalachian Coal Basin (West Virginia, Virginia, and eastern Kentucky). Hence, the emission factors for this sector have remained fairly constant.
- In the other industrial coal sector, increased consumption of low-rank, high-emission western coals has contributed to a rise in the average emission factor.
- In the electric utilities sector, which accounts for most U.S. coal consumption, a shift over time away from high-rank, low-emission bituminous coal to low-rank, high-emission subbituminous coal and lignite is reflected in a gradually rising weighted carbon dioxide emission factor.

Table A. Average Carbon Dioxide Emission Factors for Coal by Coal-Consuming Sector
(Pounds of Carbon Dioxide per Million Btu)

Year	Residential and Commercial	Industrial		Electric Utilities	U.S. Average[b]
		Coke Plants[a]	Other Coal		
1980	210.6	205.8	205.9	206.7	206.5
1981	212.0	205.8	205.9	206.8	206.7
1982	210.4	205.7	206.0	207.1	206.9
1983	209.2	205.5	205.9	207.2	207.0
1984	209.5	205.6	206.2	207.2	207.0
1985	209.3	205.6	206.4	207.3	207.1
1986	209.2	205.4	206.5	207.2	207.1
1987	209.4	205.2	206.4	207.3	207.2
1988	209.1	205.3	206.4	207.5	207.3
1989	209.7	205.3	206.6	207.5	207.3
1990	209.5	206.2	206.8	207.6	207.4
1991	210.2	206.2	206.9	207.7	207.5
1992	211.2	206.2	207.1	207.7	207.6

[a]No allowances have been made for carbon retained in non-energy coal chemical byproducts from the coal carbonization process.
[b]Weighted average. The weights used are consumption values by sector.
Source: Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

The Impact of Flow Control and Tax Reform on Ownership and Growth in the U.S. Waste-to-Energy Industry

by John Carlin*

Two issues, tax reform and developments in the practice of solid waste "flow control," are reshaping investment, and therefore patterns of growth and ownership, in the U.S. waste-to-energy industry. The Tax Reform Act of 1986 created a less favorable climate for private investment in waste-to-energy facilities. Once the act's impact is fully felt, private investment in less capital-intensive alternatives, such as landfills, will probably increase, and waste-to-energy facilities will be less likely to be privately owned.

Until recently, municipalities could implement flow control—the practice of ensuring that solid waste from a given jurisdiction was sent to a designated disposal facility—by enacting laws or ordinances or by applying economic incentives or disincentives. A May 1994 Supreme Court ruling struck down legislated flow control, and its fate now rests with Congress, which is considering several bills that would authorize flow control by municipalities and States. The failure to enact such legislation would further constrain the growth of waste-to-energy facilities in favor of landfills. However, the use of private waste-to-energy facilities not directly affiliated with municipalities would probably increase.

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Introduction

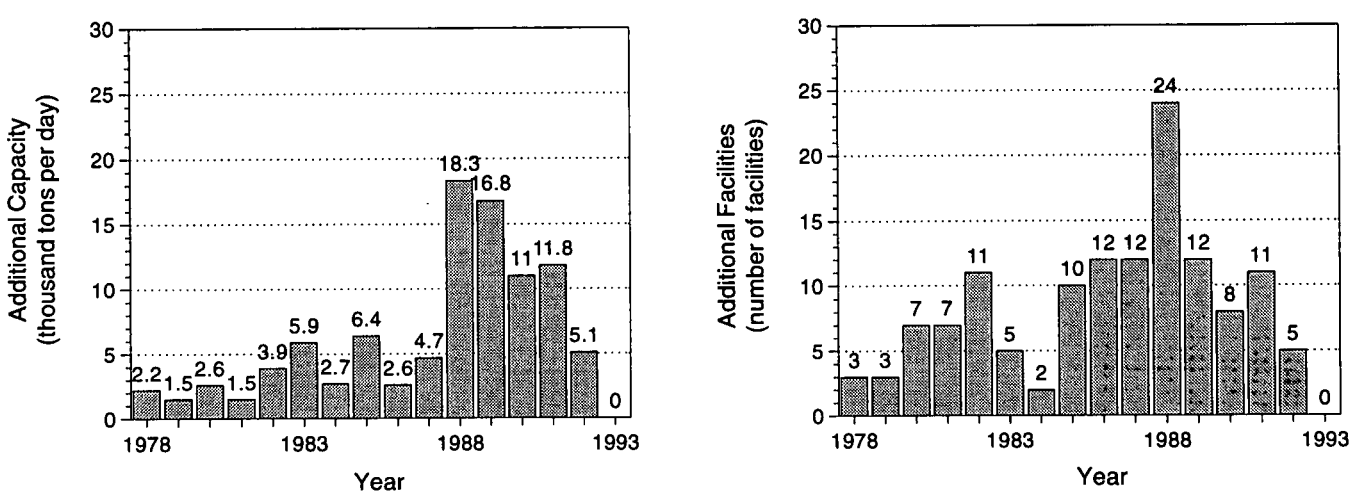
Until recently, the waste-to-energy (WTE)[1] component of the municipal solid waste (MSW) industry was one of the most rapidly growing applications of renewable energy. The WTE industry grew from virtually nothing in the late 1970's—before the passage of the Public Utility Regulatory Policies Act of 1978 (PURPA, Public Law 95–617) guaranteed a market for its energy—to approximately 0.3 quadrillion British thermal units (Btu)[2] in 1990. At least eight new facilities became operational each year from 1985 through 1991, and large annual additions to capacity occurred from 1988 through 1991 (Figure 1). The growth slowed during 1992, however, and in 1993 there were no new additions to capacity.

This article analyzes two key issues that could be influencing growth and ownership (both public and private) in the WTE industry. First, it discusses several aspects of the

[1]The WTE industry is defined as those facilities that combust waste into energy. It does not include those facilities that convert landfill gas into marketable energy.

[2]The British thermal unit (Btu) is a measure of energy. One Btu is the amount of energy required to raise the temperature of 1 pound of water at 39.2 degrees Fahrenheit by 1 degree. One quadrillion (10^{15}) Btu equals the energy content of approximately 170 million barrels of crude oil.

Figure 1. Annual Additions of Waste-to-Energy Capacity and Facilities, 1978–1993



Source: Figure developed by the Energy Information Administration, based on data from Eileen B. Berenyi and Robert N. Gould, *Resource Recovery Yearbook* (New York: Governmental Advisory Associates, Inc., 1993), pp. 229–670.

legislative and judicial treatment of the industry's ability to control waste feedstocks, including the uncertainty created by litigation over attempts by municipalities to direct the flow of waste to particular facilities; the May 16, 1994, ruling by the U.S. Supreme Court that such municipal ordinances are unconstitutional;[3] and possible congressional responses to that Supreme Court ruling. Second, the article discusses the impact of relevant provisions of the Tax Reform Act of 1986.

Securing waste feedstocks with either flow control or private contracts (i.e., contracts between waste disposal facilities and private parties, such as individual firms or homeowners' associations) is a technique used to enhance the prospects for the financial success of a particular waste disposal site or facility. Flow control (see box) can be either "legislated" or "economic." Legislated flow control occurs when State and local governments, acting in their capacity as waste managers, enact laws, regulations, and ordinances directing the flow of waste to particular facilities. These facilities may be publicly or privately owned, with the government acting as a "market regulator." Economic flow control has a similar objective, except that the government uses tools such as subsidies and taxes (but not legislation) to control the flow of waste. If a facility operating under the auspices of economic flow control happens to be publicly owned, the government is acting as a "market participant." The emphasis in this article is on legislated flow control. Unless the term economic flow control is explicitly used, flow control refers to legislated flow control.

On May 16, 1994, the U.S. Supreme Court declared unconstitutional a Clarkstown, New York, flow control ordinance on the grounds that it unfairly regulated interstate commerce and, therefore, violated the commerce clause of the U.S. Constitution. Because almost all of the new capacity coming on-line from 1990 through 1992 was financed with bonds secured with legislated flow control, this decision could affect the growth of the WTE industry. These contracts could be interpreted to be illegal and nonbinding and, therefore, unavailable as a means to secure financing and investment in new capacity. By using its authority to regulate interstate commerce, however, Congress could enact a law authorizing legislated flow control. Currently, there are draft bills in both houses of Congress. S. 2227 authorizes flow control for existing and new WTE facilities. H.R. 4683, on the other hand, limits flow control to existing facilities and proposed facilities that have already committed to use it. The Senate version would eventually phase out flow control. Municipalities would be limited to economic flow control or market forces.

The Tax Reform Act of 1986 has also affected investment in the capital-intensive WTE industry. The act limits the amount of tax-free bonds that can be issued by States for privately owned waste facilities and removes certain tax subsidies that privately owned facilities previously enjoyed. To date, almost all of the privately owned WTE facilities that have been constructed or are under construction have qualified for treatment under the old tax laws. Once the act's effects are fully felt, it will encourage public ownership of

[3]*C&A Carbone, Inc. v. Town of Clarkstown, New York*, No. 114, S. Ct. 1677 (1994).

Flow Control Characteristics

Generally, flow control can be defined as the laws, regulations, and economic incentives or disincentives used by waste managers to direct waste generated in a specific geographic area to a designated landfill, recycling, or WTE facility. In some cases, the waste may be delivered first to a transfer station, then sorted and reshipped. The specific form and mix of controls instituted by State and local governments depend on the objectives desired.

By far the most frequently used rationale for choosing flow control is to ensure the financial viability of a WTE facility by providing a reliable, long-term supply of raw materials. This ensures the facility of obtaining revenues from tipping fees (charges for waste disposal at the facility) and the sale of electricity or steam or both, and, in some cases, from the sale of materials for recycling, depending on the type of waste disposal facility designated to receive the waste. This assurance is critical in raising capital to finance the construction of a facility.

Legal and regulatory flow control (legislated) can be implemented in several ways. The municipality may collect and dispose of the waste with government employees and vehicles, contract with private haulers for some portion of the process, or grant permits, licenses, or franchises for the collection, transportation, and disposal of waste only to those entities that deliver the waste to a designated facility. Local laws and ordinances to direct waste flows are usually authorized, required, or supported by State governments.

Economic flow control combines market forces with tools such as subsidies, grants, fees, and taxes to the extent necessary to control waste flows. It attempts to direct the movement of waste without legal or regulatory controls. The distinction between legislated and economic flow control is critical to the development of defense strategies against legal challenges.

Publicly owned WTE facilities and certain privately owned facilities that are affiliated with municipalities can engage in either legislated or economic flow control. A third category, called merchant facilities, are independently constructed by entrepreneurs without municipal involvement in guaranteeing waste flows. Merchant facilities usually employ private contracts to secure waste supplies.

new WTE facilities (reversing the trend toward private ownership) and less capital-intensive forms of waste disposal instead of new WTE capacity. Further, if Congress does not authorize legislated flow control as a waste management tool for municipalities, growth in the WTE industry could be further slowed.

Background

At the end of 1993, there were 114 WTE facilities operating in the United States, with a combined capacity of almost 97 thousand tons per day.[4,5] Seventy-five percent of the facilities and 87 percent of the capacity are located in States east of the Mississippi River (Figure 2). The six States with the largest amount of capacity—Florida, New York, Massachusetts, Pennsylvania, Virginia, and Connecticut—represent almost 60 percent of the total capacity in the Nation. Landfill space is at a premium in these States because of high water tables, high population densities, or other reasons. Incinerating waste reduces its volume by approximately 90 percent, preserving scarce landfill space.

Almost 58 percent of the total current WTE capacity was financed and constructed in conjunction with flow control agreements. The use of this technique appears to be evenly distributed throughout the Nation. Of the 32 States with WTE facilities, eight—Arkansas, Illinois, Maryland, Massachusetts, Mississippi, Montana, South Carolina, and Texas—do not employ flow control.

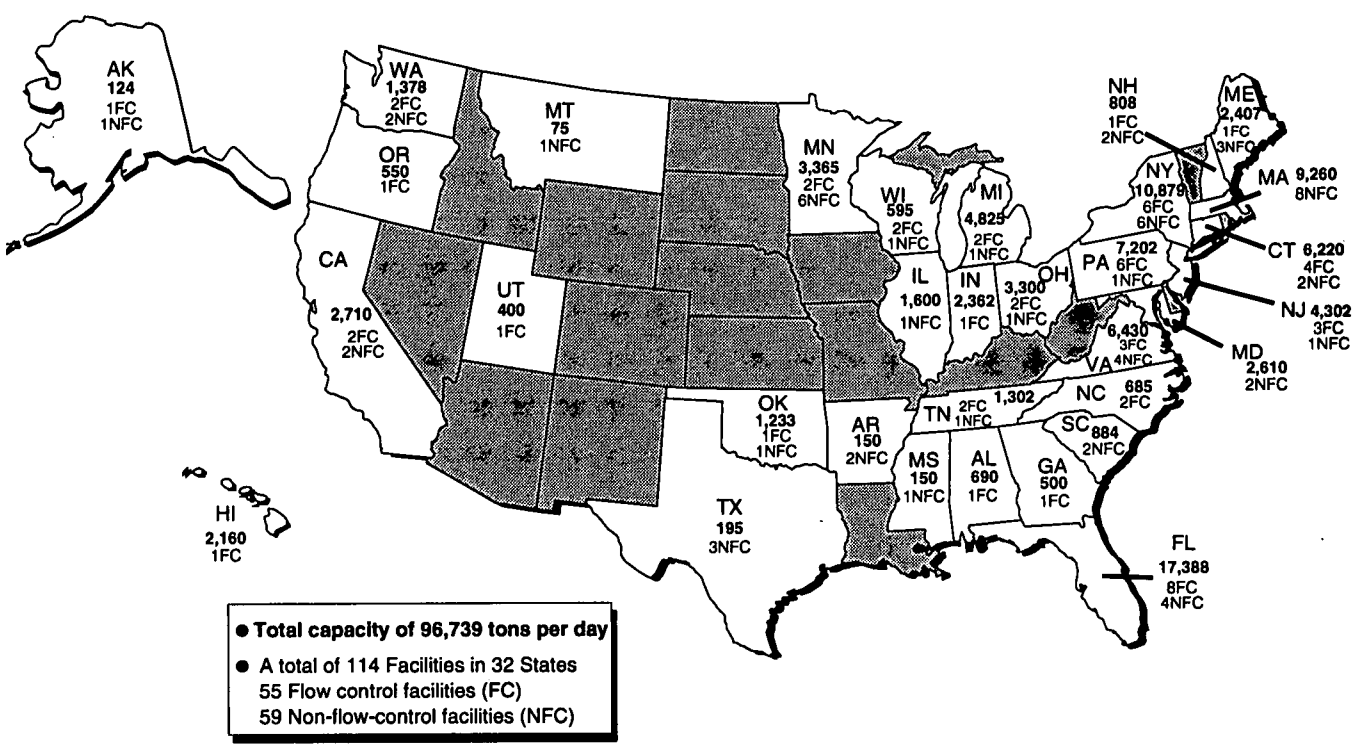
The number of flow control facilities in each State does not always fully reflect the influence of flow control as a policy option. In testimony at the Environmental Protection Agency (EPA) hearings, for example, officials from Minnesota and the city of Urbana, Illinois, commented that the possibility of directing waste flows to a WTE facility can be used as a leveraging tool to encourage the good-faith negotiation of voluntary contracts. In Minnesota, flow control is considered a last resort, to be used only when voluntary agreements to deliver waste to designated facilities cannot be reached. Flow control ordinances can be adopted only after a series of public hearings and State approval.[6]

[4]One ton of MSW is equivalent to approximately 10 million Btu, depending on the content of the waste. Together, in 1993 these WTE facilities produced energy equivalent to the average annual output of nearly seven typical (400 megawatt) coal-fired power plants.

[5]Eileen B. Berenyi and Robert N. Gould, *Resource Recovery Yearbook* (New York: Governmental Advisory Associates, Inc., 1993), pp. 229–670. This article uses a subset of the Governmental Advisory Associates (GAA) survey data and includes only the facilities that market energy. It does not include the facilities that only process refuse-derived fuel (MSW that has been processed to remove noncombustible material) to be sold to other facilities for combustion, or incinerators that do not market energy.

[6]U.S. Environmental Protection Agency, *Municipal Solid Waste Flow Control: Summary of Public Comments*, EPA 530–R–94–008 (Washington, DC, February 8, 1994), p. 7.

Figure 2. Capacity and Number of Waste-to-Energy Facilities by State, 1993
(Tons per Day)



Source: Figure developed by the Energy Information Administration, based on data from Eileen B. Berenyi and Robert N. Gould, *Resource Recovery Yearbook* (New York: Governmental Advisory Associates, Inc., 1993), pp. 229–670.

To understand the pros and cons of flow control, it is helpful to identify the winners and losers. Simply put, the winners are both those facilities that are designated to receive the waste and those municipalities that view flow control as an effective management tool. The losers are the potentially competing facilities that are not designated to receive the waste and—depending on whether the long-run, least-cost waste disposal options are chosen—the general public, which must pay for any economic inefficiencies with higher taxes and higher waste-disposal fees.

Municipalities generally support flow control because they view waste collection and disposal as public services, similar to sewage disposal, and thus the responsibility of government. Municipalities argue that the only difference between waste collection and sewage disposal is that trucks are used to haul the waste, whereas sewage is transported via sewage lines. Few would argue, they say, that sewage lines should be unregulated to allow several competitors to provide the same service in a given geographic area.

Municipalities also claim that they are legally liable for the safe and sanitary disposal of waste. Pollution problems, such as groundwater contamination, may not be fully known until many years after the pollution has occurred, by which time the landfill responsible for the pollution may be out of business or financially unable to meet its cleanup obligations. Municipalities consequently argue that they must control pollution problems at the outset by directing waste to environmentally sound disposal sites.[7]

The legal liability of the municipal governments comes in several forms. The Resource Conservation and Recovery Act of 1976 (RCRA, Public Law 94–580) requires State and local governments to have plans that require landfills to meet certain minimum standards. The RCRA regulations also require the owner or operator of a landfill to demonstrate financial capability for the cost of landfill closure, post-closure care, and any corrective action that may be necessary. RCRA, as amended by the Hazardous and Solid Waste Act Amendments of 1984 (Public Law 98–616), ensures that planning for WTE facilities takes into consideration the current and future recycling requirements of the community.[8,9] Furthermore, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, Public Law 96–510), as amended by the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99–499), holds local governments potentially liable for proper treatment of household hazardous waste that may work its way into the ordinary trash stream.[10]

Arguments against the use of flow control as a tool for MSW management are based on economic or legal grounds or both. Opponents claim that the designated flow may not be the least-cost approach. Among the opponents who claim that flow control is economically inefficient are some WTE companies and many recyclers. Others argue that it violates anti-trust laws, unreasonably restrains interstate commerce, and constitutes the illegal seizure of property (discussed further below).

Flow control discussions bring out the classic arguments between those who advocate free markets and those who believe that government can and should be involved in solving society's problems. There is, however, general agreement that government needs to be involved in the production of some public goods and services. The issue that needs resolution is the degree of that involvement.

Legal History of Flow Control

The first legal challenge to flow control[11] occurred during the 1970's.[12] Hybud Equipment Corporation was a local waste hauler and recycler in Akron, Ohio. Until the city passed a flow control ordinance, the company separated certain recyclables for resale before delivering the waste to a disposal facility. The ordinance required that all the waste be taken directly to a particular WTE facility. Hybud argued that the ordinance restrained trade in violation of the Sherman Antitrust Act, that it imposed an impermissible burden on interstate commerce in violation of the commerce clause of the Constitution, and that it confiscated property without just compensation. The city of Akron argued that it was exempt from Federal antitrust laws as a result of the State action exemption (discussed in the next paragraph), that it was using police power with an insignificant effect on interstate commerce, and that it was not confiscating property. The Federal District Court and the U.S. Court of Appeals ruled in favor of the city of Akron. The courts' most significant finding was that the local government was acting pursuant to a State policy to substitute monopoly public service for competition in the waste disposal industry. The city was thus excused from compliance with Federal antitrust laws under the State action exemption.

This decision was appealed to the U.S. Supreme Court. However, before the case could be heard, the Supreme Court elaborated on the exemption of State actions.[13] The Court found "that a local government can be liable for violation of antitrust laws for restraining trade unless (1) it is acting pursuant to a clear and affirmatively expressed State policy permitting restraint of trade; and (2) such policy is actively supervised by the State." The Court sent the Akron case back to the lower courts, where earlier decisions were ultimately upheld.

In a later case,[14] the Court clarified the intent of the terms "State policy" and "active State supervision," ruling that local government actions are exempt from antitrust liability

[7] *Municipal Solid Waste Flow Control*, pp. 3–6.

[8] *Federal Register*, Volume 40 of the Code of Federal Regulations, Part 258, October 9, 1991, 56FR50978).

[9] 42 U.S.C. 6905(b)(3).

[10] 42 U.S.C.A. Section 9607.

[11] For more detail and legal interpretations of individual cases, see William L. Kovacs and Martha E. Pellegrini, "Flow Control: The Continuing Conflict Between Free Competition and Monopoly Public Service," *Resource Recovery Report* (Washington, DC, December 1992). An update discussing the most recent U.S. Supreme Court decisions will be available in the summer of 1994.

[12] *Hybud Equipment Corp. v. City of Akron*, as cited in *Resource Recovery Report*.

[13] *Community Communications Co., Inc. v. City of Boulder*, as cited in *Resource Recovery Report*.

[14] *Town of Hallie v. City of Eau Claire*, as cited in *Resource Recovery Report*.

when such activities are generally authorized, but not necessarily compelled, by the State. The general-purpose clauses of most solid waste statutes would thus be considered sufficient authorization to protect local governments from antitrust laws.

As it became clear that plaintiffs could not win legal disputes by claiming that flow control ordinances violated antitrust laws, they initiated new challenges under the commerce clause of the U.S. Constitution. In 1978, the Supreme Court defined waste to be an article of interstate commerce that cannot be discriminated against unless there is some reason, apart from its origin, to treat it differently,[15] or unless Congress specifies otherwise for particular articles of commerce.

Other Supreme Court decisions[16] have defined an exception to the commerce clause, allowing States to restrict the flow of waste when they or local governments are participants in the waste disposal business (as owners of facilities and utilizing economic flow control), rather than acting as regulators. State and local governments could thus meet commerce clause challenges to flow control by changing their role to that of owner and operator of waste disposal facilities using subsidies, not ordinances, to control the flow of waste.

State and local governments thus faced a dilemma: whether, in developing waste plans, to act as market regulators or as market participants. State and local governments instituting flow control through legislation were market regulators and were vulnerable to challenges under the commerce clause. On the other hand, the use of economic mechanisms to control the flow of waste could cast governments as market participants and expose them to litigation under antitrust laws. For governments to be classified as market participants, they would actually have to own and operate waste facilities, either directly or through partnerships.

Court decisions concerning the applicability of the commerce clause in assessing the legal viability of flow control ordinances (i.e., local governments acting as market regulators) varied from case to case, but, until recently, certain patterns were evolving. The courts were more likely to rule in favor of such ordinances to the extent that the following principles were adhered to:

- The regulation had only incidental effects on interstate commerce.
- It treated in-State and out-of-State trash similarly.
- It represented a good-faith effort by local governments to deal effectively with local solid waste problems, but not at the expense of out-of-State individuals.

In 1992, the Supreme Court held that State-imposed waste import restrictions are illegal "economic protectionist" measures.[17,18] The Court ruled that Michigan's solid waste management law, which prohibited private landfills from accepting out-of-county waste, violated the commerce clause and was, therefore, unconstitutional. The Court's decision stated that "a State (or one of its political subdivisions) may not avoid the strictures of the Commerce Clause by curtailing the movement of articles of commerce through the subdivisions of the State, rather than through the State itself." The Court ruled that the Michigan counties could provide safe disposal of future waste without discriminating between waste from different origins. Thus, the stage was set for a similar ruling in a flow control case.

On December 7, 1993, the Court heard oral arguments on a Clarkstown, New York, flow control ordinance requiring that all MSW generated within the town be delivered to the town's own transfer station. The stated purpose of the ordinance was to maintain revenue to amortize the cost of the facility. A New York State court, which ignored the export barrier to the interstate movement of waste, ruled that the flow control ordinance did not violate the commerce clause because the ordinance "applies even-handedly to all solid waste processed within the Town regardless of point of origin."

The Court ruled in May 1994 that the Clarkstown flow control ordinance was unconstitutional. The Court found that the ordinance regulated interstate commerce and was within the domain of the commerce clause. Although the immediate effect of the ordinance was to direct the local transport of solid waste to a designated site within the local jurisdiction, the Court said, the economic effects were interstate in reach. The ruling stated that, given the ordinance's relevance to interstate commerce, case law dictates two constitutionality tests: (1) Does the ordinance discriminate against interstate commerce? and (2) Does the ordinance excessively restrict interstate commerce relative to the benefits gained by the local community? The Court found that the ordinance discriminated against interstate commerce because it drove up the cost of out-of-State waste disposal and deprived out-of-State businesses of access to the local market: "Discrimination against interstate commerce in favor of local business or investment is *per se* invalid, save in a narrow class of cases in which the municipality can demonstrate, under rigorous scrutiny, that it has no other means to advance a legitimate local interest."[19] Because the ordinance was found to discriminate against interstate commerce, the Court did not apply the second test.

In this case, the Court believed that Clarkstown had other means (nondiscriminatory alternatives) to address its waste disposal problems. Health and environmental problems could be remedied by enacting uniform safety regulations, for example. Further, if special financial arrangements were

[15] *City of Philadelphia v. State of New Jersey,* as cited in *Resource Recovery Report.*

[16] *Hughes v. Oklahoma,* and *Reeves v. Stake,* as cited in *Resource Recovery Report.*

[17] *Fort Gratiot Sanitary Landfill v. Michigan Department of Natural Resources* as cited in Richard S. Moskowitz, "Legal Issues Facing the Solid Waste Industry," paper presented at an educational seminar sponsored by the National Solid Waste Management Association (Baltimore, MD, February 1994).

[18] For a more detailed discussion of recent Supreme Court cases and pending legislative actions, see "Legal Issues Facing the Solid Waste Industry."

[19] The Court also ruled that Clarkstown's action of directing waste away from out-of-town disposal sites for environmental reasons was an extension of the town's police powers beyond its jurisdictional limits.

necessary to ensure the economic survival of the facility, the municipality could engage in economic flow control.

In summary, the Court held, in a far-reaching decision,[20] that the Clarkstown legislated flow control ordinance violated the commerce clause by discriminating against interstate trade and was therefore unconstitutional, unless Congress addressed the issue and granted such authority to the States. The Court also reiterated that States may not subvert the intent of the commerce clause by limiting the movement of articles of commerce through subdivisions of the State, rather than through the State itself.

It is not clear, however, how broad the effects of this decision will be in any particular State, given the different logistical flows of waste among and within States. Must a municipality near a State border follow different rules than a municipality hundreds of miles from any State border? In addition, although the Court ruled that municipalities can engage in economic flow control as an alternative to legislated flow control, economic flow control may be vulnerable to antitrust suits. How viable an alternative is economic flow control?

Although legislated flow control has been declared unconstitutional, Congress has the power, through its Constitutional authority to regulate interstate commerce, to pass legislation permitting it. The House of Representatives and the Senate have both drafted bills that would authorize flow control in one form or another. For example, the House Energy and Commerce Subcommittee on Transportation and Hazardous Materials has reported out a bill (H.R. 4683) that would authorize flow control if the laws, ordinances, or regulations were in effect, and the waste were designated to an existing or proposed waste management facility, by May 15, 1994. All such authority would terminate at the end of the useful life of the designated facility. In contrast, S. 2227, as proposed, is much less restrictive with respect to new facilities. Municipalities would be authorized to institute flow control for residential waste even if it were not currently in use.

In preparation for future legislation, Congress has asked EPA to undertake a detailed study of the impact of flow control on the entire MSW industry. The purpose of the study is to review States with and without flow control authority and to describe the impact of such legislation on the protection of human health and the environment, the development of State and local waste management capacity, and the achievement of State and local goals for source reduction, reuse, and recycling. The study is scheduled to be completed and delivered to Congress during the fall of 1994.

Trends in the Use of Flow Control

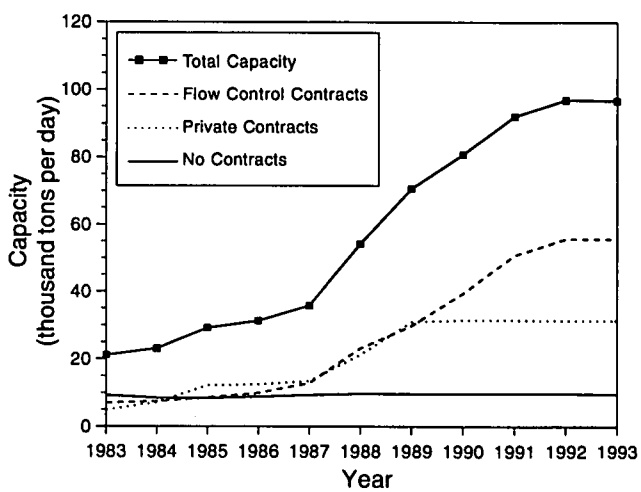
Almost all of the new WTE facilities that began operating from 1983 through 1993 secured their financing and waste supplies either with private contracts or with flow control contracts (Figure 3), and the use of both types of contracts grew rapidly during the period. Facilities using contracts increased their share of the market at the expense of facilities not contractually securing waste supplies. By the early 1990's, growth in the market was dominated by facilities with flow control contracts or agreements.

This trend can be attributed, in part, to changes in the types of State and local debt instruments used to finance public investment, which have greatly influenced management practices in securing waste supplies for solid waste facilities. During the mid-1960's, general obligation bonds represented approximately two-thirds of long-term, tax-exempt debt, twice the amount of revenue bonds. Municipalities could more easily and cheaply raise capital if they could use their creditworthiness as collateral for repayment, as is the case with general obligation bonds. However, as municipalities sought to minimize their financial exposure and liability and to relieve the burden on general obligation bond limits, revenue bonds (which are secured only with the revenues from the financed project, such as a particular waste disposal facility) came to dominate the market. By the 1980's, the revenue bond share had grown to between two-thirds and three-fourths of the market.[21] Flow control was available as a convenient tool to assure potential investors that there would be sufficient funds to repay the debt at the agreed rate of interest. When this tool was not available in a State or was not the preferred technique, private contracts were negotiated.

With revenue bonds replacing general obligation bonds as the dominant debt instrument used to finance investments in solid waste disposal, the WTE industry had to grow and mature without the benefit of having State and local governments directly guarantee the financial security of their facilities. If financial security was required for bonds, or simply as good business practice, flow control and private contracts were available.

[21]Curlee, T. Randall, et al., *Waste-to-Energy in the United States: A Social and Economic Assessment* (Westport, CT: Quorum Books, 1994), p. 119.

Figure 3. Trends in Securing Waste for Waste-to-Energy Facilities, 1983–1993, End of Year



Source: Figure developed by the Energy Information Administration, based on data from Eileen B. Berenyi and Robert N. Gould, *Resource Recovery Yearbook* (New York: Governmental Advisory Associates, Inc., 1993), pp. 229–670.

[20]*C&A Carbone, Inc. v. Town of Clarkstown, New York*, No. 114, S. Ct. 1677 (1994).

At the end of 1983, 44 percent of the total WTE capacity of 21,182 tons per day operated without any type of arrangement to secure waste supplies (Figure 3). Most of the capacity that came on line from 1983 through 1989 did have such arrangements, and facilities without them represented only 14 percent of total capacity at the end of the period. Private or flow control contracts represented 44 percent and 42 percent, respectively, of the total WTE capacity of 70,631 tons per day at the end of 1989.

During the second half of the 1980's, changes in comprehensive waste management goals influenced the type of contracts chosen by the WTE industry. Environmental standards for both airborne emissions from WTE facilities[22] and groundwater contamination from landfilled combustion ash became more stringent[23] and recycling became an integral part of waste management. More than 140 recycling-related laws were enacted by 38 States in 1990. Most of these States and the District of Columbia now have comprehensive laws that require recycling.[24] Based on testimony by State and local officials at EPA-sponsored public meetings in late 1993,[25] municipalities overwhelmingly believe that directing the flow of waste to specific facilities helps them achieve recycling goals and meet more stringent environmental standards for waste disposal. Of the 61 commenters, 59 supported flow control as a waste management tool. (Two local governments preferred free markets.)

Supporters favored flow control for three main reasons. First, flow control ensures the economic viability of designated facilities and provides the financial assurance that investors and bond ratings firms require. Second, solid waste management is the inherent responsibility of municipal government and flow control allows for effective and environmentally responsible solid waste planning and management. With this technique as the foundation, an integrated solid waste management system can be developed and implemented. (For example, flow control can ensure that food and yard wastes go to a compost facility, mixed waste goes to a transfer station for recycling, and combustible waste goes to an incinerator.) Finally, municipalities are ultimately liable for local environmental problems regardless of ownership or fault. Flow control supporters argued that the liability and the authority to direct waste to environmentally safe facilities should go hand in hand (although liability was not as important an issue to municipalities as were economic security and waste management).

Although municipalities have overwhelmingly adopted flow control in recent years, there is no conclusive evidence to support the contention that flow control leads to the most economically efficient waste disposal.[26] Flow control allows municipalities to control recycling levels, monitor recycling achievements, and discreetly pay for recycling with higher tipping fees. With a few exceptions, the depressed market prices of recycled products do not cover the cost of recycling.

During the period from 1990 through 1993, only three non-flow-control facilities have become operational, with a total capacity of less than 1,200 tons per day. Two of these facilities had private contracts. The third, built with city revenues, did not contractually secure waste supplies. During the same period, 21 flow control facilities with almost 27,000 tons per day total capacity have become operational (Figure 3).[27] Most of this capacity is in States that had extensive waste recycling programs by 1990 (Table 1). Those programs consist of recycling goals and various forms of recycling legislation. Hawaii is the only State that added WTE capacity during this period that was not extensively involved in recycling. During EPA's public meetings, officials from Hawaii said that the primary use of flow control in their State is to direct waste to a WTE facility in order to extend landfill life.[28] In other States, recycling legislation consists of mandatory development of local recycling programs, or ordinances and specified waste reduction goals that localities may choose to meet, in part, through recycling. Recycling goals range from 20 percent to 50 percent of annual waste totals.[29]

The WTE industry's history may offer clues to its future business practices. According to a database compiled by the private consulting group Governmental Advisory Associates, there were 114 WTE facilities as of the end of 1992. An additional 29 facilities had been built during the period from 1978 through 1992 but had gone out of business. Of the latter, 15 facilities (representing 72 percent of the failed capacity) did not have contracts to secure waste supplies (Figure 4). Of the 114 surviving facilities, 55 (representing 58 percent of total surviving capacity) operate with flow control contracts and 35 (33 percent of total capacity) have private contracts. The remaining 24 facilities (9 percent of capacity) do not have contractually secured waste supplies. The surviving facilities are larger than the failed facilities, which generally did not represent as substantial investments.[30]

Whereas most construction bonds for WTE facilities are secured with guarantees to supply an amount of waste equal to 85 percent of capacity,[31] eight of the 29 facilities that went out of business from 1978 through 1992 reported capacity utilization rates under 70 percent in their last year of operation. Seven of these eight facilities did not have contracts securing waste supplies. The surviving facilities had higher utilization rates: only four of the 90 surviving facilities with

[22]C. David Gaige and Richard T. Halil, Jr., "Clearing the Air About Municipal Waste Combustors," *Solid Waste & Power*, Vol. 6, No. 1 (January/February 1992), pp. 12–17.

[23]Jonathan Kiser, "Municipal Waste Combustion Ash: Recent Developments," *Environmental & Waste Management World*, Vol. 6, No. 5 (June 1992), pp. 1–2.

[24]National Solid Wastes Management Association, *Recycling in the States, 1990 Review* (Washington, DC, September 1991).

[25]*Municipal Solid Waste Flow Control*, pp. 3–6.

[26]The overall efficiency of flow control is being addressed in EPA's study to be delivered to Congress in the fall of 1994.

[27]*Resource Recovery Yearbook*, pp. 229–670.

[28]*Municipal Solid Waste Flow Control*, p. 4.

[29]Jim Glenn and David Riggle, "The State of Garbage in America, Part II," *Biocycle* (May 1991), pp. 30–35.

[30]*Resource Recovery Yearbook*, pp. 229-670. This discussion does not include three facilities in the Governmental Advisory Associates database that were temporarily shut down for retrofit.

[31]Personal communication with Herb Kosstrin of R.W. Beck on March 2, 1994. R.W. Beck conducts feasibility studies for WTE facilities prior to the issuance and rating of bonds. This information was confirmed by personal communication with David Livingstone of Smith Barney Shearson, one of the major underwriters of WTE bonds.

either flow control or private contracts had capacity utilization rates under 70 percent, and six of the 24 surviving facilities without contracts had capacity utilization rates under 70 percent. In general, there was little difference between the capacity utilization rates of facilities with private contracts and those with flow control contracts.

Because legislated flow control was ruled unconstitutional, its future rests with Congress. Bills now under consideration would protect flow control ordinances and agreements that meet certain conditions. One of the issues to be resolved is whether legislated flow control should be made available for new capacity. If not, it is likely that new capacity will be constructed in conjunction with economic flow control arrangements (for non-merchant facilities) and private contracts. Municipalities will probably be less interested in owning WTE facilities. If so, it would tend to open up the market for merchant facilities and reduce the impact of the shift towards public ownership resulting from the Tax Reform Act of 1986, discussed in the following section.

Impact of the Tax Reform Act of 1986 on WTE Capacity

The Tax Reform Act of 1986 has influenced ownership decisions (private versus public) in the WTE industry and waste disposal choices (capital-intensive WTE versus less capital-intensive options such as landfilling) in the MSW industry as a whole. The 1986 act modified several decades of earlier tax laws, which can be broken down into two categories: those directly lowering the rate of return on capital investments and those placing allocation caps on tax-free private activity bonds (PAB's).

A brief review of earlier tax laws may clarify the intent of the 1986 act. The first income tax law, passed in 1913, exempted interest earned on bonds issued by State and local governments from taxable income. As a response to increased use of bonds issued for private purposes, the Revenue and Expenditure Control Act of 1968 made the first attempt to distinguish public purpose tax-exempt bonds from private purpose taxable bonds. This law coined the term "Industrial Development Bonds" (IDB's) for taxable bonds. A bond was taxable if more than 25 percent of its proceeds were used by a private business and secured by private business property. The Deficit Reduction Act of 1984 limited IDB's to the greater of $150 per State resident or $200 million.[32] The Tax Reform Act of 1986 added further limitations to the States' use of tax-exempt bonds.

[32]Dennis Zimmerman, *The Private Use of Tax-Exempt Bonds*, (Washington, DC: The Urban Institute Press, 1991), Chapter 11.

Table 1. 1990 Recycling Characteristics of States With New Operating Waste-to-Energy Facilities, 1990–1993

State	1990 Recycling Characteristics		New WTE[a] Capacity (Tons per Day)			
	Goal (Percent of Waste)	Legislation[b]	1990	1991	1992	1993
Alabama	None	MP, MR	690(F)	0	0	0
Connecticut	25	MO	0	300(C)	600(F)	0
Florida	30	MR	0	2,250(F) 528(F) 2,250(F) 1,050(F)	0	0
Hawaii	None	None	0	2,160(F)	0	0
Maine	50	None	0	0	200(F)	0
Michigan	20–30	None	625(F)	0	0	0
Minnesota	35	MP,MR	1,200(F)	0	0	0
New Jersey	25	MO,MR	2,277(F) 575(C)	1,050(F)	0	0
New York	40–42	MO	0	750(F) 518(F)	400(F)	0
Pennsylvania	25	MO	0	1,200(F) 1,344(F)	2,688(F) 1,200(F)	0
Virginia	25	MP,MR	3,000(F)	0	0	0
Washington	None	MP	0	800(F) 300(U)	0	0

[a]WTE=Waste-to-energy. F=One WTE facility utilizing flow control. C=One WTE facility utilizing private contracts. U=One WTE facility without waste supply contracts.

[b]MP=States with legislation requiring local governments to develop recycling programs. MR=States with legislation requiring local governments to reach specified waste reduction goals of which recycling may be a part. MO=States with legislation requiring municipalities to pass mandatory recycling ordinances.

Source: Jim Glenn and David Riggle, "The State of Garbage in America, Part II," *Biocycle* (May 1991), pp. 30–35.

The Tax Reform Act of 1986 divided State and local bonds into government bonds and PAB's. (The term IDB was eliminated.) The definition of private activity was changed by further limiting the private share of the activity. A private entity could use no more than 10 percent of the bond proceeds, or secure no more than 10 percent of the bonds with private property or revenues, to maintain the preferred government bond classification (Table 2).[33] Bonds that did not exceed this 10-percent limitation were classified as government bonds and maintained their tax-exempt status.

Under the 1986 act, PAB's (bonds that exceed the 10-percent limitation) can be tax-exempt[34] only if they are determined to be qualified bonds. To meet this classification, 95 percent of the bond proceeds must be used for qualified investments, such as a WTE facility. Qualified investments can be undertaken with tax-exempt bonds only to the extent that each State's volume caps are not exceeded. The act further tightened the volume caps and phased them in between 1986 and 1988 to a limitation of $50 per capita or $150 million per State, whichever is greater. Municipalities must prioritize their use of PAB's in any given year and plan for the future, since unused caps may be carried forward to future years.[35]

The 1986 act also eliminated the investment tax credit and lengthened depreciation schedules for WTE facilities. WTE facilities completed after the act became law can still qualify for the pre-tax depreciation schedules and investment tax credits if two conditions were met prior to March 2, 1986: (1) there was a written binding contract between the various parties, and (2) a commitment of at least $200,000 had been made to finance or construct the facility.[36] In some States, there are other ways to build a facility and still qualify for treatment under the old tax laws, but the one mentioned above appears to be the most commonly used.

The elimination of tax credits, the extension of depreciation schedules, and other tax changes have reduced the amount of capital private firms are willing to invest to ensure that an acceptable and competitive rate of return would be maintained. Consider, for example, a 1,500-ton-per-day WTE facility with capital costs of $150 thousand per ton and a typical operating capacity of 85 percent. A firm that would have been willing to invest 17.5 percent of total costs under the old tax laws now must limit that investment to only 6 percent of total costs under the new tax laws in order to maintain the same 15 percent rate of return on equity. The other 11.5 percent of the capital costs would have to be financed with additional bonds and paid for with higher tipping fees. Tipping fees would have to rise by approximately 14 percent to fund the additional debt.[37]

[33]U.S. Government Accounting Office, *Environmental Infrastructure: Effects of Limits on Certain Tax-Exempt Bonds*, GAO/RCED–94–2 (Washington, DC, October, 1993).

[34]Interest income from PAB's is included in calculations for the alternative minimum tax.

[35]Jeremy A. Spector, "Tax-Exempt Financing For Solid and Hazardous Waste Facilities," *Tax Notes* (May 29, 1989), pp. 1157–1167.

[36]Commerce Clearing House, Inc., *933 CCH-Standard Tax Reports*, Code 168(i)(13)(B)(iv) (Washington, DC, 1992), p. 11250.

[37]Based on cash flow analysis by David Livingstone of Smith Barney Shearson, one of the major underwriters of WTE bonds.

By thus being unable to bring as much financial clout to the bargaining table, the negotiating position of private firms has been substantially weakened. Moreover, WTE facilities have typical life expectancies of approximately 40 years and public ownership means that the benefits accrue to the public, rather than private individuals, for some time after the 25-year bonds are paid off. Even if municipal governments decide against public ownership of WTE facilities, funding less capital-intensive waste disposal facilities that are less significantly affected by the tax law changes requires smaller increases in tipping fees. A WTE facility, for example, may cost $100 million to $200 million, whereas a landfill may cost only $20 to $30 million.[38]

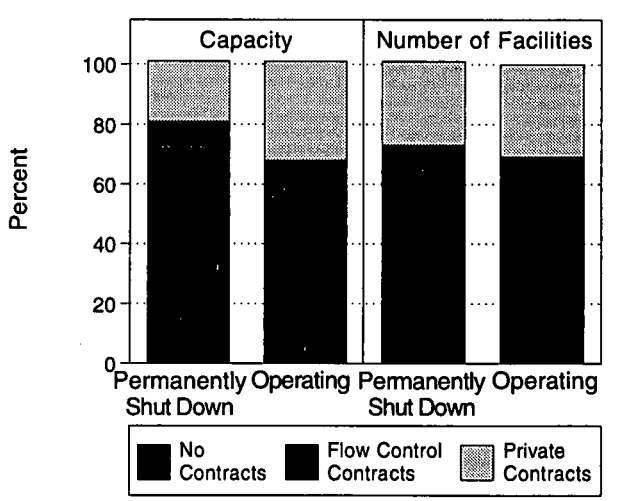
To the extent that privately owned WTE facilities are constructed, it is likely that most of them will be merchant facilities, as opposed to those facilities that are closely affiliated with a municipality. Merchant facilities are potentially high-profit, high-risk facilities that operate purely at the whim of market forces and rely on neither legislated nor economic flow control.

The second category of tax-law changes, the allocation caps for tax-free PAB's, is also likely to favor public ownership of WTE facilities. According to a study by the U.S. Government Accounting Office (GAO),[39] caps are likely to shift some capital investments in solid waste facilities from the private sector to the public sector. The conclusion is based, in part, on increasing requirements for investments in environmental infrastructure (solid waste, wastewater treatment, and drinking water facilities) that may compete unfavorably with more politically popular uses of PAB's. As demand for waste

[38]*Environmental Infrastructure*, p. 29.

[39]*Environmental Infrastructure*, p. 26.

Figure 4. Comparison of Characteristics of Permanently Shut Down Facilities and Operating Facilities, 1993



Note: Data represent 114 permanently operating facilities with 96,739-ton-per-day capacity and 29 permanently shut down facilities with 6,835-tons-per-day capacity, as of 1993.

Source: Figure developed by the Energy Information Administration, based on data from Eileen B. Berenyi and Robert N. Gould, *Resource Recovery Yearbook* (New York: Governmental Advisory Associates, Inc., 1993), pp. 229–670.

disposal facilities increases and some State and local governments near their allocation caps, they may be forced to choose public ownership and issue public bonds not subject to the cap.

The GAO study concluded that current investments in environmental infrastructure have not kept pace with the rapid growth in Federal environmental requirements. The study cited EPA estimates to the effect that local government costs (both capital costs and operations and maintenance costs) for complying with environmental regulations will increase from $18.5 billion in 1990 to $27.7 billion in 2000. This annual average growth rate of 4.5 percent is substantially higher than anticipated increases in population or gross national product.[40]

Investments in environmental infrastructure, including solid waste facilities, must compete with other uses of PAB's, such as mortgage revenue bonds, student loans, and multifamily housing. The selection process varies from State to State, but uses that are more popular politically usually fare better than waste facilities. In 1989, solid waste facilities accounted for about 10 percent of the $15.2 billion in PAB's issued. Investments in solid waste, both public bonds and PAB's, are expected to grow to $5.1 billion in 2000.[41]

States with the largest populations and the most serious waste disposal problems are subject to the minimum PAB allocation. Populous States, such as New Jersey, New York, and California, have a cap of $50 per person. States with fewer than 3 million people receive an allocation cap of more than $50 per person. For example, the State of Delaware receives an allocation of $223 per capita. Thus, from the standpoint of solid waste management, the States that need solid waste investments the most have stricter allocation limitations.

A survey of the States, which analyzed requests for volume cap allocations that were not approved during 1989 as a result of unavailability of volume cap, supported the conclusion of the GAO study. Twenty-seven States reported delayed or denied projects totaling approximately $6 billion. Over $2 billion of these bonds were for solid waste disposal. However, some of the States that denied projects were not near their current caps; they may have denied projects so that they could carry funds over to future years.[42]

[40] *Environmental Infrastructure*, p. 26.
[41] *Environmental Infrastructure*, p. 28.

The 1986 Tax Reform Act and Its Relationship to Flow Control

Since 1986, the private sector's annual share of municipal bonds for solid waste facilities has decreased (Table 3).[43] Almost 90 percent of the municipal bonds issued for solid waste facilities in 1986 were for privately owned facilities, compared with about 50 percent in 1993. The private sector's large share of the market during this period can be partially attributed to accelerated activity aimed at getting projects started so that they could be built under the more favorable tax laws in effect before 1986. In 1985 alone, permits to construct 42,620 tons per day of new WTE capacity were issued, compared with permits for 53,790 tons per day of capacity in all the years prior to 1985.[44] Almost all of the privately owned WTE facilities that have come on line since 1986 have reaped the tax benefits of the old tax laws. The private sector's declining annual share of the market from 1986 to 1993 is probably attributable to the shrinking opportunities to qualify for those tax benefits.

The private sector share of the total waste disposal market, particularly the WTE market, could decline in the future. The cost advantage of private waste facilities was substantially curtailed by the 1986 tax reform law. Public officials, faced with increasing demands for PAB's and tighter constraints on their issuance, may restrict use of PAB's for WTE facilities. Even if public officials seeking to avoid the political problems of owning waste disposal facilities allow PAB's to be issued, less capital-intensive private waste disposal facilities,

[42] Advisory Commission on Intergovernmental Relations, *The Volume Cap for Tax-Exempt Private-Activity Bonds: State and Local Experience in 1989*, M–171 (Washington, DC, July 1990), pp. 27–28.
[43] Andy Nybo, Public Securities Association, New York, NY, personal communication (June 1994), based on data from Public Securities Data Company.
[44] Kidder, Peabody, *Waste-to-Energy Industry* (New York, NY, March 1993), p. 7.

Table 2. Rules Governing Tax-Exempt Bonds for Private Activities Before and After 1986

Issue	Before the 1986 Tax Act	After the 1986 Tax Act
Definition of a private activity	More than 25 percent of bond proceeds used by a private entity and used to secure property used by or revenues derived from a private entity	More than 10 percent of bond proceeds used by a private entity or used to secure property used by or revenues derived from a private concern
Volume cap	No unified volume cap; cap on certain private activities	Phased-in unified volume cap; in 1986, $75 per capita or $250 million; in 1988 and later, $50 per capita or $150 million
Investment tax credit	10 percent of certain investments	None
Depreciation	5-year depreciation schedule	Depreciation schedules lengthened, depending on type of environmental facility

Source: U.S. Government Accounting Office, *Environmental Infrastructure: Effects of Limits on Certain Tax-Exempt Bonds*, GAO/RCED–94–2 (Washington, DC, October, 1993).

such as landfills, may be chosen over WTE facilities. The construction of landfills requires the issuance of smaller amounts of PAB's and smaller increases in tipping fees than does the construction of WTE facilities.

For all practical purposes, the 1986 act has limited the use of both economic and legislated flow control by new WTE facilities to the public sector. Almost all the projected growth in the private WTE market is likely to be composed of merchant facilities that are unable to engage in any form of flow control. The direct effects on new WTE facility construction of the Supreme Court's ruling against legislated flow control (and any action Congress may take to address this issue) will be limited primarily to publicly owned facilities. Merchant facilities may experience indirect effects, since their competitors would have one less tool to control the flow of waste. Legislated flow control has been very popular with municipalities and eliminating it would limit them to economic flow control, which would result in politically unpopular taxes and fees. This would tend to increase the flow of waste to less capital-intensive (those requiring lower taxes and fees) municipal waste facilities, such as landfills, at an even greater rate than that anticipated from the 1986 act alone.

Conclusion

The effects of the Tax Reform Act of 1986 on the growth and ownership of the WTE industry are not yet clear because most of the privately owned WTE facilities constructed to date qualified under the more favorable pre-1986 tax laws. However, the percentage of bonds issued for future construction of solid waste facilities has increasingly favored the public sector. If privately owned facilities are constructed, they will most likely be merchant facilities and, therefore, will neither be directly associated with a municipality nor, significantly, will they employ legislated or economic flow control. Although only aggregate bond data are available for the MSW industry, it is also likely that less capital-intensive landfills have been favored over WTE facilities, decreasing the growth rate of the WTE industry. These trends will probably become more pronounced as the full impact of the 1986 act takes effect.

The uncertainty that existed prior to the May 1994 Supreme Court ruling striking down legislated flow control has had little impact on the WTE industry. Most of the WTE capacity that became operational in the past 10 years has had waste supplies secured with either private contracts or flow control contracts. Both have been effective in maintaining utilization rates near the industry goal of 85 percent of capacity. During the late 1980's and early 1990's, however, municipalities overwhelmingly chose flow control as a waste management tool. Apparently, increasing waste management responsibilities, such as recycling requirements, have encouraged municipalities to seek more control over waste flows and have outweighed any concern over the legal challenges to flow control.

In response to the Supreme Court's ruling, Congress is considering several bills that would protect flow control contracts and ordinances. Since the 1986 act has limited the growth in new privately owned facilities that are affiliated with a municipality, the Supreme Court's ruling and any legislation passed by Congress will primarily impact the way new publicly owned facilities do business as opposed to new merchant facilities. Absent congressional action, municipalities would be limited to the use of economic flow control in controlling the flow of waste. The 1986 act has increased the required economic flow control fees or taxes needed to support the construction and operation of a new WTE facility relative to a less capital-intensive landfill. It is likely that the slower rate of growth the WTE industry is undergoing as a result of the Act will be exacerbated. However, the comparative advantage of merchant facilities could be enhanced. That enhancement would tend to partially offset the 1986 act's effect of favoring growth in the public sector.

Table 3. Trends in Long-Term Issuance of Municipal Bonds for Solid Waste Facilities, 1984–1994
(Millions of Dollars)

	Private				Public		Total
Year	Taxable	PAB's	Total	Percent	Tax Exempt	Percent	
1984	NA	NA	NA	—	NA	—	4,606
1985	NA	NA	NA	—	NA	—	3,882
1986	195	1,624	1,819	88	236	11	2,056
1987	5	1,031	1,036	78	294	22	1,330
1988	140	1,884	2,024	69	930	31	2,953
1989	28	1,783	1,811	66	936	34	2,748
1990	45	1,807	1,852	61	1,172	39	3,025
1991	141	1,643	1,784	65	980	35	2,764
1992	16	1,438	1,454	49	1,528	51	2,981
1993	197	2,068	2,265	49	2,398	51	4,664
1994[a]	26	529	555	47	626	53	1,181

[a]Through May.

Notes: • PAB's=Private Activity Bonds. • NA=Not available. • —=Not applicable. • Totals may not equal sum of components due to independent rounding. • Percents are calculated by using unrounded data and may not add to 100 percent.

Source: Andy Nybo, Public Securities Association, New York, NY, personal communication (June 1994), based on data from Public Securities Data Company.

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Section 1. Energy Overview

Energy production during June 1994 totaled 5.6 quadrillion Btu, a 1.8-percent increase from the level of production during June 1993. Coal production increased 8.2 percent, natural gas production rose 2.8 percent, and petroleum production decreased 3.0 percent. All other forms of energy production combined were down 5.2 percent from the level of production during June 1993.

Energy consumption during June 1994 totaled 6.9 quadrillion Btu, 4.9 percent above the level of consumption during June 1993. Natural gas consumption increased 7.8 percent, coal consumption rose 7.5 percent, and petroleum consumption was up 4.3 percent. Consumption of all other forms of energy combined decreased 2.3 percent from the level 1 year earlier.

Net imports of energy during June 1994 totaled 1.5 quadrillion Btu, 11.9 percent above the level of net imports 1 year earlier. Net imports of petroleum increased 6.0 percent, and net imports of natural gas were up 15.9 percent. Net exports of coal fell 12.7 percent from the level in June 1993.

Table 1.1 Energy Summary for June 1994

(Quadrillion Btu)

	June			Cumulative January Through June				
	1994	1993	Percent Change[a]	1994	1994 Daily Rate	1993	1993 Daily Rate	Percent Change[a]
Production[b]	**5.581**	**5.483**	**1.8**	**33.451**	**0.185**	**32.937**	**0.182**	**1.6**
Coal	1.874	1.732	8.2	11.002	.061	10.211	.056	7.8
Natural Gas (Dry)	1.557	1.516	2.8	9.634	.053	9.390	.052	2.6
Petroleum[c]	1.341	1.382	-3.0	8.172	.045	8.458	.047	-3.4
Other[d]	.809	.853	-5.2	4.644	.026	4.878	.027	-4.8
Consumption[b]	**6.895**	**6.572**	**4.9**	**43.465**	**.240**	**41.995**	**.232**	**3.5**
Coal	1.739	1.619	7.5	9.697	.054	9.321	.051	4.0
Natural Gas[e]	1.431	1.328	7.8	11.726	.065	11.223	.062	4.5
Petroleum	2.877	2.759	4.3	17.168	.095	16.458	.091	4.3
Other[f]	.847	.867	-2.3	4.875	.027	4.993	.028	-2.4
Net Imports	**1.537**	**1.374**	**11.9**	**8.981**	**.050**	**8.105**	**.045**	**10.8**
Coal[g]	-.187	-.214	-12.7	-.779	-.004	-.965	-.005	-19.3
Natural Gas	.201	.174	15.9	1.209	.007	1.070	.006	13.0
Petroleum[h]	1.485	1.401	6.0	8.319	.046	7.883	.044	5.5
Other[i]	.038	.014	174.2	.231	.001	.115	.001	100.3

[a] Based on daily rates prior to rounding.

[b] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, 3.3 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.4 quadrillion Btu of renewable energy used by other sectors is not included.

[c] Includes crude oil, lease condensate, and natural gas plant liquids.

[d] "Other" is hydroelectric and nuclear electric power, and electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

[e] Includes supplemental gaseous fuels.

[f] "Other" is hydroelectric and nuclear electric power; electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy; and net imports of electricity and coal coke.

[g] Minus sign indicates exports are greater than imports.

[h] Includes crude oil, lease condensate, petroleum products, pentanes plus, unfinished oils, gasoline blending components, and imports of crude oil for the Strategic Petroleum Reserve.

[i] "Other" is net imports of electricity and coal coke.

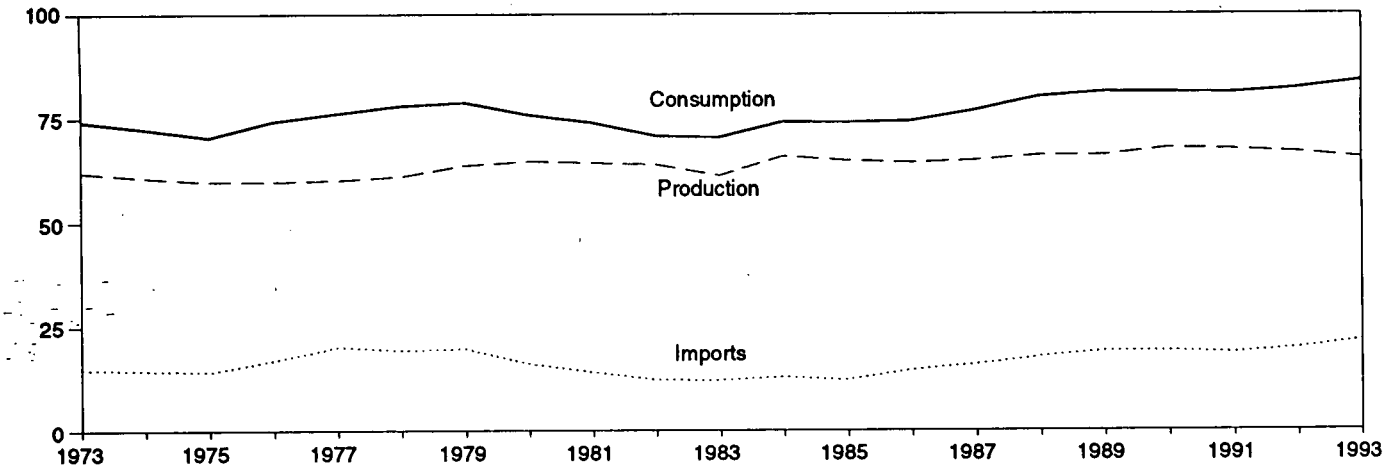
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: Tables 1.3, 1.4, and 1.5.

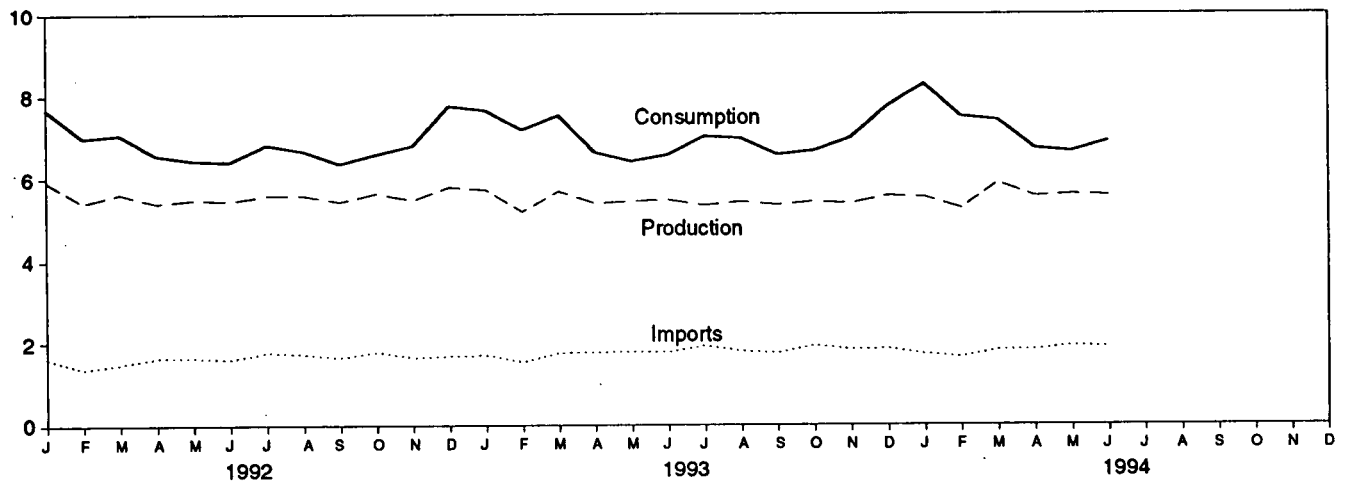
Figure 1.1 Energy Overview

(Quadrillion Btu)

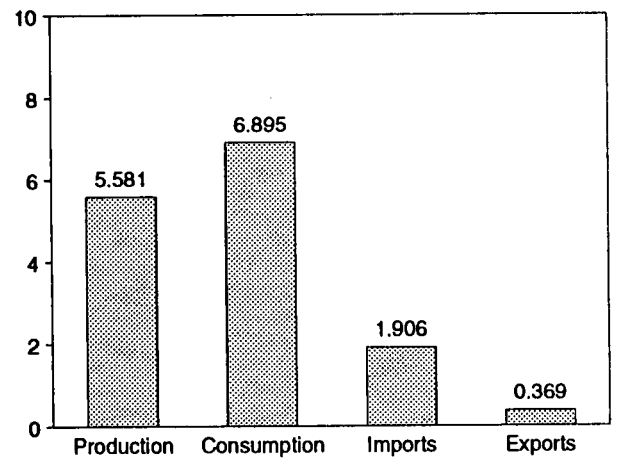
Consumption, Production, and Imports, 1973-1993



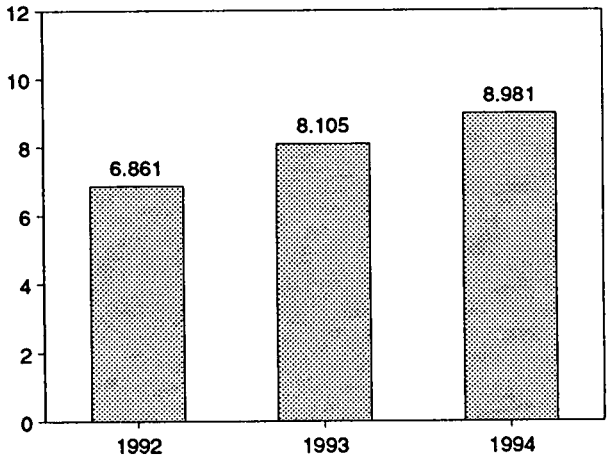
Consumption, Production, and Imports, Monthly



Overview, June 1994



Net Imports, January-June



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 1.2.

Table 1.2 Energy Overview

(Quadrillion Btu)

	Production[a]	Consumption[a,b]	Imports	Exports	Net Imports
1973 Total	**62.060**	**74.282**	**14.731**	**2.051**	**12.680**
1974 Total	**60.835**	**72.543**	**14.413**	**2.223**	**12.190**
1975 Total	**59.860**	**70.546**	**14.111**	**2.359**	**11.752**
1976 Total	**59.892**	**74.362**	**16.837**	**2.188**	**14.648**
1977 Total	**60.219**	**76.288**	**20.090**	**2.071**	**18.019**
1978 Total	**61.103**	**78.089**	**19.254**	**1.931**	**17.323**
1979 Total	**63.801**	**78.898**	**19.616**	**2.870**	**16.746**
1980 Total	**64.761**	**75.955**	**15.971**	**3.723**	**12.247**
1981 Total	**64.421**	**73.990**	**13.975**	**4.329**	**9.646**
1982 Total	**63.962**	**70.848**	**12.092**	**4.633**	**7.460**
1983 Total	**61.279**	**70.524**	**12.027**	**3.717**	**8.310**
1984 Total	**65.962**	**74.144**	**12.767**	**3.804**	**8.963**
1985 Total	**64.871**	**73.981**	**12.103**	**4.231**	**7.872**
1986 Total	**64.350**	**74.297**	**14.438**	**4.055**	**10.382**
1987 Total	**64.952**	**76.894**	**15.764**	**3.853**	**11.911**
1988 Total	**66.105**	**80.218**	**17.564**	**4.415**	**13.149**
1989 Total	**66.129**	**81.325**	**18.947**	**4.765**	**14.181**
1990 Total	**67.853**	**81.265**	**18.987**	**4.910**	**14.077**
1991 Total	**67.484**	**81.116**	**18.577**	**5.220**	**13.357**
1992 January	5.919	7.678	1.615	.458	1.157
February	5.415	6.989	1.377	.372	1.005
March	5.630	7.070	1.500	.416	1.084
April	5.407	6.565	1.639	.413	1.226
May	5.491	6.435	1.641	.434	1.207
June	5.461	6.403	1.609	.426	1.183
July	5.587	6.822	1.770	.441	1.329
August	5.594	6.673	1.727	.367	1.360
September	5.439	6.356	1.654	.417	1.237
October	5.640	6.590	1.781	.383	1.399
November	5.479	6.798	1.650	.428	1.221
December	5.792	7.765	1.688	.462	1.226
Total	**66.853**	**82.144**	**19.650**	**5.017**	**14.633**
1993 January	5.728	7.654	1.704	.398	1.306
February	5.194	7.186	1.541	.363	1.178
March	5.685	7.536	1.759	.348	1.410
April	5.398	6.635	1.773	.344	1.428
May	5.448	6.413	1.791	.383	1.408
June	5.483	6.572	1.781	.407	1.374
July	[R]5.348	7.021	1.932	.372	1.560
August	5.442	6.973	1.804	.318	1.486
September	5.359	6.577	1.761	.337	1.424
October	5.440	6.668	1.939	.344	1.594
November	5.392	6.976	1.842	.320	1.523
December	5.578	7.747	1.862	.390	1.472
Total	**[R]65.496**	**[R]83.958**	**21.487**	**4.325**	**17.162**
1994 January	[R]5.546	[R]8.287	1.732	.308	1.424
February	[R]5.272	[R]7.499	1.657	.270	1.386
March	[R]5.883	[R]7.413	1.828	.346	1.482
April	[R]5.562	[R]6.724	1.837	.295	1.542
May	[R]5.607	[R]6.648	1.933	.324	1.609
June	5.581	6.895	1.906	.369	1.537
6-Month Total	**33.451**	**43.465**	**10.893**	**1.912**	**8.981**
1993 6-Month Total	**32.937**	**41.995**	**10.348**	**2.244**	**8.105**
1992 6-Month Total	**33.323**	**41.141**	**9.380**	**2.520**	**6.861**

[a] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, 3.3 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.4 quadrillion Btu of renewable energy used by other sectors is not included.

[b] The sum of domestic energy production and net imports of energy does not equal domestic energy consumption. The difference is attributed to stock changes; losses and gains in conversion, transportation, and distribution; the addition of blending compounds; shipments of anthracite to U.S. Armed Forces in Europe; and adjustments to account for discrepancies between reporting systems.

R=Revised data.

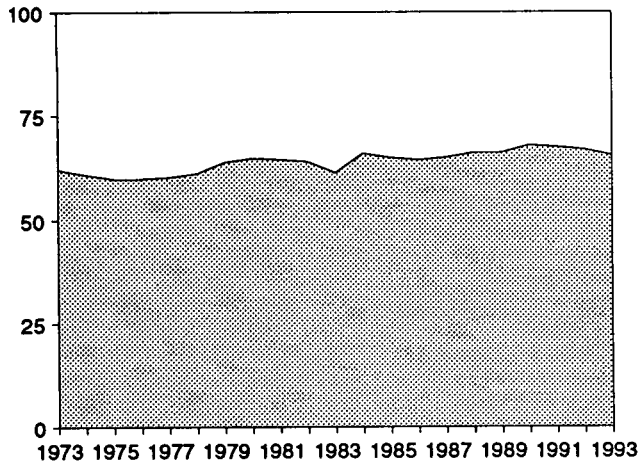
Notes: • For definitions, see Notes 1 through 4 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Production:** Table 1.3. • **Consumption:** Table 1.4. • **Imports and Exports:** Tables 3.1b, 4.2, 6.1, A2-A8, and Section 2, "Energy Consumption Notes and Sources," Notes 8 and 9. • **Net Imports:** Table 1.5.

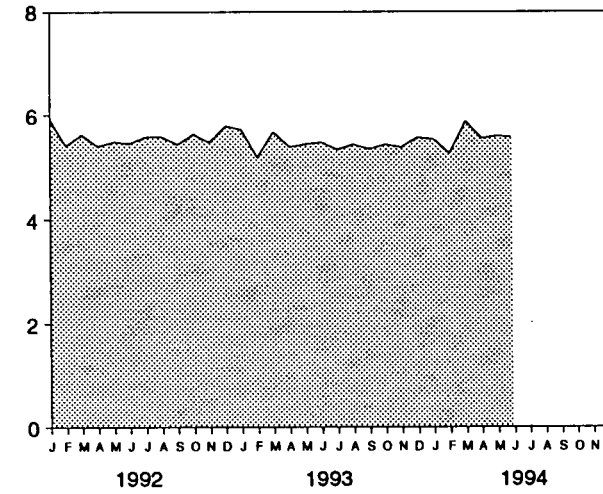
Figure 1.2 Energy Production

(Quadrillion Btu)

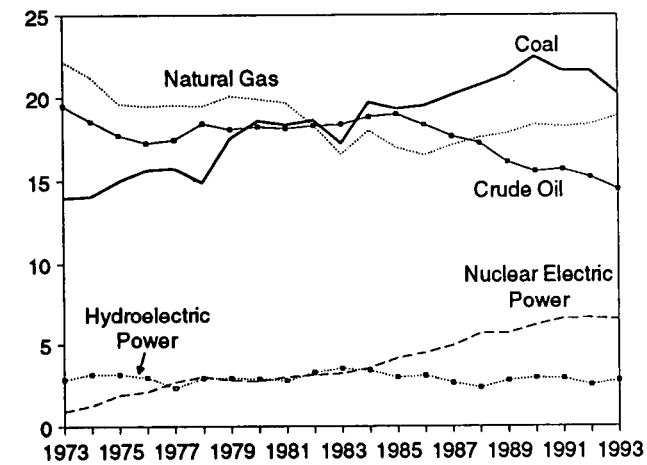
Total Production, 1973-1993



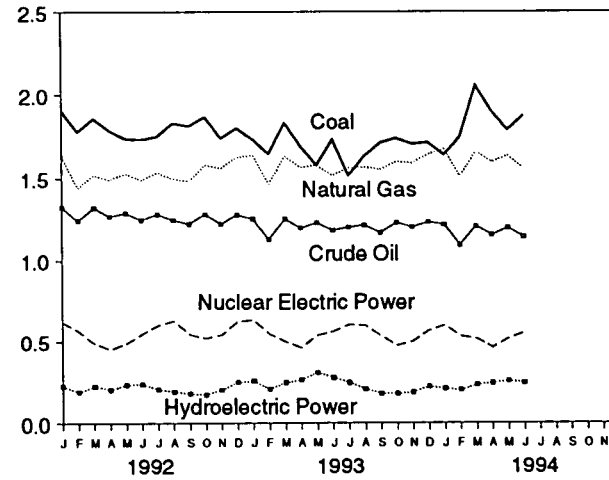
Total Production, Monthly



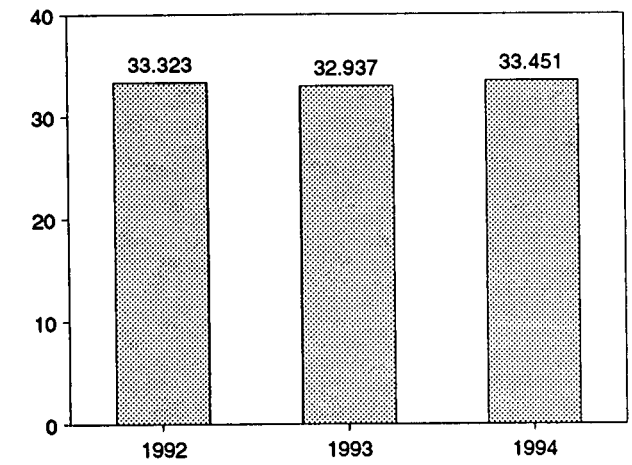
Production by Major Sources, 1973-1993



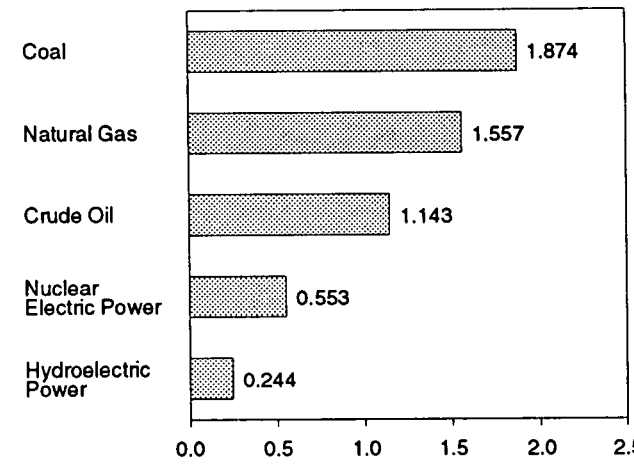
Production by Major Sources, Monthly



Total Production, January-June



Production by Major Sources, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 1.3.

Table 1.3 Energy Production by Source

(Quadrillion Btu)

	Coal	Natural Gas (Dry)	Crude Oil[a]	Natural Gas Plant Liquids	Nuclear Electric Power	Hydro-electric Power[b]	Geothermal Energy	Other[c]	Total[d]
1973 Total	**13.993**	**22.187**	**19.493**	**2.569**	**0.910**	**2.861**	**0.043**	**0.003**	**62.060**
1974 Total	**14.074**	**21.210**	**18.575**	**2.471**	**1.272**	**3.177**	**.053**	**.003**	**60.835**
1975 Total	**14.990**	**19.640**	**17.729**	**2.374**	**1.900**	**3.155**	**.070**	**.002**	**59.860**
1976 Total	**15.654**	**19.480**	**17.262**	**2.327**	**2.111**	**2.976**	**.078**	**.003**	**59.892**
1977 Total	**15.755**	**19.565**	**17.454**	**2.327**	**2.702**	**2.333**	**.077**	**.005**	**60.219**
1978 Total	**14.910**	**19.485**	**18.434**	**2.245**	**3.024**	**2.937**	**.064**	**.003**	**61.103**
1979 Total	**17.539**	**20.076**	**18.104**	**2.286**	**2.776**	**2.931**	**.084**	**.005**	**63.801**
1980 Total	**18.597**	**19.908**	**18.249**	**2.254**	**2.739**	**2.900**	**.110**	**.005**	**64.761**
1981 Total	**18.376**	**19.699**	**18.146**	**2.307**	**3.008**	**2.758**	**.123**	**.004**	**64.421**
1982 Total	**18.639**	**18.319**	**18.309**	**2.191**	**3.131**	**3.266**	**.105**	**.003**	**63.962**
1983 Total	**17.246**	**16.593**	**18.392**	**2.184**	**3.203**	**3.527**	**.129**	**.004**	**61.279**
1984 Total	**19.719**	**18.008**	**18.848**	**2.274**	**3.553**	**3.386**	**.165**	**.009**	**65.962**
1985 Total	**19.325**	**16.980**	**18.992**	**2.241**	**4.149**	**2.970**	**.198**	**.015**	**64.871**
1986 Total	**19.510**	**16.541**	**18.376**	**2.149**	**4.471**	**3.071**	**.219**	**.012**	**64.350**
1987 Total	**20.142**	**17.136**	**17.675**	**2.215**	**4.906**	**2.635**	**.229**	**.016**	**64.952**
1988 Total	**20.737**	**17.599**	**17.279**	**2.260**	**5.661**	**2.334**	**.217**	**.017**	**66.105**
1989 Total	**21.345**	**17.847**	**16.117**	**2.158**	**5.677**	**2.767**	**.197**	**.020**	**66.129**
1990 Total	**22.456**	**18.362**	**15.571**	**2.175**	**6.161**	**2.926**	**.181**	**.021**	**67.853**
1991 Total	**21.594**	**18.229**	**15.701**	**2.306**	**6.579**	**2.885**	**.170**	**.021**	**67.484**
1992 January	1.904	1.633	1.323	.199	.618	.225	.015	.002	5.919
February	1.778	1.440	1.243	.187	.564	.188	.013	.002	5.415
March	1.859	1.519	1.321	.200	.489	.225	.015	.002	5.630
April	1.785	1.491	1.269	.193	.451	.203	.014	.001	5.407
May	1.737	1.529	1.289	.200	.487	.233	.014	.002	5.491
June	1.732	1.488	1.247	.194	.547	.237	.014	.002	5.461
July	1.750	1.536	1.282	.198	.598	.206	.014	.002	5.587
August	1.830	1.495	1.245	.193	.626	.189	.014	.002	5.594
September	1.811	1.481	1.223	.189	.544	.176	.013	.002	5.439
October	1.869	1.579	1.281	.203	.521	.171	.014	.002	5.640
November	1.739	1.559	1.222	.200	.542	.201	.014	.002	5.479
December	1.799	1.626	1.277	.206	.620	.248	.014	.002	5.792
Total	**21.593**	**18.375**	**15.223**	**2.363**	**6.607**	**2.501**	**.170**	**.022**	**66.853**
1993 January	1.733	1.638	1.252	.205	.631	.255	.014	.002	5.728
February	1.646	1.463	1.127	.189	.548	.206	.013	.002	5.194
March	1.830	1.631	1.254	.211	.498	.246	.014	.002	5.685
April	1.692	1.565	1.197	.205	.461	.262	.014	.002	5.398
May	1.578	1.578	1.231	.204	.538	.306	.012	.001	5.448
June	1.732	1.516	1.182	.200	.562	.277	.012	.001	5.483
July	1.515	[R]1.562	1.203	.205	.603	.246	.013	.001	[R]5.348
August	1.632	1.568	1.215	.206	.600	.205	.014	.002	5.442
September	1.713	1.553	1.168	.198	.534	.178	.013	.002	5.359
October	1.738	1.598	1.230	.208	.474	.176	.013	.002	5.440
November	1.706	1.591	1.203	.190	.500	.187	.013	.002	5.392
December	1.716	1.642	1.233	.186	.567	.220	.013	.002	5.578
Total	**20.231**	**[R]18.904**	**14.494**	**2.408**	**6.517**	**2.763**	**.159**	**.021**	**[R]65.496**
1994 January	1.639	[R]1.675	1.219	.191	.600	.207	.013	.002	[R]5.546
February	1.746	[R]1.510	1.095	.175	.532	.200	.012	.002	[R]5.272
March	2.055	[R]1.659	1.208	.197	.518	.231	.012	.002	[R]5.883
April	1.901	[R]1.597	1.154	.192	.461	.242	.012	.002	[R]5.562
May	1.787	[R]1.635	1.197	.202	.518	.254	.012	.002	[R]5.607
June	1.874	1.557	1.143	.198	.553	.244	.011	.002	5.581
6-Month Total	**11.002**	**9.634**	**7.016**	**1.155**	**3.182**	**1.378**	**.073**	**.010**	**33.451**
1993 6-Month Total	**10.211**	**9.390**	**7.244**	**1.215**	**3.237**	**1.552**	**.079**	**.010**	**32.937**
1992 6-Month Total	**10.795**	**9.101**	**7.692**	**1.173**	**3.156**	**1.311**	**.085**	**.010**	**33.323**

[a] Includes lease condensate.

[b] Electric utility and industrial generation.

[c] "Other" production is electricity generated for distribution from wood, waste, wind, photovoltaic, and solar thermal energy.

[d] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, 3.3 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.4 quadrillion Btu of renewable energy used by other sectors is not included.

R=Revised data.

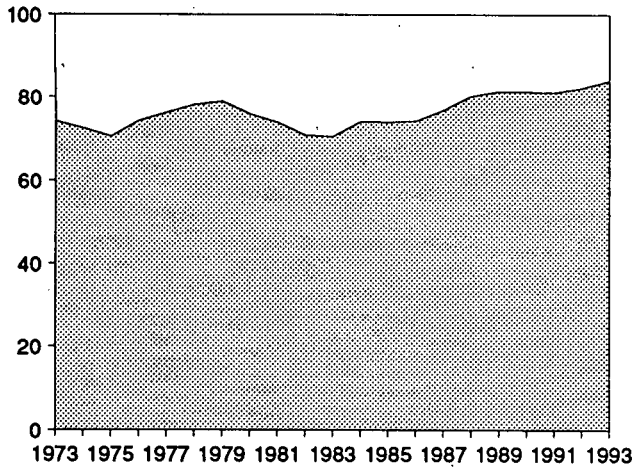
Notes: • See Note 1 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Coal:** Tables 6.1 and A5-A7. • **Natural Gas (Dry):** Tables 4.1 and A4. • **Crude Oil and Natural Gas Plant Liquids:** Tables 3.1a and A2. • **Nuclear Electric Power:** Tables 7.1 and A8. • **Hydroelectric Power:** Table 7.1; Section 2, "Energy Consumption Notes and Sources," Note 8; and Table A8. • **Geothermal Energy and Other:** Section 2, "Energy Consumption Notes and Sources," Note 7, and Table A8.

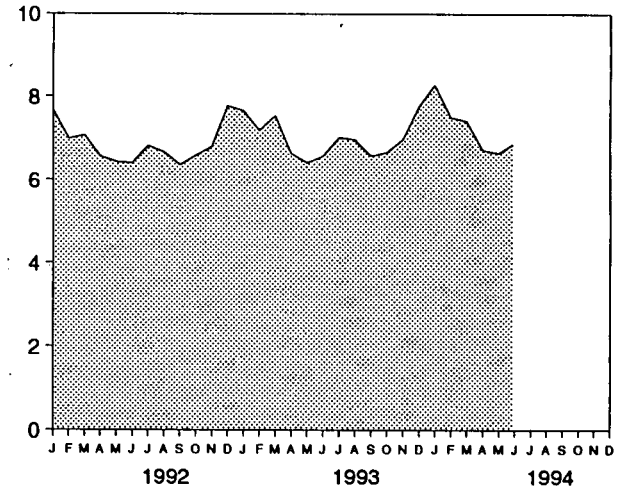
Figure 1.3 Energy Consumption

(Quadrillion Btu)

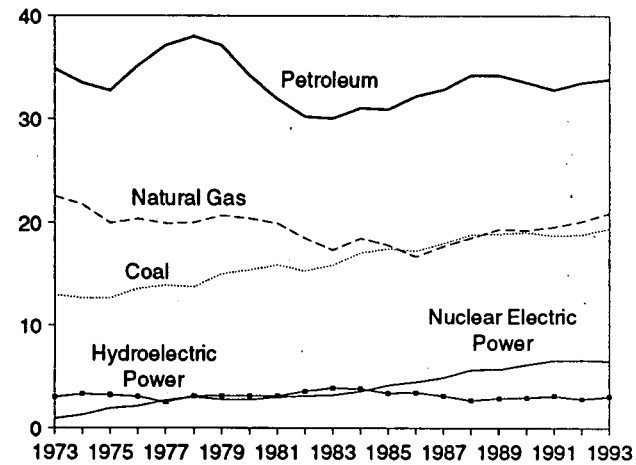
Total Consumption, 1973-1993



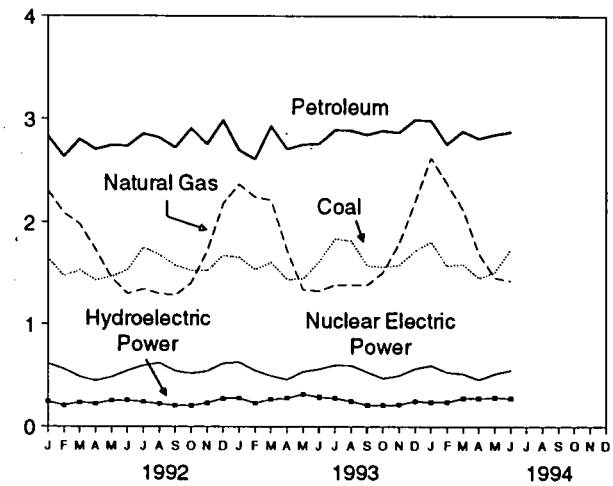
Total Consumption, Monthly



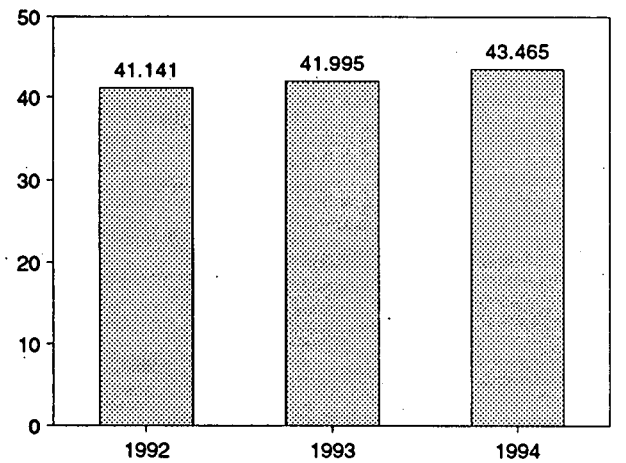
Consumption by Major Sources, 1973-1993



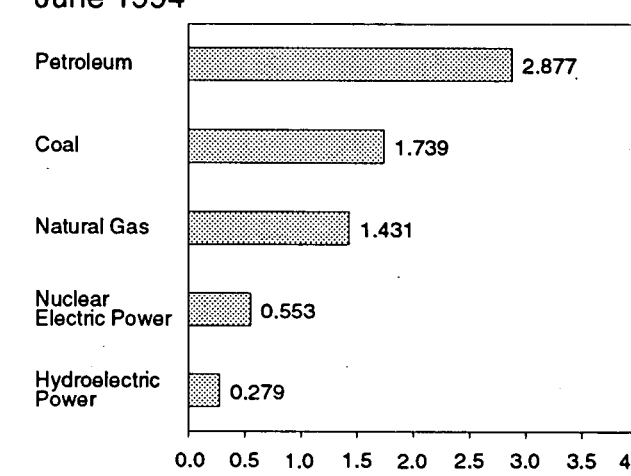
Consumption by Major Sources, Monthly



Total Consumption, January-June



Consumption by Major Sources, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 1.4.

Table 1.4 Energy Consumption by Source

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Nuclear Electric Power	Hydro-electric Power[b]	Geothermal Energy	Other[c]	Total[d]
1973 Total	12.971	22.512	34.840	0.910	3.010	0.043	-0.004	74.282
1974 Total	12.663	21.732	33.455	1.272	3.309	.053	.059	72.543
1975 Total	12.663	19.948	32.731	1.900	3.219	.070	.016	70.546
1976 Total	13.584	20.345	35.175	2.111	3.066	.078	.003	74.362
1977 Total	13.922	19.931	37.122	2.702	2.515	.077	.020	76.288
1978 Total	13.765	20.000	37.965	3.024	3.141	.064	.128	78.089
1979 Total	15.039	20.666	37.123	2.776	3.141	.084	.068	78.898
1980 Total	15.423	20.394	34.202	2.739	3.118	.110	-.031	75.955
1981 Total	15.907	19.928	31.931	3.008	3.105	.123	-.012	73.990
1982 Total	15.322	18.505	30.231	3.131	3.572	.105	-.018	70.848
1983 Total	15.894	17.357	30.054	3.203	3.899	.129	-.012	70.524
1984 Total	17.071	18.507	31.051	3.553	3.800	.165	-.002	74.144
1985 Total	17.478	17.834	30.922	4.149	3.398	.198	.001	73.981
1986 Total	17.261	16.708	32.196	4.471	3.446	.219	-.004	74.297
1987 Total	18.008	17.744	32.865	4.906	3.117	.229	.024	76.894
1988 Total	18.846	18.552	34.222	5.661	2.662	.217	.057	80.218
1989 Total	18.925	19.384	34.211	5.677	2.881	.197	.051	81.325
1990 Total	19.101	19.296	33.553	6.161	2.946	.181	.026	81.265
1991 Total	18.770	19.606	32.845	6.579	3.115	.170	.030	81.116
1992 January	1.653	2.306	2.836	.618	.245	.015	.006	7.678
February	1.477	2.091	2.635	.564	.205	.013	.004	6.989
March	1.535	1.984	2.805	.489	.237	.015	.005	7.070
April	1.434	1.735	2.705	.451	.222	.014	.005	6.565
May	1.468	1.460	2.748	.487	.255	.014	.002	6.435
June	1.539	1.302	2.739	.547	.257	.014	.005	6.403
July	1.756	1.351	2.858	.598	.241	.014	.003	6.822
August	1.686	1.302	2.822	.626	.220	.014	.003	6.673
September	1.583	1.286	2.723	.544	.204	.013	.003	6.356
October	1.531	1.409	2.909	.521	.202	.014	.004	6.590
November	1.529	1.722	2.757	.542	.230	.014	.003	6.798
December	1.678	2.182	2.989	.620	.275	.014	.007	7.765
Total	18.868	20.131	33.527	6.607	2.793	.170	.049	82.144
1993 January	1.661	2.368	2.697	.631	.278	.014	.006	7.654
February	1.540	2.244	2.611	.548	.228	.013	.001	7.186
March	1.610	2.214	2.931	.498	.265	.014	.005	7.536
April	1.443	1.728	2.708	.461	.278	.014	.004	6.635
May	1.449	1.342	2.753	.538	.316	.012	.004	6.413
June	1.619	1.328	2.759	.562	.288	.012	.004	6.572
July	1.841	1.392	2.894	.603	.276	.013	.001	7.021
August	1.824	1.395	2.890	.600	.246	.014	.004	6.973
September	1.581	1.389	2.848	.534	.211	.013	.001	6.577
October	1.567	1.513	2.889	.474	.209	.013	.003	6.668
November	1.584	1.793	2.869	.500	.214	.013	.002	6.976
December	1.721	2.199	2.994	.567	.249	.013	.004	7.747
Total	19.439	20.905	33.841	6.517	3.059	.159	.038	R83.958
1994 January	1.813	R2.627	2.989	.600	.239	.013	.006	R8.287
February	1.577	R2.380	2.756	.532	.240	.012	.001	R7.499
March	1.593	R2.127	2.883	.518	.277	.012	.003	R7.413
April	1.459	R1.699	2.812	.461	.276	.012	.004	R6.724
May	1.516	R1.462	2.850	.518	.286	.012	.003	R6.648
June	1.739	1.431	2.877	.553	.279	.011	.004	6.895
6-Month Total	9.697	11.726	17.168	3.182	1.598	.073	.022	43.465
1993 6-Month Total	9.321	11.223	16.458	3.237	1.653	.079	.024	41.995
1992 6-Month Total	9.105	10.878	16.468	3.156	1.422	.085	.027	41.141

[a] Includes supplemental gaseous fuels.

[b] Electric utility and industrial generation and net imports of electricity.

[c] "Other" consumption is net imports of coal coke and electricity generated for distribution from wood, waste, wind, photovoltaic, and solar thermal energy.

[d] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, 3.3 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.4 quadrillion Btu of renewable energy used by other sectors is not included.

R=Revised data.

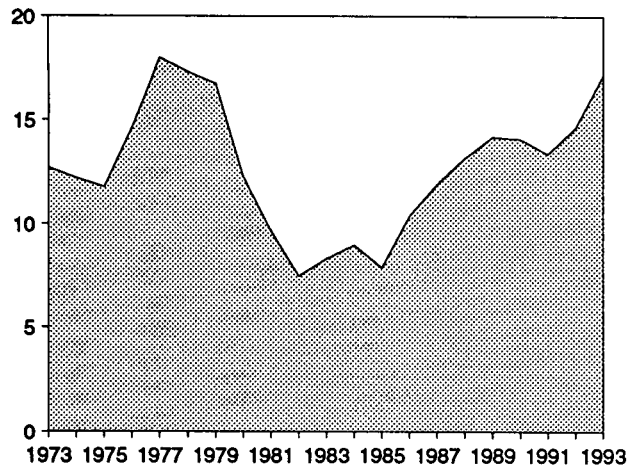
Notes: • See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Coal:** Tables 6.1 and A5-A7. • **Natural Gas:** Tables 4.2 and A4. • **Petroleum:** Tables 3.1a and A3. • **Nuclear Electric Power:** Tables 7.1 and A8. • **Hydroelectric Power:** Table 7.1; Section 2, "Energy Consumption Notes and Sources," Note 8; and Table A8. • **Geothermal Energy and Other:** Section 2, "Energy Consumption Notes and Sources," Note 7, and Table A8.

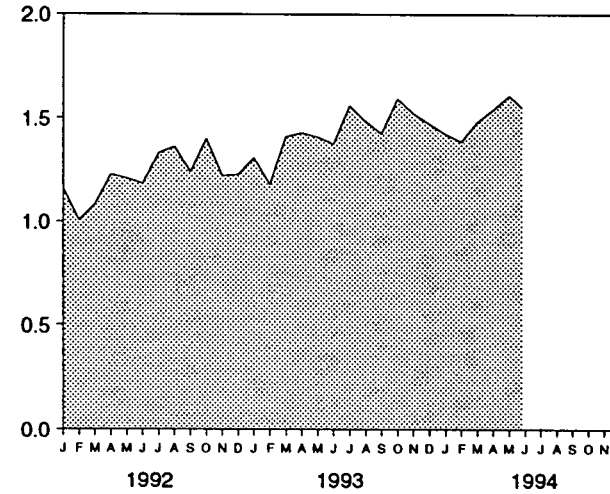
Figure 1.4 Energy Net Imports

(Quadrillion Btu, Except as Noted)

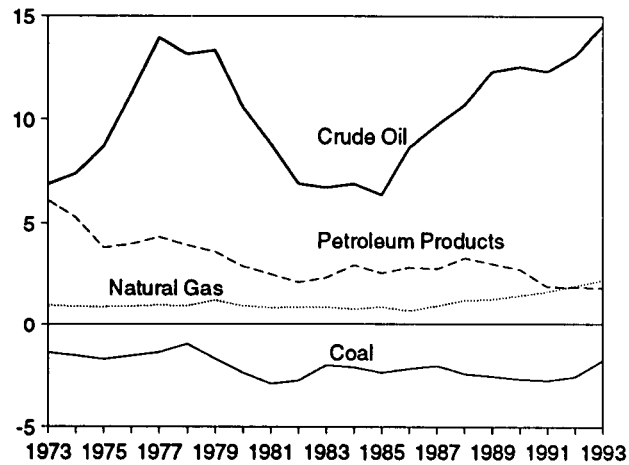
Total Net Imports, 1973-1993



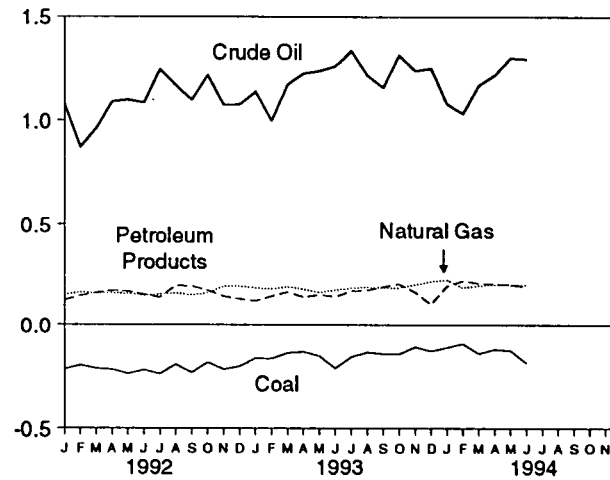
Net Imports, Monthly



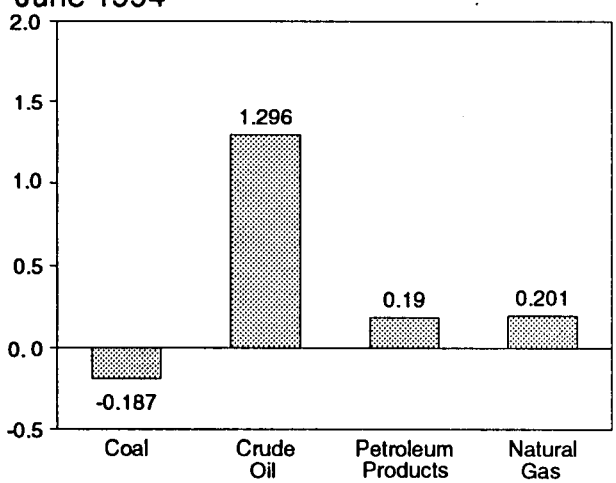
Net Imports by Major Sources, 1973-1993



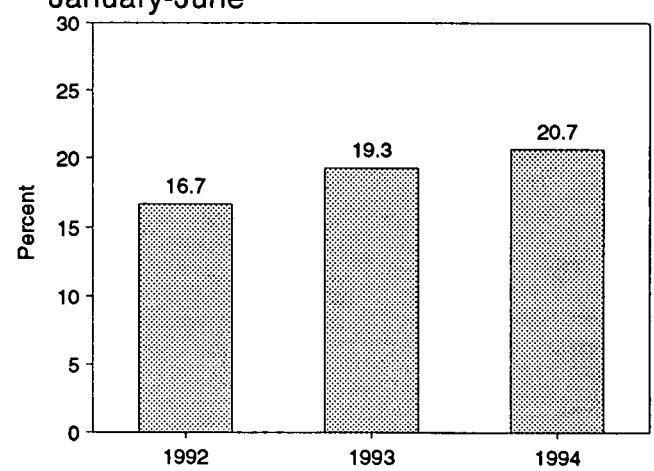
Net Imports by Major Sources, Monthly



Net Imports by Major Sources, June 1994



Net Imports as Share of Consumption, January-June



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 1.4 and 1.5.

Table 1.5 Energy Net Imports by Source

(Quadrillion Btu)

	Coal	Natural Gas	Crude Oil[a]	Petroleum Products[b]	Electricity[c]	Coal Coke	Total
1973 Total	-1.422	0.981	6.883	6.097	0.148	-0.007	12.680
1974 Total	-1.568	.907	7.389	5.273	.133	.056	12.190
1975 Total	-1.738	.904	8.708	3.800	.064	.014	11.752
1976 Total	-1.567	.922	11.221	3.982	.089	(s)	14.648
1977 Total	-1.401	.981	13.921	4.321	.182	.015	18.019
1978 Total	-1.004	.941	13.125	3.932	.204	.125	17.323
1979 Total	-1.702	1.243	13.328	3.603	.211	.063	16.746
1980 Total	-2.391	.957	10.586	2.912	.217	-.035	12.247
1981 Total	-2.918	.857	8.854	2.522	.347	-.016	9.646
1982 Total	-2.768	.898	6.917	2.128	.306	-.022	7.460
1983 Total	-2.013	.885	6.731	2.351	.372	-.016	8.310
1984 Total	-2.119	.792	6.918	2.970	.414	-.011	8.963
1985 Total	-2.389	.896	6.381	2.570	.428	-.013	7.872
1986 Total	-2.193	.686	8.676	2.855	.375	-.017	10.382
1987 Total	-2.049	.937	9.748	2.784	.483	.009	11.911
1988 Total	-2.446	1.221	10.698	3.308	.328	.040	13.149
1989 Total	-2.566	1.278	12.296	3.029	.113	.030	14.181
1990 Total	-2.705	1.464	12.536	2.757	.020	.005	14.077
1991 Total	-2.769	1.666	12.308	1.912	.231	.009	13.357
1992 January	-.218	.150	1.078	.122	.021	.004	1.157
February	-.198	.163	.873	.146	.018	.003	1.005
March	-.214	.160	.963	.160	.012	.003	1.084
April	-.219	.160	1.090	.173	.018	.003	1.226
May	-.240	.157	1.099	.168	.022	.001	1.207
June	-.221	.146	1.084	.152	.020	.003	1.183
July	-.241	.153	1.245	.137	.035	.001	1.329
August	-.194	.158	1.168	.197	.031	.001	1.360
September	-.235	.149	1.099	.195	.028	.001	1.237
October	-.183	.159	1.217	.173	.031	.002	1.399
November	-.219	.194	1.074	.142	.029	.001	1.221
December	-.204	.193	1.076	.129	.027	.005	1.226
Total	**-2.587**	**1.941**	**13.065**	**1.895**	**.292**	**.027**	**14.633**
1993 January	-.163	.185	1.138	.118	E .023	.004	1.306
February	-.166	.180	.999	.142	E .022	(s)	1.178
March	-.138	.190	1.172	.164	E .019	.003	1.410
April	-.132	.179	1.225	.138	E .016	.002	1.428
May	-.152	.162	1.237	.149	E .011	.002	1.408
June	-.214	.174	1.260	.140	E .011	.003	1.374
July	-.157	.184	1.334	.168	E .031	(s)	1.560
August	-.135	.189	1.216	.173	E .041	.002	1.486
September	-.142	.186	1.157	.191	E .033	-.001	1.424
October	-.144	.186	1.314	.204	E .033	.001	1.594
November	-.108	.202	1.238	.163	E .027	(s)	1.523
December	-.129	.217	1.251	.102	E .029	.002	1.472
Total	**-1.780**	**2.233**	**14.542**	**1.854**	**E .296**	**.017**	**17.162**
1994 January	-.111	.225	1.081	.194	E .032	.004	1.424
February	-.093	.186	1.034	.220	E .041	-.001	1.386
March	-.141	.197	1.170	.209	E .045	.002	1.482
April	-.120	.201	1.218	.206	E .034	.003	1.542
May	-.126	.199	1.301	.202	E .032	.002	1.609
June	-.187	.201	1.296	.190	E .035	.003	1.537
6-Month Total	**-.779**	**1.209**	**7.099**	**1.221**	**E .219**	**.012**	**8.981**
1993 6-Month Total	**-.965**	**1.070**	**7.032**	**.852**	**E .102**	**.014**	**8.105**
1992 6-Month Total	**-1.311**	**.935**	**6.187**	**.922**	**.111**	**.017**	**6.861**

[a] Crude oil, lease condensate, and imports of crude oil for the Strategic Petroleum Reserve.

[b] Petroleum products, unfinished oils, pentanes plus, and gasoline blending components.

[c] Assumed to be hydroelectricity and estimated at the average input heat rate for fossil-fuel steam-electric power plant generation, which has ranged from 10.2 thousand Btu to 10.5 thousand Btu per kilowatthour since 1973. Actual heat rates applied in converting kilowatthours to Btu are listed by year in Table A8.

E=Estimate. (s)=Less than +0.5 trillion Btu and greater than -0.5 trillion Btu.

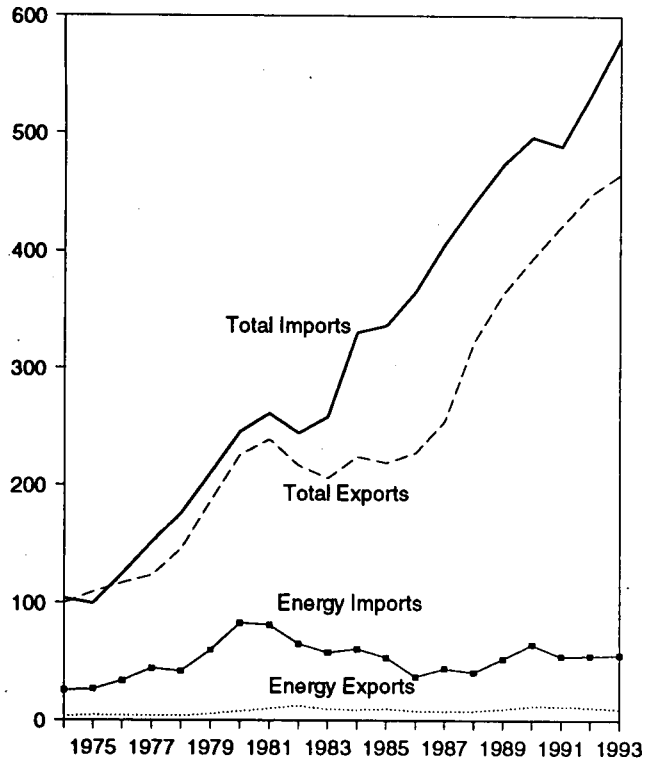
Notes: • See Notes 3 and 4 at end of section. • Net imports equal imports minus exports. Minus sign indicates exports are greater than imports. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Coal:** Tables 6.1 and A5-A7. • **Natural Gas:** Tables 4.2 and A4. • **Crude Oil and Petroleum Products:** Tables 3.1b and A2. • **Electricity:** Section 2, "Energy Consumption Notes and Sources," Note 8, and Table A8. • **Coal Coke:** Section 2, "Energy Consumption Notes and Sources," Note 9, and Table A7.

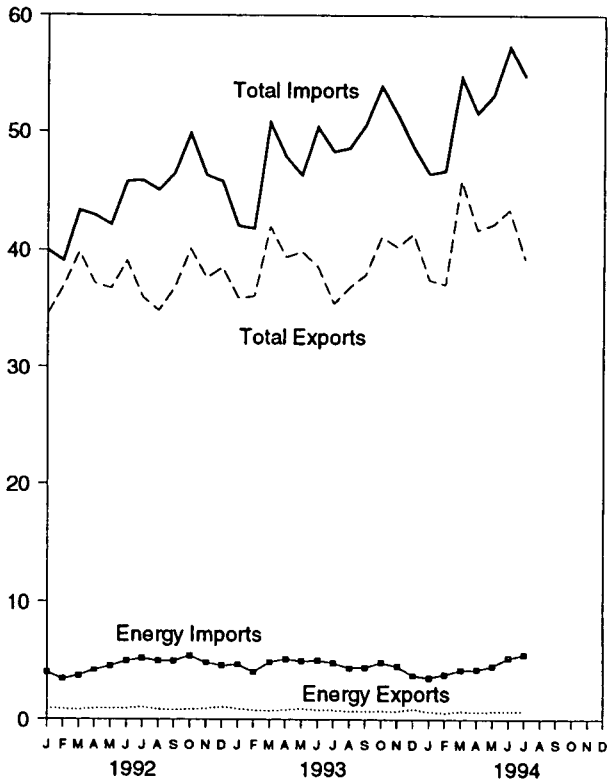
Figure 1.5 Merchandise Trade Value

(Billion Dollars)

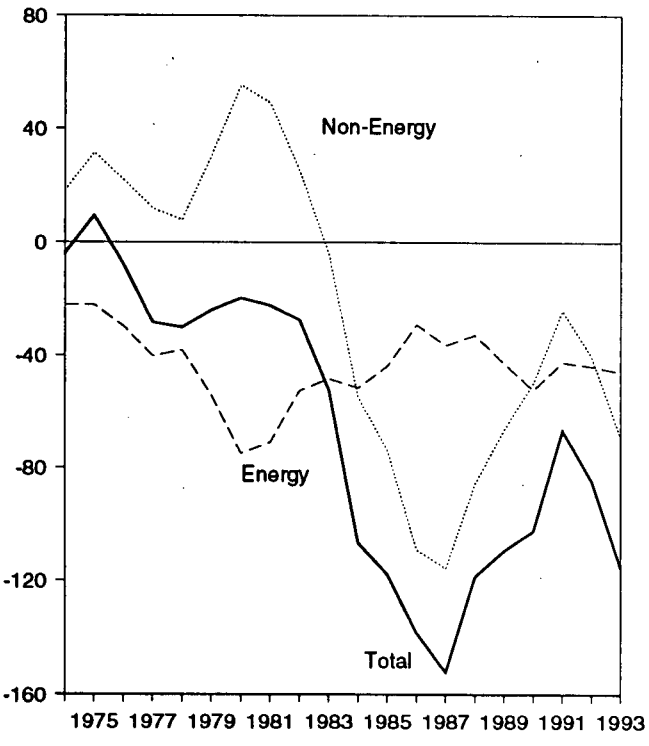
Imports and Exports, 1974-1993



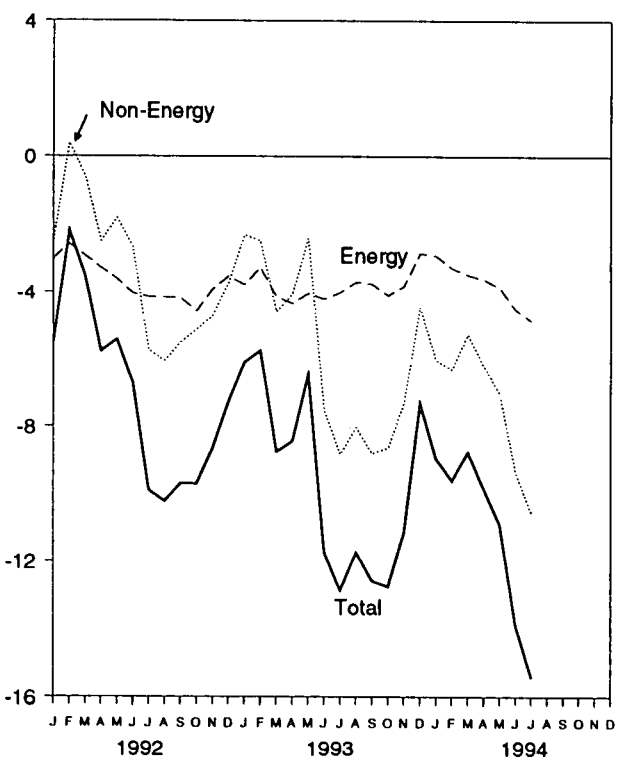
Imports and Exports, Monthly



Trade Balance, 1974-1993



Trade Balance, Monthly



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 1.6.

Table 1.6 Merchandise Trade Value

(Million Dollars)

	Petroleum			Energy			Non-Energy Balance	Total Merchandise		
	Exports	Imports	Balance	Exports	Imports	Balance		Exports	Imports	Balance
1974 Total	792	24,668	-23,876	3,444	25,454	-22,010	18,126	99,437	103,321	-3,884
1975 Total	907	25,197	-24,289	4,470	26,476	-22,006	31,557	108,856	99,305	9,551
1976 Total	998	32,226	-31,228	4,226	33,996	-29,770	21,950	116,794	124,614	-7,820
1977 Total	1,276	42,368	-41,093	4,184	44,537	-40,354	12,001	123,182	151,534	-28,353
1978 Total	1,561	39,526	-37,965	3,881	42,096	-38,215	8,010	145,847	176,052	-30,205
1979 Total	1,914	56,715	-54,801	5,621	59,998	-54,377	30,455	186,363	210,285	-23,922
1980 Total	2,833	78,637	-75,803	7,982	82,924	-74,942	55,246	225,566	245,262	-19,696
1981 Total	3,696	76,659	-72,963	10,279	81,360	-71,081	48,814	238,715	260,982	-22,267
1982 Total	5,947	60,458	-54,511	12,729	65,409	-52,680	25,170	216,442	243,952	-27,510
1983 Total	4,557	53,217	-48,659	9,500	57,952	-48,452	-3,957	205,639	258,048	-52,409
1984 Total	4,470	56,924	-52,454	9,311	60,980	-51,669	-55,033	223,976	330,678	-106,703
1985 Total	4,707	50,475	-45,768	9,971	53,917	-43,946	-73,765	218,815	336,526	-117,712
1986 Total	3,640	35,142	-31,503	8,115	37,310	-29,195	-109,084	227,159	365,438	-138,279
1987 Total	3,922	42,285	-38,363	7,713	44,220	-36,506	-115,613	254,122	406,241	-152,119
1988 Total	3,693	38,787	-35,094	8,235	41,042	-32,806	-85,720	322,426	440,952	-118,526
1989 Total	5,021	49,704	-44,683	9,869	52,779	-42,910	-66,490	363,812	473,211	-109,399
1990 Total	6,901	61,583	-54,682	12,233	64,661	-52,428	-50,068	393,592	496,088	-102,496
1991 Total	6,954	51,350	-44,396	12,081	54,629	-42,548	-24,175	421,730	488,453	-66,723
1992 January	602	3,683	-3,082	1,007	4,016	-3,009	-2,461	34,514	39,984	-5,470
February	454	3,165	-2,711	879	3,452	-2,573	396	36,898	39,075	-2,178
March	419	3,477	-3,058	831	3,762	-2,931	-596	39,817	43,344	-3,527
April	511	3,931	-3,420	932	4,215	-3,283	-2,489	37,154	42,925	-5,772
May	535	4,274	-3,738	968	4,573	-3,605	-1,804	36,737	42,146	-5,409
June	548	4,713	-4,165	958	5,007	-4,049	-2,669	39,094	45,812	-6,718
July	654	4,912	-4,258	1,067	5,222	-4,155	-5,738	35,979	45,872	-9,893
August	503	4,702	-4,199	867	5,034	-4,167	-6,051	34,838	45,055	-10,218
September	428	4,680	-4,252	839	5,026	-4,187	-5,506	36,811	46,503	-9,693
October	506	5,047	-4,541	874	5,456	-4,582	-5,124	40,115	49,820	-9,706
November	550	4,462	-3,912	940	4,873	-3,933	-4,711	37,670	46,314	-8,644
December	700	4,172	-3,471	1,093	4,621	-3,529	-3,747	38,537	45,813	-7,276
Total	6,412	51,217	-44,805	11,254	55,256	-44,002	-40,500	448,164	532,665	-84,501
1993 January	601	4,282	-3,681	923	4,711	-3,788	-2,313	35,958	42,058	-6,101
February	477	3,718	-3,241	807	4,075	-3,268	-2,478	36,070	41,817	-5,746
March	470	4,498	-4,028	753	4,904	-4,151	-4,596	41,999	50,745	-8,747
April	590	4,814	-4,225	844	5,194	-4,350	-4,081	39,421	47,851	-8,431
May	641	4,619	-3,978	939	4,990	-4,051	-2,410	39,870	46,331	-6,461
June	443	4,714	-4,272	843	5,069	-4,226	-7,513	38,624	50,362	-11,738
July	514	4,464	-3,950	819	4,845	-4,026	-8,826	35,465	48,317	-12,852
August	453	4,000	-3,547	714	4,426	-3,712	-8,022	36,876	48,611	-11,735
September	422	4,056	-3,634	712	4,480	-3,769	-8,802	37,956	50,526	-12,570
October	467	4,449	-3,982	761	4,876	-4,115	-8,626	41,148	53,889	-12,742
November	479	4,084	-3,605	720	4,553	-3,833	-7,307	40,294	51,434	-11,140
December	658	3,348	-2,690	922	3,778	-2,856	-4,452	41,412	48,719	-7,307
Total	6,215	51,046	-44,831	9,756	55,900	-46,144	-69,425	465,091	580,659	-115,568
1994 January	452	3,114	-2,662	676	3,603	-2,927	-6,026	37,499	46,451	-8,953
February	366	3,298	-2,932	573	3,860	-3,287	-6,311	37,118	46,716	-9,598
March	452	3,731	-3,279	728	4,229	-3,501	-5,259	45,904	54,663	-8,760
April	416	3,782	-3,366	645	4,276	-3,631	-6,212	41,715	51,558	-9,843
May	480	4,124	-3,644	718	4,594	-3,876	-7,018	42,211	53,105	-10,894
June	416	4,806	-4,390	740	5,269	-4,529	R-9,338	R43,428	R57,295	R-13,867
July	446	5,152	-4,706	713	5,571	-4,858	-10,569	39,324	54,751	-15,427
7-Month Total	3,028	28,007	-24,979	4,793	31,402	-26,609	-50,733	287,199	364,539	-77,342
1993 7-Month Total	3,736	31,110	-27,374	5,928	33,786	-27,858	-32,216	267,406	327,480	-60,075
1992 7-Month Total	3,723	28,154	-24,431	6,641	30,246	-23,605	-15,361	260,193	299,159	-38,965

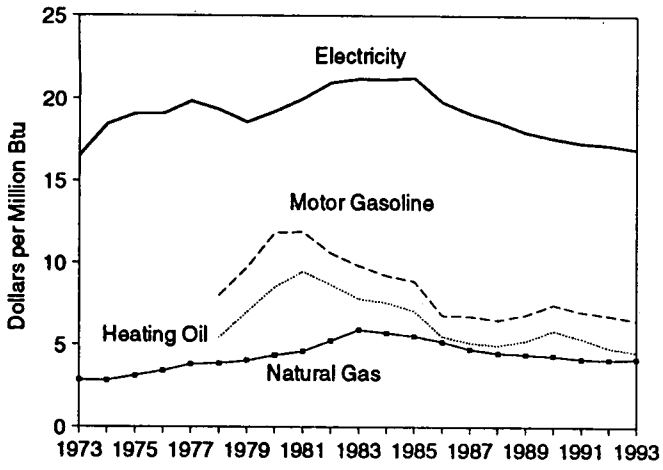
R=Revised data.

Notes: • Monthly data are not adjusted for seasonal variations. • See Note 5 at end of section. • Totals may not equal sum of components due to independent rounding. • The U.S. import statistics reflect both government and nongovernment imports of merchandise from foreign countries into the U.S. customs territory, which comprises the 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands.

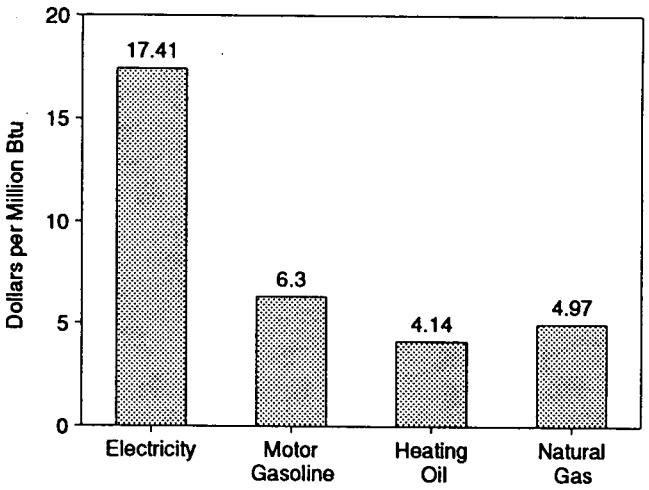
Sources: • U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division. For details, see "Sources for Table 1.6" at the end of this section.

Figure 1.6 Cost of Fuels to End-Users in Constant (1982-1984) Dollars

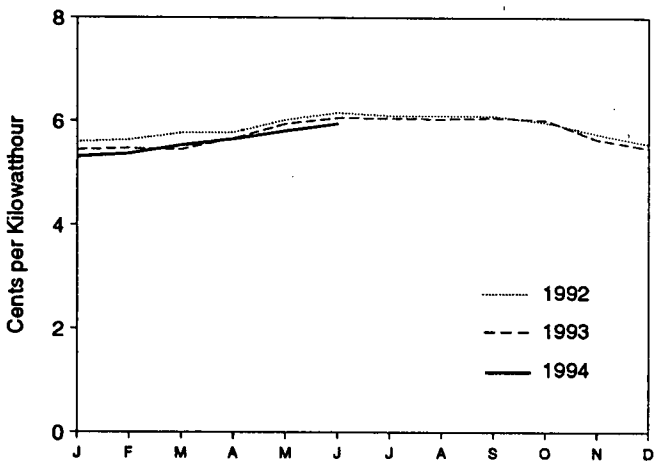
Cost of Fuels, 1973-1993



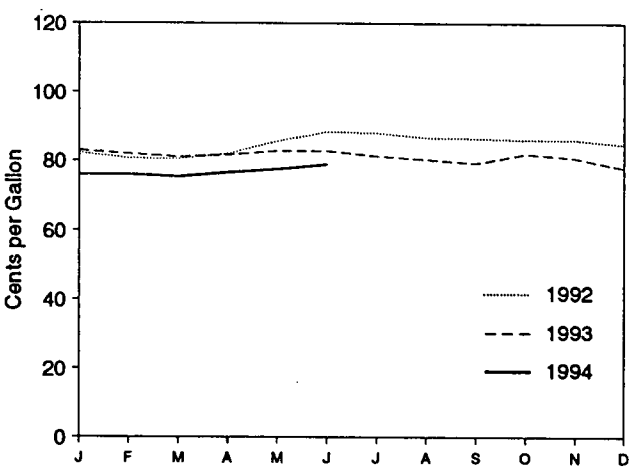
Cost of Fuels, June 1994



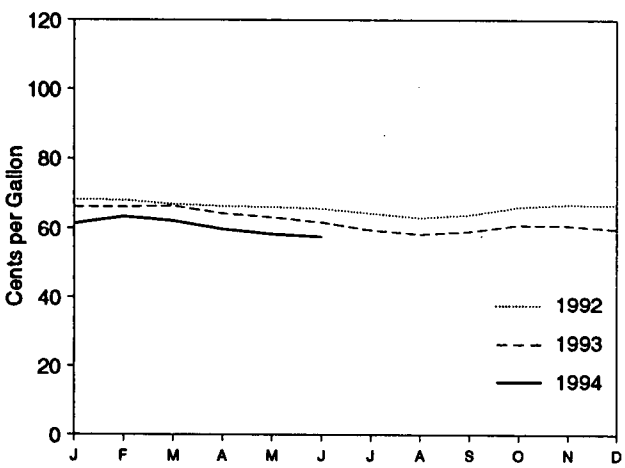
Electricity, Monthly



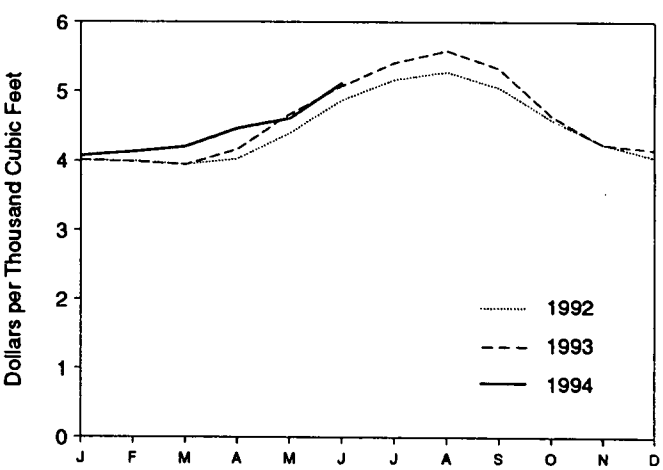
Motor Gasoline, Monthly



Heating Oil, Monthly



Natural Gas, Monthly



Source: Table 1.7.

Table 1.7 Cost of Fuels to End Users in Constant (1982-84) Dollars

	Consumer Price Index (Urban)[a]	Motor Gasoline (All Types)		Residential Heating Oil		Residential Natural Gas		Residential Electricity	
	Index 1982-1984=100	Cents per Gallon	Dollars per Million Btu	Cents per Gallon	Dollars per Million Btu	Cents per Thousand Cubic Feet	Dollars per Million Btu	Cents per Kilowatthour	Dollars per Million Btu
1973 Average	**44.4**	**NA**	**NA**	**NA**	**NA**	**290.5**	**2.85**	**5.6**	**16.50**
1974 Average	**49.3**	**NA**	**NA**	**NA**	**NA**	**290.1**	**2.83**	**6.3**	**18.43**
1975 Average	**53.8**	**NA**	**NA**	**NA**	**NA**	**317.8**	**3.12**	**6.5**	**19.07**
1976 Average	**56.9**	**NA**	**NA**	**NA**	**NA**	**348.0**	**3.41**	**6.5**	**19.06**
1977 Average	**60.6**	**NA**	**NA**	**NA**	**NA**	**387.8**	**3.81**	**6.8**	**19.83**
1978 Average	**65.2**	**100.0**	**8.00**	**75.2**	**5.42**	**392.6**	**3.86**	**6.6**	**19.33**
1979 Average	**72.6**	**121.5**	**9.71**	**97.0**	**6.99**	**410.5**	**4.03**	**6.3**	**18.57**
1980 Average	**82.4**	**148.2**	**11.85**	**118.2**	**8.52**	**446.6**	**4.36**	**6.6**	**19.21**
1981 Average	**90.9**	**148.8**	**11.90**	**131.4**	**9.47**	**471.9**	**4.60**	**6.8**	**19.99**
1982 Average	**96.5**	**132.7**	**10.61**	**120.2**	**8.67**	**535.8**	**5.22**	**7.2**	**20.96**
1983 Average	**99.6**	**123.0**	**9.83**	**108.2**	**7.80**	**608.4**	**5.90**	**7.2**	**21.19**
1984 Average	**103.9**	**115.3**	**9.22**	**105.0**	**7.57**	**589.0**	**5.72**	**7.2**	**21.16**
1985 Average	**107.6**	**111.2**	**8.89**	**97.9**	**7.06**	**568.8**	**5.52**	**7.2**	**21.25**
1986 Average	**109.6**	**84.9**	**6.79**	**76.3**	**5.50**	**531.9**	**5.17**	**6.8**	**19.79**
1987 Average	**113.6**	**84.2**	**6.74**	**70.7**	**5.10**	**487.7**	**4.73**	**6.5**	**19.09**
1988 Average	**118.3**	**81.4**	**6.51**	**68.7**	**4.96**	**462.4**	**4.49**	**6.3**	**18.58**
1989 Average	**124.0**	**85.5**	**6.83**	**72.6**	**5.23**	**454.8**	**4.41**	**6.1**	**17.96**
1990 Average	**130.7**	**93.1**	**7.44**	**81.3**	**5.86**	**443.8**	**4.31**	**6.01**	**17.60**
1991 Average	**136.2**	**87.8**	**7.02**	**74.8**	**5.39**	**427.3**	**4.14**	**5.91**	**17.32**
1992 January	138.1	82.2	6.57	68.2	4.92	400.4	3.88	5.58	16.36
February	138.6	80.6	6.44	68.0	4.90	399.7	3.88	5.62	16.47
March	139.3	80.5	6.44	66.9	4.82	394.8	3.83	5.76	16.87
April	139.5	81.9	6.55	66.3	4.78	402.9	3.91	5.77	16.91
May	139.7	85.7	6.85	66.1	4.76	440.2	4.27	6.02	17.64
June	140.2	88.4	7.07	65.6	4.73	487.9	4.73	6.16	18.06
July	140.5	88.1	7.05	64.3	4.64	517.4	5.02	6.10	17.88
August	140.9	86.7	6.93	62.9	4.53	528.7	5.13	6.10	17.89
September	141.3	86.5	6.91	63.8	4.60	506.0	4.91	6.10	17.88
October	141.8	86.0	6.87	66.1	4.76	459.8	4.46	5.97	17.51
November	142.0	86.1	6.89	66.8	4.81	423.9	4.11	5.75	16.84
December	141.9	84.6	6.77	66.6	4.80	404.5	3.92	5.55	16.25
Average	**140.3**	**84.8**	**6.78**	**66.6**	**4.80**	**419.8**	**4.07**	**5.87**	**17.19**
1993 January	142.6	82.9	6.63	66.1	4.77	401.1	3.89	5.43	15.93
February	143.1	81.9	6.55	66.1	4.77	399.0	3.87	5.46	16.00
March	143.6	81.0	6.48	66.4	4.79	394.2	3.82	5.44	15.94
April	144.0	81.6	6.52	64.2	4.63	416.7	4.04	5.65	16.57
May	144.2	82.7	6.61	63.1	4.55	467.4	4.53	5.94	17.42
June	144.4	82.7	6.61	61.6	4.44	508.3	4.93	6.06	17.76
July	144.4	81.3	6.50	59.3	4.27	541.6	5.25	6.05	17.74
August	144.8	80.3	6.42	58.1	4.19	559.4	5.43	6.04	17.69
September	145.1	79.3	6.34	58.9	4.24	533.4	5.17	6.06	17.77
October	145.7	81.9	6.55	60.8	4.38	465.3	4.51	6.02	17.64
November	145.8	80.8	6.46	60.6	4.37	423.2	4.10	5.64	16.52
December	145.8	77.9	6.23	59.5	4.29	415.6	4.03	5.47	16.02
Average	**144.5**	**81.2**	**6.49**	**63.0**	**4.55**	**425.6**	**4.13**	**5.77**	**16.92**
1994 January	146.2	75.9	6.06	61.3	4.42	407.0	3.95	5.30	15.54
February	146.7	75.9	6.07	63.3	4.56	413.1	4.01	5.36	15.72
March	147.2	75.3	6.02	62.1	4.48	420.5	4.08	5.52	16.17
April	147.4	76.5	6.12	59.6	4.30	447.1	4.34	5.64	16.54
May	147.5	77.5	6.20	58.2	R4.20	R461.0	R4.47	5.80	16.99
June	148.0	78.9	6.30	57.4	4.14	512.8	4.97	5.94	17.41

[a] Consumer Price Index, All Urban Consumers, All Items, 1982-1984 = 100.0.

R=Revised data. NA=Not available.

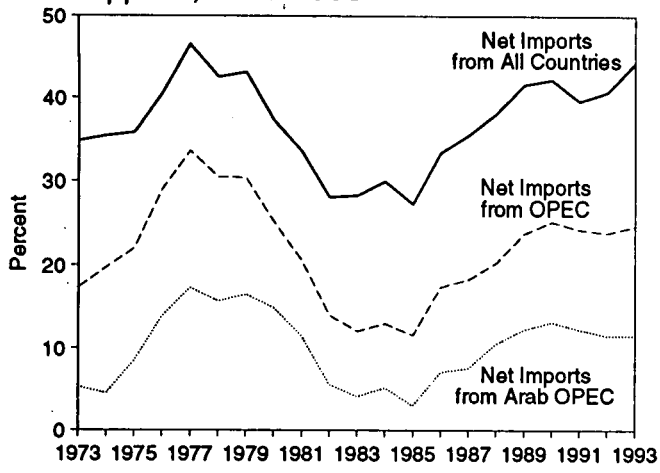
Notes: • Fuel costs are calculated by using the Urban Consumer Price Index (CPI) developed by the Bureau of Labor Statistics. See Note 6 at end of section. • Annual averages may not equal average of months due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Annual Data:** Annual prices in Tables 9.4 (All Types), 9.8c, 9.11, and 9.9 (Monthly Series), adjusted by the CPI. • **Monthly Data:** Monthly prices in Tables 9.4 (All Types), 9.8c, 9.11, and 9.9 (Monthly Series), adjusted by the CPI. • **CPI: 1973-1992**—*Economic Report of the President*, February 1994, Table B-59. **1993 forward**—Council of Economic Advisers, *Economic Indicators*, August 1994, "Consumer Prices - All Urban Consumers."

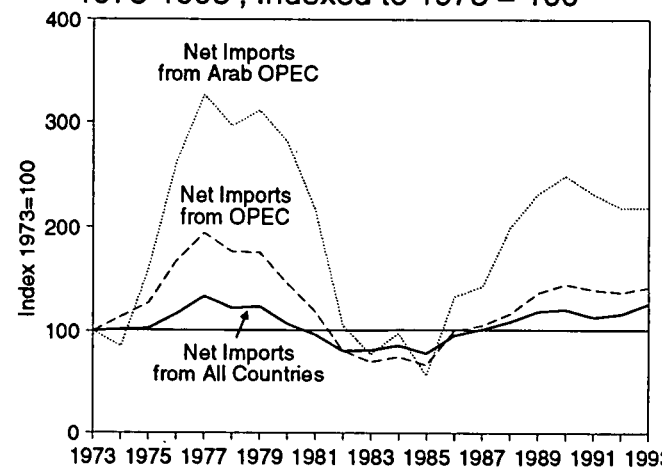
• **Conversion Factors:** Tables A1, A4, and A8.

Figure 1.7 U.S. Dependence on Petroleum Net Imports

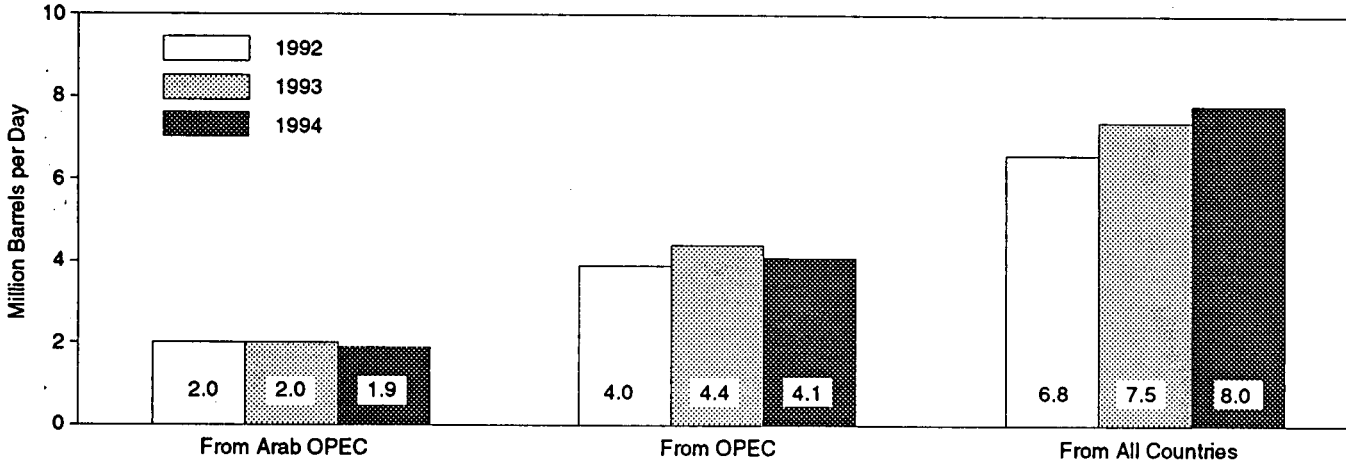
Net Imports as Share of Products Supplied, 1973-1993



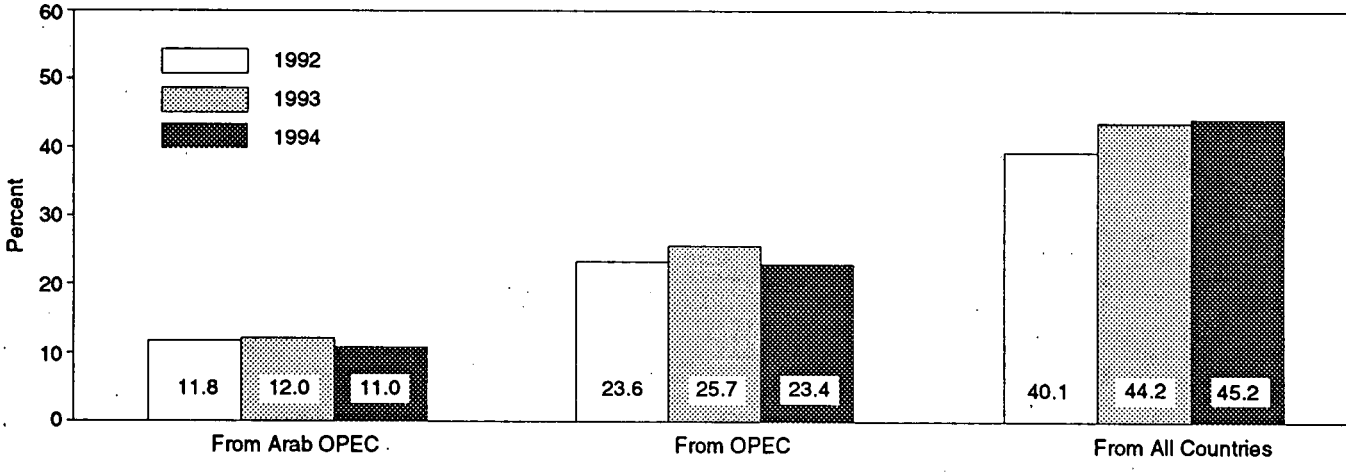
Net Imports as Share of Products Supplied, 1973-1993 , Indexed to 1973 = 100



Net Imports of Petroleum, January-July



Net Imports of Petroleum as Share of Products Supplied, January-July



Source: Table 1.8.

Table 1.8 U.S. Dependence on Petroleum Net Imports

	Net Imports[a]			Petroleum Products Supplied	Net Imports as Share of U.S. Petroleum Products Supplied		
	From Arab OPEC[b]	From OPEC[c]	From All Countries		From Arab OPEC[b]	From OPEC[c]	From All Countries
	Thousand Barrels per Day				Percent		
1973 Average	**914**	**2,991**	**6,025**	**17,308**	**5.3**	**17.3**	**34.8**
1974 Average	**752**	**3,277**	**5,892**	**16,653**	**4.5**	**19.7**	**35.4**
1975 Average	**1,382**	**3,599**	**5,846**	**16,322**	**8.5**	**22.0**	**35.8**
1976 Average	**2,423**	**5,063**	**7,090**	**17,461**	**13.9**	**29.0**	**40.6**
1977 Average	**3,184**	**6,190**	**8,565**	**18,431**	**17.3**	**33.6**	**46.5**
1978 Average	**2,962**	**5,747**	**8,002**	**18,847**	**15.7**	**30.5**	**42.5**
1979 Average	**3,056**	**5,633**	**7,985**	**18,513**	**16.5**	**30.4**	**43.1**
1980 Average	**2,549**	**4,293**	**6,365**	**17,056**	**14.9**	**25.2**	**37.3**
1981 Average	**1,844**	**3,315**	**5,401**	**16,058**	**11.5**	**20.6**	**33.6**
1982 Average	**852**	**2,136**	**4,298**	**15,296**	**5.6**	**14.0**	**28.1**
1983 Average	**630**	**1,843**	**4,312**	**15,231**	**4.1**	**12.1**	**28.3**
1984 Average	**817**	**2,037**	**4,715**	**15,726**	**5.2**	**13.0**	**30.0**
1985 Average	**470**	**1,821**	**4,286**	**15,726**	**3.0**	**11.6**	**27.3**
1986 Average	**1,160**	**2,828**	**5,439**	**16,281**	**7.1**	**17.4**	**33.4**
1987 Average	**1,272**	**3,053**	**5,914**	**16,665**	**7.6**	**18.3**	**35.5**
1988 Average	**1,837**	**3,513**	**6,587**	**17,283**	**10.6**	**20.3**	**38.1**
1989 Average	**2,128**	**4,124**	**7,202**	**17,325**	**12.3**	**23.8**	**41.6**
1990 Average	**2,243**	**4,285**	**7,161**	**16,988**	**13.2**	**25.2**	**42.2**
1991 Average	**2,057**	**4,065**	**6,626**	**16,714**	**12.3**	**24.3**	**39.6**
1992 January	2,239	4,207	6,568	17,012	13.2	24.7	38.6
February	1,993	3,536	5,975	16,893	11.8	20.9	35.4
March	1,921	3,590	6,156	16,825	11.4	21.3	36.6
April	1,913	4,060	7,155	16,764	11.4	24.2	42.7
May	1,963	4,108	6,939	16,485	11.9	24.9	42.1
June	1,887	3,999	6,989	16,978	11.1	23.6	41.2
July	1,956	4,327	7,550	17,143	11.4	25.2	44.0
August	1,927	4,112	7,470	16,929	11.4	24.3	44.1
September	1,845	4,253	7,330	16,876	10.9	25.2	43.4
October	1,917	4,499	7,603	17,448	11.0	25.8	43.6
November	1,913	4,054	6,877	17,091	11.2	23.7	40.2
December	2,181	4,073	6,602	17,928	12.2	22.7	36.8
Average	**1,972**	**4,071**	**6,938**	**17,033**	**11.6**	**23.9**	**40.7**
1993 January	1,978	4,194	6,869	16,173	12.2	25.9	42.5
February	2,132	4,477	6,915	17,334	12.3	25.8	39.9
March	1,974	4,250	7,315	17,575	11.2	24.2	41.6
April	2,181	4,586	7,701	16,781	13.0	27.3	45.9
May	2,030	4,273	7,581	16,508	12.3	25.9	45.9
June	2,004	4,345	7,905	17,096	11.7	25.4	46.2
July	1,914	4,401	8,218	17,357	11.0	25.4	47.3
August	1,859	4,036	7,600	17,332	10.7	23.3	43.9
September	1,963	3,998	7,629	17,650	11.1	22.6	43.2
October	1,961	4,208	8,316	17,323	11.3	24.3	48.0
November	1,974	4,142	7,923	17,780	11.1	23.3	44.6
December	1,983	4,144	7,394	17,953	11.0	23.1	41.2
Average	**1,995**	**4,253**	**7,618**	**17,237**	**11.6**	**24.7**	**44.2**
1994 January	1,861	3,601	6,987	17,924	10.4	20.1	39.0
February	1,717	3,805	7,619	18,302	9.4	20.8	41.6
March	1,881	3,739	7,564	17,289	10.9	21.6	43.7
April	2,095	4,355	8,059	17,428	12.0	25.0	46.2
May	2,060	4,351	8,226	17,094	12.1	25.5	48.1
June	1,826	4,485	8,396	17,830	10.2	25.2	47.1
July	2,111	4,516	8,901	17,474	12.1	25.8	50.9
7-Month Average	**1,939**	**4,124**	**7,967**	**17,610**	**11.0**	**23.4**	**45.2**
1993 7-Month Average	**2,029**	**4,358**	**7,506**	**16,970**	**12.0**	**25.7**	**44.2**
1992 7-Month Average	**1,982**	**3,979**	**6,766**	**16,871**	**11.8**	**23.6**	**40.1**

[a] "Net Imports" are imports minus exports. Imports from members of the Organization of Petroleum Exporting Countries (OPEC) exclude indirect imports, which are petroleum products primarily from Caribbean and West European areas and refined from crude oil produced by OPEC.

[b] The Arab members of OPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates. Net imports from the Neutral Zone between Kuwait and Saudi Arabia are included in net imports from Arab OPEC.

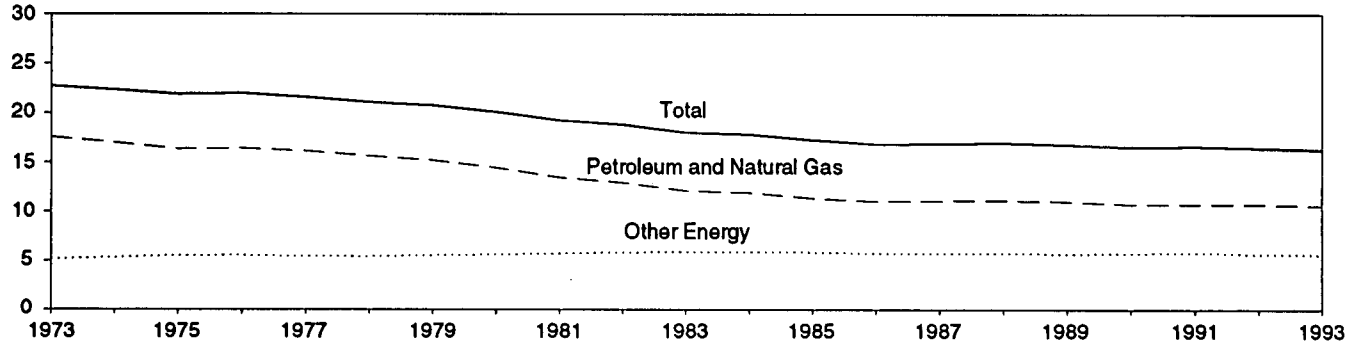
[c] OPEC currently consists of Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members. Ecuador was a member of OPEC from 1973-1992; for this period, net imports from Ecuador are included in net imports from OPEC.

Notes: • Beginning in October 1977, Strategic Petroleum Reserves are included. • Annual averages may not equal average of months due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **Imports:** Tables 3.3a-3.3h. • **Exports: 1973-1976**—U.S. Department of the Interior, Bureau of Mines, *Mineral Industry Surveys.* **1977-1980**—Energy Information Administration (EIA), *Energy Data Reports,* "Petroleum Statement, Annual." **1981-1993**—EIA, *Petroleum Supply Annual.* **1994**—EIA, *Petroleum Supply Monthly.* • **Petroleum Products Supplied:** Table 3.1a.

Figure 1.8 Energy Consumption per Dollar of Gross Domestic Product

(Thousand Btu per 1987 Dollar)



Source: Table 1.9.

Table 1.9 Energy Consumption per Dollar of Gross Domestic Product

(Seasonally Adjusted at Annual Rates)

	Energy Consumption			Gross Domestic Product (GDP)	Energy Consumption per Dollar of GDP		
	Petroleum and Natural Gas	Other Energy	Total[a]		Petroleum and Natural Gas	Other Energy	Total
	Quadrillion Btu			Billion 1987 Dollars	Thousand Btu per 1987 Dollar		
1973 Year	57.352	16.930	74.282	3,268.6	17.55	5.18	22.73
1974 Year	55.187	17.356	72.543	3,248.1	16.99	5.34	22.33
1975 Year	52.678	17.867	70.546	3,221.7	16.35	5.55	21.90
1976 Year	55.520	18.842	74.362	3,380.8	16.42	5.57	22.00
1977 Year	57.053	19.236	76.288	3,533.3	16.15	5.44	21.59
1978 Year	57.966	20.123	78.089	3,703.5	15.65	5.43	21.09
1979 Year	57.789	21.108	78.898	3,796.8	15.22	5.56	20.78
1980 Year	54.596	21.359	75.955	3,776.3	14.46	5.66	20.11
1981 Year	51.859	22.131	73.990	3,843.1	13.49	5.76	19.25
1982 Year	48.736	22.111	70.848	3,760.3	12.96	5.88	18.84
1983 Year	47.411	23.114	70.524	3,906.6	12.14	5.92	18.05
1984 Year	49.558	24.586	74.144	4,148.5	11.95	5.93	17.87
1985 Year	48.756	25.225	73.981	4,279.8	11.39	5.89	17.29
1986 Year	48.904	25.393	74.297	4,404.5	11.10	5.77	16.87
1987 Year	50.609	26.285	76.894	4,539.9	11.15	5.79	16.94
1988 Year	52.774	27.443	80.218	4,718.6	11.18	5.82	17.00
1989 Year	53.595	27.731	81.325	4,838.0	11.08	5.73	16.81
1990 Year	52.849	28.416	81.265	4,897.3	10.79	5.80	16.59
1991 Year	52.452	28.665	81.116	4,867.6	10.78	5.89	16.66
1992 1st Quarter	53.676	28.132	81.808	4,918.5	10.91	5.72	16.63
2nd Quarter	54.051	28.532	82.583	4,947.5	10.92	5.77	16.69
3rd Quarter	52.840	28.291	81.131	4,990.5	10.59	5.67	16.26
4th Quarter	54.066	28.989	83.055	5,060.7	10.68	5.73	16.41
Year	53.657	28.487	82.144	4,979.3	10.78	5.72	16.50
1993 1st Quarter	R55.455	R29.292	R84.748	5,075.3	R10.93	5.77	R16.70
2nd Quarter	R53.780	R29.649	R83.429	5,105.4	R10.53	R5.81	R16.34
3rd Quarter	R54.637	R29.143	R83.781	5,139.4	10.63	5.67	R16.30
4th Quarter	R55.117	R28.768	R83.884	5,218.0	10.56	5.51	16.08
Year	54.746	29.211	R83.958	5,134.5	10.66	5.69	16.35
1994 1st Quarter	R57.874	R29.872	R87.746	5,261.1	R11.00	5.68	R16.68
2nd Quarter	56.067	30.170	86.238	5,310.2	10.56	5.68	16.24

[a] Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy, except for small amounts used by electric utilities to generate electricity for distribution.

R=Revised data.

Notes: • Quarterly data are seasonally adjusted and shown at annual rates. • Yearly data may not equal average of quarters due to seasonality adjustments and independent rounding. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Energy Consumption:** Table 1.4. • **Gross Domestic Product: 1973-1990**—U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, September 1993, Table 2. **1991 forward**—U.S. Department of Commerce, Bureau of Economic Analysis, *United States Department of Commerce News*, August 26, 1994, Table 2.

Figure 1.9 Passenger Car Efficiency

(Index, 1973 = 100)

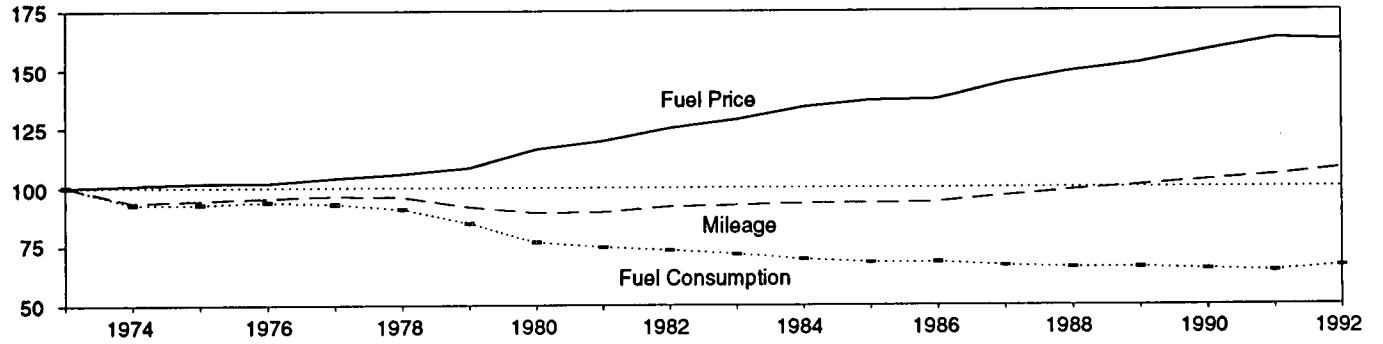


Table 1.10 Passenger Car Efficiency

	Mileage		Fuel Consumption		Fuel Rate	
	Miles per Car	Index 1973=100.0	Gallons per Car	Index 1973=100.0	Miles per Gallon	Index 1973=100.0
1973	10,256	100.0	771	100.0	13.30	100.0
1974	9,606	93.7	716	92.9	13.42	100.9
1975	9,690	94.5	716	92.9	13.52	101.7
1976	9,785	95.4	723	93.8	13.53	101.7
1977	9,879	96.3	716	92.9	13.80	103.8
1978	9,835	95.9	701	90.9	14.04	105.6
1979	9,403	91.7	653	84.7	14.41	108.3
1980	9,141	89.1	591	76.7	15.46	116.2
1981	9,186	89.6	576	74.7	15.94	119.8
1982	9,428	91.9	566	73.4	16.65	125.2
1983	9,475	92.4	553	71.7	17.14	128.9
1984	9,558	93.2	536	69.5	17.83	134.1
1985	9,560	93.2	525	68.1	18.20	136.8
1986	9,608	93.7	526	68.2	18.27	137.4
1987	9,878	96.3	514	66.7	19.20	144.4
1988	10,121	98.7	509	66.0	19.87	149.4
1989	10,332	100.7	509	66.0	20.31	152.7
1990	10,548	102.8	502	65.1	21.02	158.0
1991	10,757	104.9	496	64.3	21.69	163.1
1992[a]	11,063	107.9	512	66.4	21.60	162.4

[a] Preliminary data.

Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: Indices are prepared from statistics published by the U.S. Department of Transportation, Federal Highway Administration, Federal Highway Statistics Division. • **1973-1985:** *Highway Statistics Summary to 1985*, Table VM-201A. • **1986 forward:** *Highway Statistics*, annual, Table VM-1.

Table 1.11 Heating Degree-Days by Census Division

Census Divisions	August 1 through August 31					Cumulative July 1 through August 31				
				Percent Change					Percent Change	
	Normal[a]	1993	1994	Normal to 1994	1993 to 1994	Normal[a]	1993	1994	Normal to 1994	1993 to 1994
New England										
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	24	33	60	(c)	(c)	31	60	71	(c)	(c)
Middle Atlantic										
New Jersey, New York, Pennsylvania	12	10	37	(c)	(c)	16	13	38	(c)	(c)
East North Central										
Illinois, Indiana, Michigan, Ohio, Wisconsin	20	22	53	(c)	(c)	25	29	69	(c)	(c)
West North Central										
Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota	23	31	44	(c)	(c)	32	52	70	(c)	(c)
South Atlantic										
Delaware, Florida, Georgia, Maryland and the District of Columbia, North Carolina, South Carolina, Virginia, West Virginia	0	0	3	(c)	(c)	1	0	3	(c)	(c)
East South Central										
Alabama, Kentucky, Mississippi, Tennessee	0	1	2	(c)	(c)	0	1	3	(c)	(c)
West South Central										
Arkansas, Louisiana, Oklahoma, Texas	0	0	0	(c)	(c)	0	0	0	(c)	(c)
Mountain										
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	26	56	19	(c)	(c)	39	103	41	(c)	(c)
Pacific[b]										
California, Oregon, Washington	20	38	21	(c)	(c)	43	81	39	(c)	(c)
U.S. Average[b]	13	18	26	(c)	(c)	20	32	35	(c)	(c)

[a] "Normal" is based on calculations of data from 1961 through 1990.
[b] Excludes Alaska and Hawaii.
[c] Percent change is not meaningful: normal is less than 100 or ratio is incalculable.

Notes: Degree-days are relative measurements of outdoor air temperature used as an index for heating and cooling energy requirements. Heating degree-days are the number of degrees that the daily average temperature falls below 65° F. Cooling degree-days are the number of degrees that the daily average temperature rises above 65° F. The daily average temperature is the mean of the maximum and minimum temperatures in a 24-hour period. For example, a weather station recording an average daily temperature of 40° F would report 25 heating degree-days for that day (and 0 cooling degree-days). If a weather station recorded an average daily temperature of 78° F, cooling degree-days for that station would be 13 (and 0 heating degree days).

Sources: There are several degree-day databases maintained by the National Oceanic and Atmospheric Administration. The information published here is developed by the National Weather Service Climate Analysis Center, Camp Springs, MD. The data are available weekly with monthly summaries and are based on mean daily temperatures recorded at about 200 major weather stations around the country. The temperature information recorded at those weather stations is used to calculate statewide degree-day averages based on population. The State figures are then aggregated into Census Divisions and into the national average. The population weights currently used represent resident State population data estimated for 1990 by the U.S. Department of Commerce, Bureau of the Census. The data provided here are available sooner than the Historical Climatology Series 5-1 (heating degree-days) and 5-2 (cooling degree-days) developed by the National Climatic Center, Asheville, NC, which compiles data from some 8,000 weather stations.

Table 1.12 Cooling Degree-Days by Census Division

Census Divisions	August 1 through August 31					Cumulative January 1 through August 31				
				Percent Change					Percent Change	
	Normal[a]	1993	1994	Normal to 1994	1993 to 1994	Normal[a]	1993	1994	Normal to 1994	1993 to 1994
New England										
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	148	184	125	-15.5	-32.1	394	516	532	35.0	3.1
Middle Atlantic										
New Jersey, New York, Pennsylvania	210	258	171	-18.6	-33.7	601	760	734	22.1	-3.4
East North Central										
Illinois, Indiana, Michigan, Ohio, Wisconsin	201	258	142	-29.4	-45.0	656	722	646	-1.5	-10.5
West North Central										
Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota	263	277	218	-17.1	-21.3	870	752	775	-10.9	3.1
South Atlantic										
Delaware, Florida, Georgia, Maryland and the District of Columbia, North Carolina, South Carolina, Virginia, West Virginia	391	434	366	-6.4	-15.7	1,469	1,610	1,588	8.1	-1.4
East South Central										
Alabama, Kentucky, Mississippi, Tennessee	374	444	348	-7.0	-21.6	1,280	1,403	1,252	-2.2	-10.8
West South Central										
Arkansas, Louisiana, Oklahoma, Texas	528	596	515	-2.5	-13.6	1,930	1,911	1,943	.7	1.7
Mountain										
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	287	260	366	27.5	40.8	965	882	1,121	16.2	27.1
Pacific[b]										
California, Oregon, Washington	193	175	220	14.0	25.7	529	520	575	8.7	10.6
U.S. Average[b]	**287**	**322**	**268**	**-6.6**	**-16.8**	**966**	**1,024**	**1,021**	**5.7**	**-.3**

[a] "Normal" is based on calculations of data from 1961 through 1990.
[b] Excludes Alaska and Hawaii.

Notes: Degree-days are relative measurements of outdoor air temperature used as an index for heating and cooling energy requirements. Cooling degree-days are the number of degrees that the daily average temperature rises above 65° F. Heating degree-days are the number of degrees that the daily average temperature falls below 65° F. The daily average temperature is the mean of the maximum and minimum temperatures in a 24-hour period. For example, if a weather station recorded an average daily temperature of 78° F, cooling degree-days for that station would be 13 (and 0 heating degree-days). A weather station recording an averager daily temperature of 40° F would report 25 heating degree-days for that day (and 0 cooling degree-days).

Sources: There are several degree-day databases maintained by the National Oceanic and Atmospheric Administration. The information published here is developed by the National Weather Service Climate Analysis Center, Camp Springs, MD. The data are available weekly with monthly summaries and are based on mean daily temperatures recorded at about 200 major weather stations around the country. The temperature information recorded at those weather stations is used to calculate statewide degree-day averages based on population. The State figures are then aggregated into Census Divisions and into the national average. The population weights currently used represent resident State population data estimated for 1990 by the U.S. Department of Commerce, Bureau of the Census. The data provided here are available sooner than the Historical Climatology Series 5-1 (heating degree-days) and 5-2 (cooling degree-days) developed by the National Climatic Center, Asheville, NC, which compiles data from some 8,000 weather stations.

Energy Summary Notes

1. Energy Production: Production of energy includes production of coal, crude oil and lease condensate, natural gas plant liquids, natural gas (dry), electric utility and industrial production of hydroelectric power, and electricity generated from nuclear power. Production also includes electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy but excludes other energy obtained from those sources because consistent historical data are not available. Approximate heat contents (Btu values) are derived by using the conversion factors provided in Appendix A.

2. Energy Consumption: Consumption of energy includes consumption of coal, natural gas (including supplemental gaseous fuels), petroleum products supplied, electric utility and industrial production of hydroelectric power, net imports of electricity (assumed to be hydroelectricity), net imports of coal coke, and electricity generated from nuclear power. Consumption also includes electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy but excludes other energy obtained from those sources because consistent historical data are not available. Approximate heat contents (Btu values) are derived by using the conversion factors provided in Appendix A.

3. Energy Imports: Energy imports include imports of coal, crude oil (including crude oil imported for the Strategic Petroleum Reserve), petroleum products, natural gas, electricity (assumed to be hydroelectricity), and coal coke. Approximate heat contents (Btu values) are derived by using the conversion factors provided in Appendix A. For further information on electricity, see "Note for imports and exports of electricity" under Note 8 of the Notes and Sources for the Energy Consumption Section.

4. Energy Exports: Energy exports include coal, crude oil, petroleum products, natural gas, electricity produced from hydroelectric power, and coal coke. Approximate heat contents (Btu values) are derived by using the conversion factors provided in Appendix A. For more information on electricity, see "Note for imports and exports of electricity" under Note 8 of the Notes and Sources for the Energy Consumption Section.

5. Merchandise Trade Value: Import data presented are based on the customs value. That value does not include insurance and freight and is consequently lower than the cost, insurance, and freight (CIF) value, which is also reported by the Bureau of the Census. All export data, and import data prior to 1981, are on a free alongside ship (f.a.s.) basis.

"Balance" is exports minus imports; a positive balance indicates a surplus trade value and a negative balance indicates a deficit trade value. "Energy" includes mineral fuels, lubricants, and related material. "Non-Energy Balance" and "Total Merchandise" include foreign exports (i.e., reexports) and nonmonetary gold and Department of Defense Grant-Aid shipments. The "Non-Energy Balance" is calculated by subtracting the "Energy" from the "Total Merchandise Balance."

"Imports" consist of government and nongovernment shipments of merchandise into the 50 States, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and the U.S. Foreign Trade Zones. They reflect the total arrival from foreign countries of merchandise that immediately entered consumption channels, warehouses, the Foreign Trade Zones, or the Strategic Petroleum Reserve. They exclude shipments between the United States, Puerto Rico, and U.S. possessions, shipments to U.S. Armed Forces and diplomatic missions abroad for their own use, U.S. goods returned to the United States by its Armed Forces, and in-transit shipments.

Sources for Table 1.6

U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division:

• **Petroleum Exports—1974-1987:** "U.S. Exports," FT410, December issues. **1988:** "Report on U.S. Merchandise Trade, 1988 Final Revisions." **1989:** "Report on U.S. Merchandise Trade, 1989 Revisions." **1990:** "U.S. Merchandise Trade, 1990 Final Report." **1991:** "U.S. Merchandise Trade, 1991 Final Report," May 13, 1992. **1992:** "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993. **1993:** "U.S. International Trade in Goods and Services, Annual Revision for 1993." **1994:** "U.S. International Trade in Goods and Services," FT900, monthly.

• **Petroleum Imports—1974-1987:** "U.S. Merchandise Trade," FT900, December issues, 1975-1988. **1988:** "Report on U.S. Merchandise Trade, 1988 Final Revisions." **1989:** "Report on U.S. Merchandise Trade, 1989 Revisions." **1990:** "U.S. Merchandise Trade, 1990 Final Report." **1991:** "U.S. Merchandise Trade, 1991 Final Report," May 13, 1992, and "U.S. Merchandise Trade, October 1992," December 17, 1992, page 3. **1992:** "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993. **1993:** "U.S. International Trade in Goods and Services, Annual Revision for 1993." **1994:** "U.S. International Trade in Goods and Services," FT900, monthly.

• **Energy Exports and Imports—1974-1987:** U.S. merchandise trade press releases and database printouts for adjustments. **1988:** January-July, monthly FT900 supplement, 1989 issues. August-December, monthly FT900, 1989 issues. **1989:** Monthly FT900, 1990 issues. **1990:** "U.S. Merchandise Trade, 1990 Final Report." **1991:** "U.S. Merchandise Trade, 1991 Final Report," May 13, 1992, and "U.S. Merchandise Trade, October 1992," December 17, 1992, page 3. **1992:** "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993.

1993: "U.S. International Trade in Goods and Services, Annual Revision for 1993." **1994:** "U.S. International Trade in Goods and Services," FT900, monthly.

• **Total Merchandise—1974-1987:** U.S. merchandise trade press releases and database printouts for adjustments. **1988:** "Report on U.S. Merchandise Trade, 1988 Final Revisions," August 18, 1989. **1989:** "Report on U.S. Merchandise Trade, 1989 Revisions," July 10, 1990. **1990:** "U.S. Merchandise Trade, 1990 Final Report," May 10, 1991, and "U.S. Merchandise Trade, December 1992," February 18, 1993, page 3. **1991-1992:** "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993. **1993:** "U.S. International Trade in Goods and Services, Annual Revision for 1993." **1994:** "U.S. International Trade in Goods and Services," FT900, monthly.

• **Petroleum Balance, Energy Balance, and Non-Energy Balance**—Calculated by the Energy Information Administration.

Section 2. Energy Consumption

U.S. total energy consumption in June 1994 was 6.9 quadrillion Btu. Petroleum products accounted for 42 percent[1] of the energy consumed in June 1994, while coal accounted for 25 percent and natural gas accounted for 21 percent.

Residential and commercial sector consumption was 2.3 quadrillion Btu in June 1994, up 9 percent from the June 1993 level. The sector accounted for 34 percent of June 1994 total consumption, up 2 percentage points from its 32-percent share in June 1993.

Industrial sector consumption was 2.6 quadrillion Btu in June 1994, up 3 percent from the June 1993 level. The industrial sector accounted for 37 percent of June 1994 total consumption, down 1 percentage point from its 38-percent share in June 1993.

Transportation sector consumption of energy was 2.0 quadrillion Btu in June 1994, up 3 percent from the June 1993 level. The sector accounted for 29 percent of June 1994 total consumption, about the same share as in June 1993.

Electric utility consumption of energy totaled 2.8 quadrillion Btu in June 1994, up 7 percent from the June 1993 level. Coal contributed 54 percent of the energy consumed by electric utilities in June 1994, while nuclear electric power contributed 20 percent; natural gas 12 percent; hydroelectric power 10 percent; petroleum 4 percent; and geothermal, wood, waste, wind, photovoltaic, and solar thermal energy, less than 1 percent.

Table 2.1 Energy Consumption Summary for June 1994

(Quadrillion Btu)

Energy Source	End-Use Sectors				Electric Utilities	Total
	Residential and Commercial	Industrial	Transportation	Total[a]		
Coal	0.030	0.199	([b])	0.230	1.509	1.739
Natural Gas[c]	.307	.754	.043	1.106	.326	1.431
Petroleum	.154	.672	1.945	2.771	.106	2.877
Nuclear Electric Power	–	–	–	–	.553	.553
Hydroelectric Power[d]	–	.003	–	.003	.276	.279
Geothermal	–	–	–	–	.011	.011
Net Imports of Coal Coke	–	.003	–	.003	–	.003
Other[e]	–	–	–	–	.002	.002
Primary Consumption	**.492**	**1.631**	**1.988**	**4.113**	**2.782**	**6.895**
Electricity	.563	.294	.001	.859	–	–
Net Consumption	**1.055**	**1.926**	**1.989**	**4.972**	–	–
Electrical System Energy Losses	1.261	.659	.003	1.923	–	–
Total Consumption[f]	**2.316**	**2.584**	**1.992**	**6.895**	–	–

[a] Totals for coal and natural gas may not equal sum of sectors due to the use of sector-specific conversion factors.

[b] Small amounts of coal consumed for transportation are reported as industrial sector consumption.

[c] Includes supplemental gaseous fuels. Transportation sector is pipeline fuel only.

[d] Includes net imports of electricity.

[e] "Other" is electricity generated for distribution from wood, waste, wind, photovoltaic, and solar thermal energy.

[f] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, 3.3 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.4 quadrillion Btu of renewable energy used by other sectors is not included.

– =Not applicable.

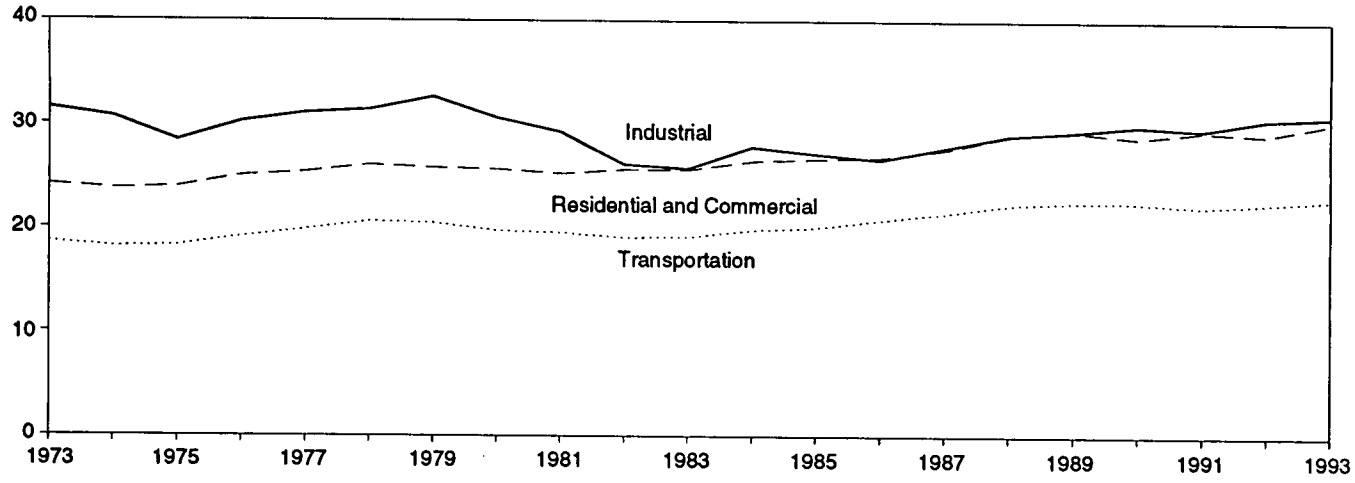
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See Tables 2.2-2.6 and end of section.

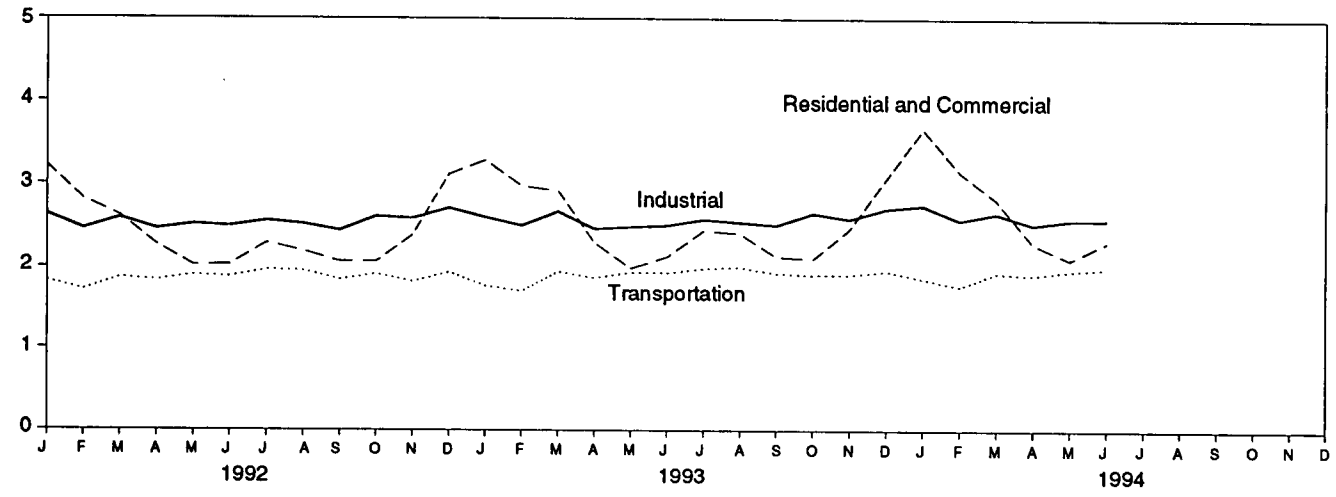
[1] Percentage changes are based on numbers in the following tables.

Figure 2.1 Energy Consumption by End-Use Sector
(Quadrillion Btu)

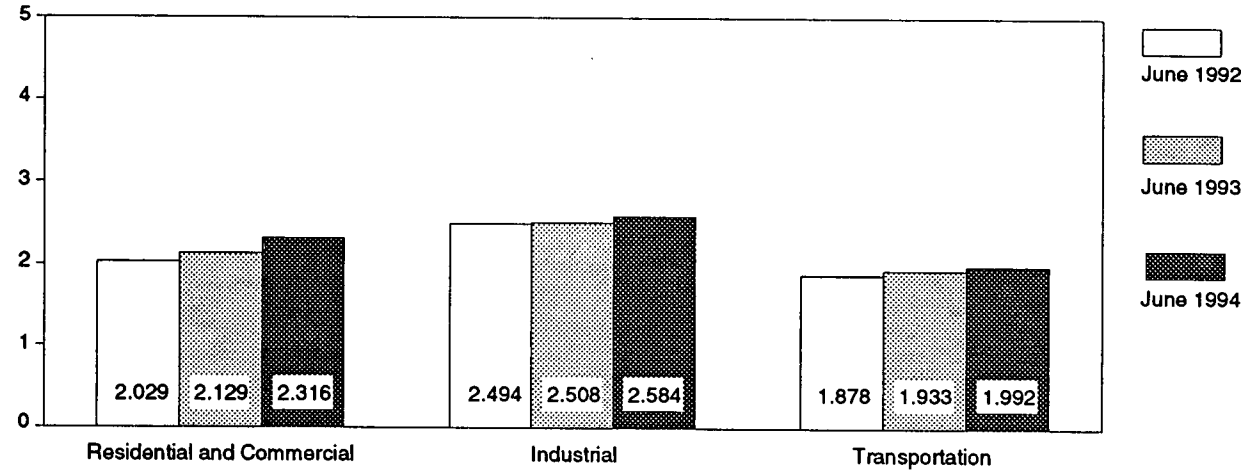
Consumption by End-Use Sector, 1973-1993



Consumption by End-Use Sector, Monthly



Consumption by End-Use Sector, June



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 2.2.

Table 2.2 Energy Consumption by End-Use Sector

(Quadrillion Btu)

	Residential and Commercial		Industrial		Transportation			
	Net	Total	Net	Total	Net	Total	Net	Total[a]
1973 Total	15.766	24.143	25.917	31.528	18.584	18.605	60.274	74.282
1974 Total	15.246	23.725	24.994	30.694	18.095	18.117	58.341	72.543
1975 Total	15.200	23.899	22.737	28.402	18.219	18.244	56.157	70.546
1976 Total	15.997	25.018	24.038	30.236	19.076	19.101	59.119	74.362
1977 Total	15.828	25.384	24.593	31.077	19.794	19.819	60.223	76.288
1978 Total	16.023	26.084	24.637	31.392	20.589	20.611	61.251	78.089
1979 Total	15.709	25.808	25.679	32.616	20.447	20.472	61.836	78.898
1980 Total	15.075	25.655	23.854	30.606	19.669	19.695	58.597	75.955
1981 Total	14.541	25.241	22.533	29.240	19.480	19.507	56.556	73.990
1982 Total	14.629	25.629	20.020	26.145	19.043	19.069	53.697	70.848
1983 Total	14.395	25.627	19.401	25.759	19.109	19.135	52.907	70.524
1984 Total	14.964	26.474	21.184	27.867	19.773	19.801	55.923	74.144
1985 Total	14.839	26.704	20.520	27.214	20.036	20.067	55.391	73.981
1986 Total	14.791	26.852	20.101	26.630	20.781	20.812	55.676	74.297
1987 Total	15.146	27.623	21.116	27.826	21.419	21.448	57.678	76.894
1988 Total	16.004	28.925	22.085	28.986	22.274	22.305	60.366	80.218
1989 Total	16.261	29.404	22.272	29.353	22.530	22.561	61.070	81.325
1990 Total	15.568	28.786	22.841	29.936	22.504	22.535	60.921	81.265
1991 Total	15.986	29.424	22.549	29.570	22.090	22.120	60.626	81.116
1992 January	2.029	3.218	2.062	2.633	1.826	1.828	5.916	7.678
February	1.814	2.816	1.940	2.458	1.716	1.718	5.468	6.989
March	1.596	2.615	2.014	2.590	1.864	1.866	5.472	7.070
April	1.336	2.272	1.909	2.458	1.834	1.837	5.078	6.565
May	1.040	2.021	1.917	2.515	1.897	1.899	4.853	6.435
June	.941	2.029	1.860	2.494	1.875	1.878	4.678	6.403
July	.995	2.293	1.902	2.558	1.963	1.966	4.865	6.822
August	.974	2.195	1.893	2.520	1.952	1.954	4.822	6.673
September	.983	2.065	1.862	2.444	1.842	1.844	4.689	6.356
October	1.083	2.066	2.030	2.610	1.911	1.914	5.024	6.590
November	1.381	2.390	1.992	2.588	1.818	1.820	5.190	6.798
December	1.918	3.118	2.118	2.711	1.933	1.936	5.970	7.765
Total	16.090	29.100	23.498	30.577	22.432	22.461	62.025	82.144
1993 January	2.085	3.285	2.037	2.602	1.765	1.767	5.886	7.654
February	1.943	2.978	1.977	2.504	1.703	1.705	5.621	7.186
March	1.837	2.920	2.104	2.672	1.941	1.944	5.882	7.536
April	1.371	2.302	1.924	2.467	1.867	1.869	5.159	6.635
May	1.004	1.988	1.879	2.489	1.935	1.938	4.816	6.413
June	.975	2.129	1.865	2.508	1.931	1.933	4.773	6.572
July	1.044	2.448	1.932	2.581	1.983	1.986	[R]4.966	7.021
August	1.036	2.416	1.906	2.547	2.001	2.004	4.949	6.973
September	1.043	2.133	1.973	2.514	1.926	1.929	4.943	6.577
October	1.106	2.104	2.082	2.658	1.905	1.907	5.092	6.668
November	1.449	2.469	2.000	2.590	1.914	1.916	5.363	6.976
December	1.899	3.076	2.113	2.713	1.955	1.958	5.967	7.747
Total	16.791	30.249	23.793	30.846	22.826	22.856	63.417	[R]83.958
1994 January	[R]2.380	[R]3.670	2.172	2.752	1.861	[R]1.864	[R]6.415	[R]8.287
February	[R]2.097	[R]3.157	2.061	2.577	1.764	1.766	[R]5.921	[R]7.499
March	[R]1.751	[R]2.818	2.085	2.659	1.934	1.936	[R]5.768	[R]7.413
April	[R]1.325	[R]2.295	1.965	2.523	1.906	[R]1.908	[R]5.194	[R]6.724
May	[R]1.072	[R]2.102	[R]1.960	[R]2.581	1.963	1.966	[R]4.994	[R]6.648
June	1.055	2.316	1.926	2.584	1.989	1.992	4.972	6.895
6-Month Total	9.680	16.356	12.168	15.677	11.419	11.433	33.265	43.465
1993 6-Month Total	9.214	15.603	11.787	15.242	11.142	11.156	32.137	41.995
1992 6-Month Total	8.755	14.972	11.702	15.147	11.012	11.026	31.464	41.141

[a] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, 3.3 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.4 quadrillion Btu of renewable energy used by other sectors is not included.

R=Revised data.

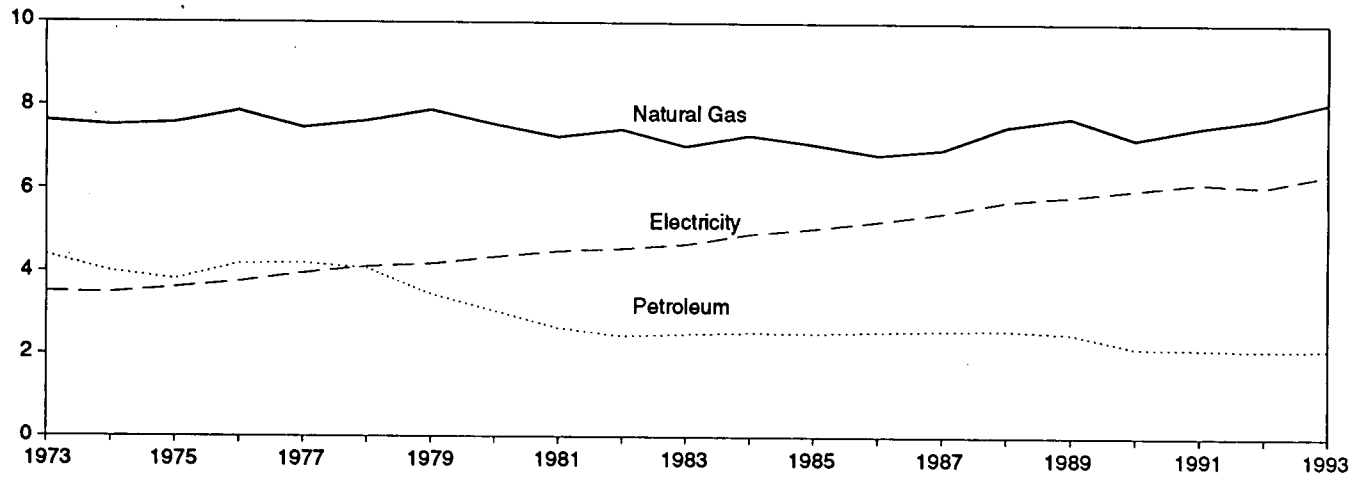
Notes: • Totals may not equal sum of components due to independent rounding and the use of sector-specific conversion factors for natural gas and coal. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

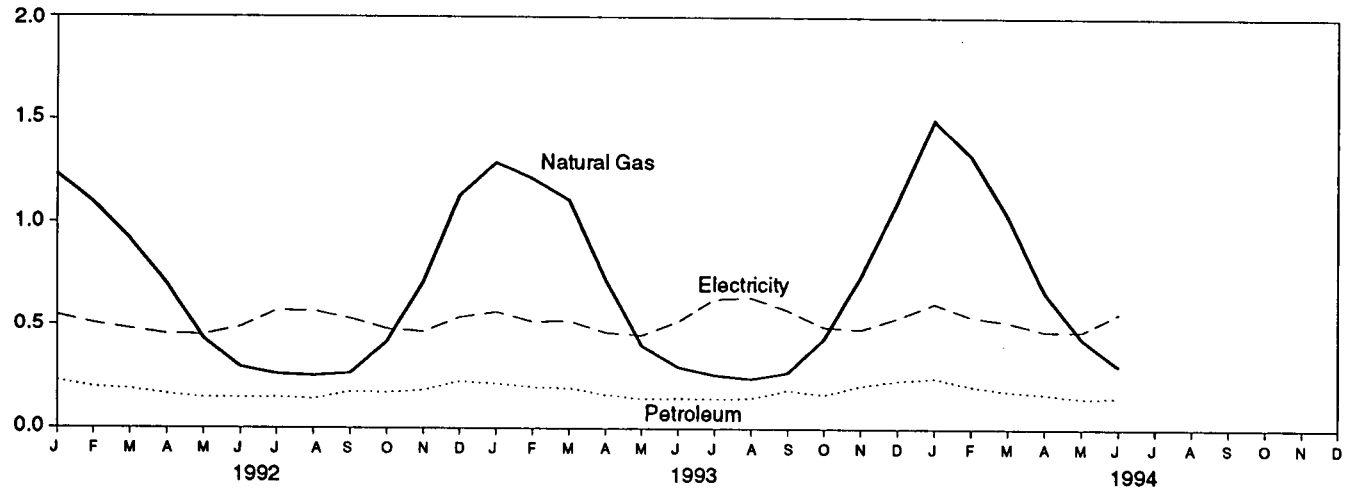
Figure 2.2 Residential and Commercial Energy Consumption

(Quadrillion Btu)

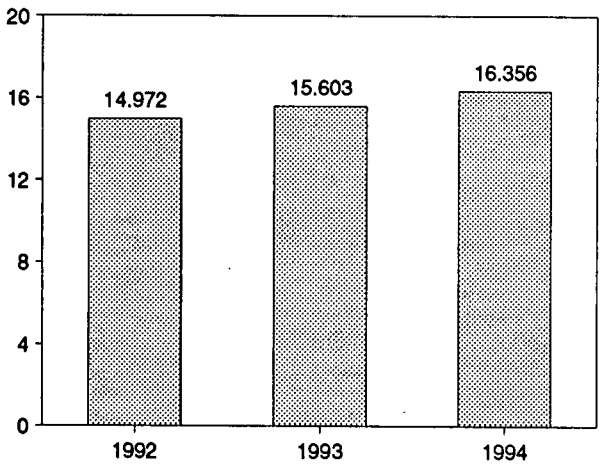
Consumption by Major Sources, 1973-1993



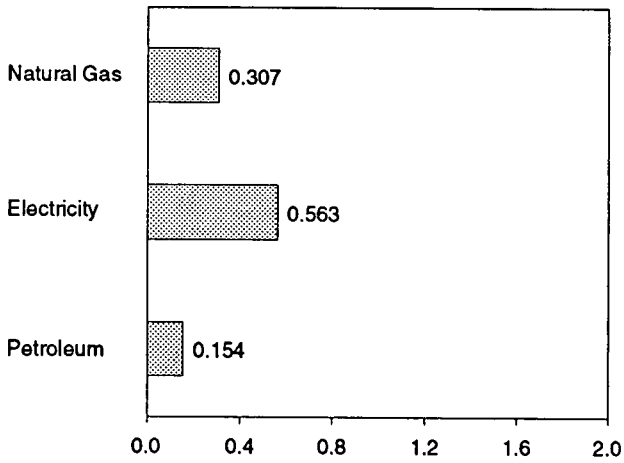
Consumption by Major Sources, Monthly



Total Consumption, January-June



Consumption by Major Sources, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 2.3.

Table 2.3 Residential and Commercial Energy Consumption

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Primary Consumption	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[b]
1973 Total	**0.254**	**7.626**	**4.391**	**12.270**	**3.495**	**15.766**	**8.377**	**24.143**
1974 Total	**.257**	**7.518**	**3.996**	**11.771**	**3.475**	**15.246**	**8.480**	**23.725**
1975 Total	**.209**	**7.581**	**3.805**	**11.595**	**3.604**	**15.200**	**8.700**	**23.899**
1976 Total	**.203**	**7.866**	**4.181**	**12.250**	**3.747**	**15.997**	**9.021**	**25.018**
1977 Total	**.205**	**7.461**	**4.206**	**11.873**	**3.955**	**15.828**	**9.556**	**25.384**
1978 Total	**.214**	**7.624**	**4.070**	**11.908**	**4.116**	**16.023**	**10.061**	**26.084**
1979 Total	**.187**	**7.891**	**3.448**	**11.525**	**4.184**	**15.709**	**10.100**	**25.808**
1980 Total	**.145**	**7.540**	**3.035**	**10.721**	**4.355**	**15.075**	**10.580**	**25.655**
1981 Total	**.167**	**7.243**	**2.634**	**10.043**	**4.497**	**14.541**	**10.700**	**25.241**
1982 Total	**.187**	**7.427**	**2.449**	**10.063**	**4.566**	**14.629**	**11.000**	**25.629**
1983 Total	**.192**	**7.024**	**2.498**	**9.715**	**4.680**	**14.395**	**11.232**	**25.627**
1984 Total	**.209**	**7.292**	**2.535**	**10.036**	**4.928**	**14.964**	**11.510**	**26.474**
1985 Total	**.176**	**7.079**	**2.522**	**9.777**	**5.061**	**14.839**	**11.865**	**26.704**
1986 Total	**.176**	**6.825**	**2.555**	**9.556**	**5.235**	**14.791**	**12.061**	**26.852**
1987 Total	**.162**	**6.954**	**2.587**	**9.703**	**5.443**	**15.146**	**12.477**	**27.623**
1988 Total	**.168**	**7.513**	**2.600**	**10.280**	**5.724**	**16.004**	**12.920**	**28.925**
1989 Total	**.146**	**7.731**	**2.525**	**10.402**	**5.859**	**16.261**	**13.143**	**29.404**
1990 Total	**.156**	**7.225**	**2.173**	**9.553**	**6.015**	**15.568**	**13.218**	**28.786**
1991 Total	**.141**	**7.510**	**2.154**	**9.805**	**6.180**	**15.986**	**13.439**	**29.424**
1992 January	.017	1.233	.229	1.480	.550	2.029	1.189	3.218
February	.013	1.095	.197	1.305	.508	1.814	1.002	2.816
March	.012	.916	.189	1.117	.479	1.596	1.019	2.615
April	.012	.703	.165	.880	.455	1.336	.936	2.272
May	.007	.434	.146	.587	.452	1.040	.982	2.021
June	.007	.296	.148	.451	.489	.941	1.089	2.029
July	.011	.262	.149	.422	.573	.995	1.298	2.293
August	.009	.254	.141	.404	.570	.974	1.221	2.195
September	.009	.266	.177	.451	.532	.983	1.082	2.065
October	.008	.419	.173	.601	.482	1.083	.983	2.066
November	.015	.714	.184	.913	.468	1.381	1.009	2.390
December	.021	1.132	.227	1.380	.538	1.918	1.200	3.118
Total	**.142**	**7.726**	**2.126**	**9.993**	**6.096**	**16.090**	**13.010**	**29.100**
1993 January	.015	1.291	.215	1.521	.564	2.085	1.200	3.285
February	.015	1.214	.198	1.426	.517	1.943	1.036	2.978
March	.012	1.110	.195	1.317	.521	1.837	1.083	2.920
April	.014	.728	.163	.905	.465	1.371	.932	2.302
May	.007	.402	.143	.552	.452	1.004	.984	1.988
June	.010	.299	.146	.455	.520	.975	1.154	2.129
July	.010	.261	.143	.414	.630	1.044	1.404	2.448
August	.009	.242	.147	.398	.638	1.036	1.380	2.416
September	.007	.273	.187	.467	.576	1.043	1.090	2.133
October	.009	.438	.165	.612	.494	1.106	.999	2.104
November	.015	.744	.209	.968	.482	1.449	1.020	2.469
December	.021	1.104	.234	1.360	.540	1.899	1.177	3.076
Total	**.144**	**8.106**	**2.144**	**10.394**	**6.398**	**16.791**	**13.458**	**30.249**
1994 January	.020	R1.503	.248	R1.771	.609	R2.380	1.289	R3.670
February	.016	R1.330	.206	R1.552	.546	R2.097	1.059	R3.157
March	.011	R1.035	.184	R1.231	.520	R1.751	1.067	R2.818
April	.017	R.664	.171	R.851	.474	R1.325	.970	R2.295
May	.009	R.441	.150	R.600	.472	R1.072	1.030	R2.102
June	.030	.307	.154	.492	.563	1.055	1.261	2.316
6-Month Total	**.103**	**5.280**	**1.113**	**6.496**	**3.184**	**9.680**	**6.677**	**16.356**
1993 6-Month Total	**.073**	**5.044**	**1.059**	**6.176**	**3.038**	**9.214**	**6.388**	**15.603**
1992 6-Month Total	**.069**	**4.677**	**1.075**	**5.821**	**2.934**	**8.755**	**6.217**	**14.972**

[a] Includes supplemental gaseous fuels.

[b] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, an estimated 0.7 quadrillion Btu of renewable energy consumed by the U.S. residential and commercial sectors (primarily the residential sector) is not included.

R=Revised data.

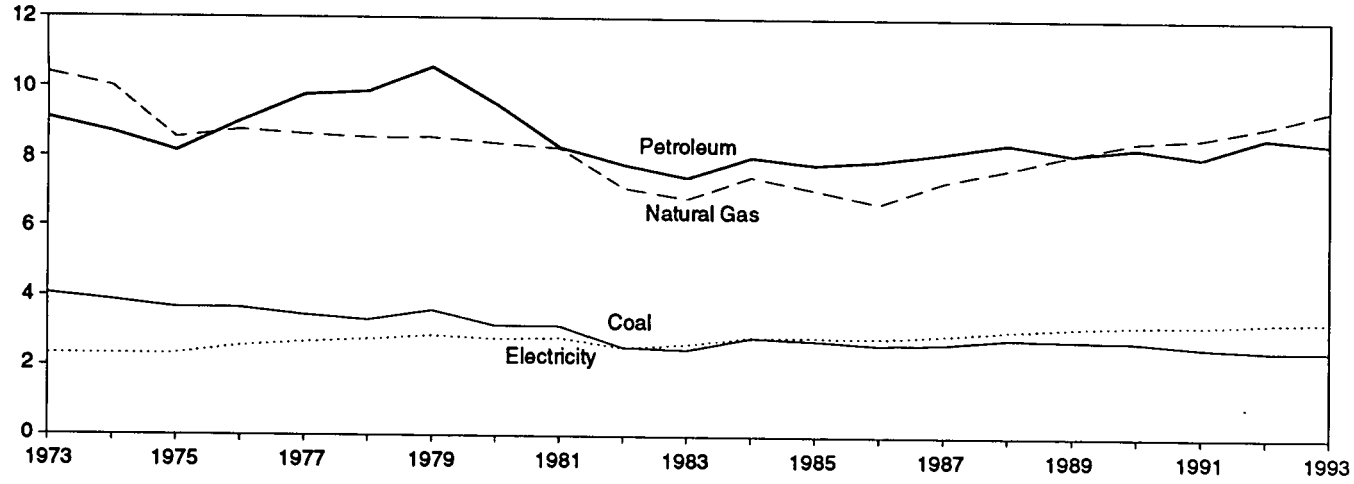
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

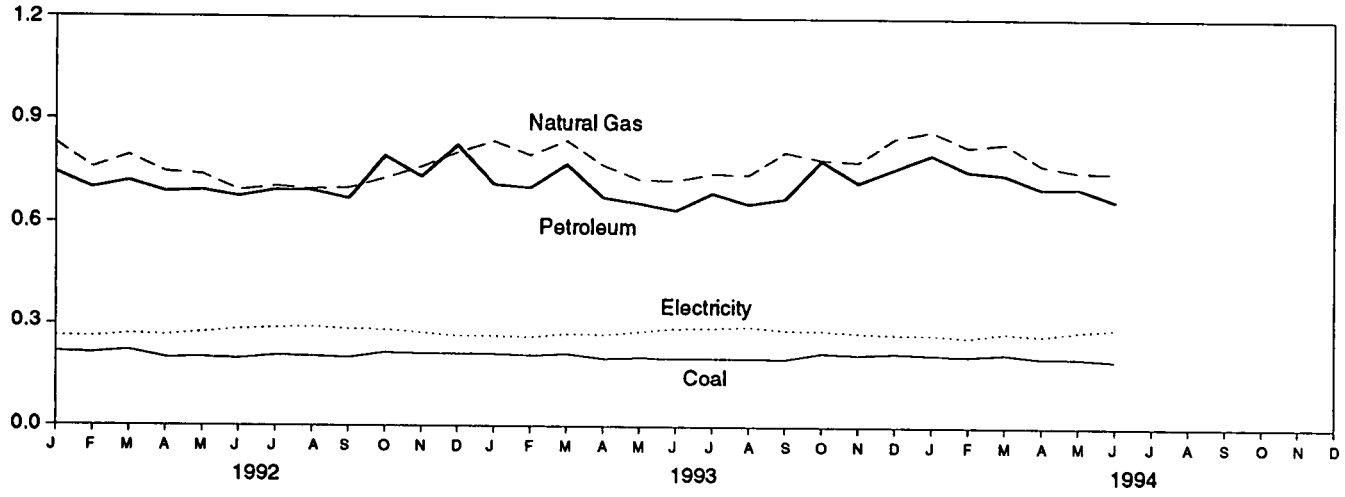
Figure 2.3 Industrial Energy Consumption

(Quadrillion Btu)

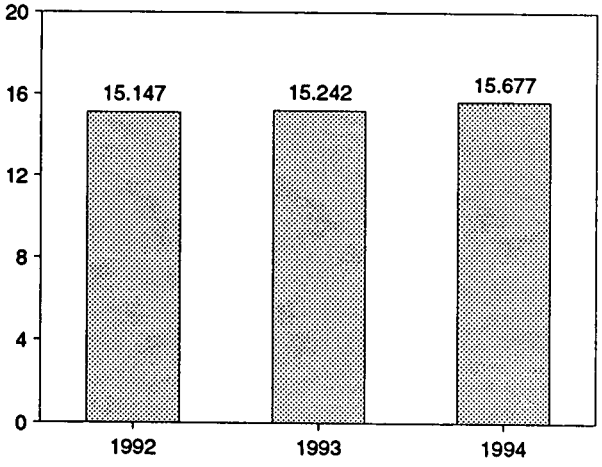
Consumption by Major Sources, 1973-1993



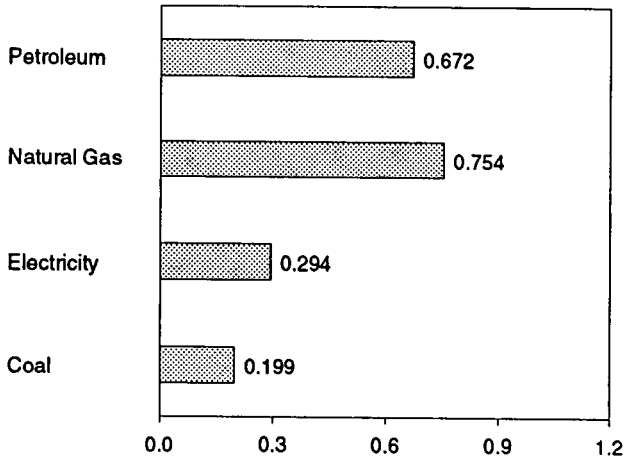
Consumption by Major Sources, Monthly



Total Consumption, January-June



Consumption by Major Sources, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 2.4.

Table 2.4 Industrial Energy Consumption

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Hydro-electric Power	Net Imports of Coal Coke	Primary Consumption	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[b]
1973 Total	**4.057**	**10.388**	**9.104**	**0.035**	**-0.007**	**23.576**	**2.341**	**25.917**	**5.611**	**31.528**
1974 Total	**3.870**	**10.004**	**8.694**	**.033**	**.056**	**22.657**	**2.337**	**24.994**	**5.700**	**30.694**
1975 Total	**3.667**	**8.532**	**8.146**	**.032**	**.014**	**20.391**	**2.346**	**22.737**	**5.665**	**28.402**
1976 Total	**3.661**	**8.762**	**9.010**	**.033**	**(s)**	**21.465**	**2.573**	**24.038**	**6.198**	**30.236**
1977 Total	**3.454**	**8.635**	**9.774**	**.033**	**.015**	**21.911**	**2.682**	**24.593**	**6.484**	**31.077**
1978 Total	**3.314**	**8.539**	**9.867**	**.032**	**.125**	**21.876**	**2.761**	**24.637**	**6.755**	**31.392**
1979 Total	**3.593**	**8.549**	**10.568**	**.034**	**.063**	**22.807**	**2.873**	**25.679**	**6.936**	**32.616**
1980 Total	**3.155**	**8.395**	**9.525**	**.033**	**-.035**	**21.073**	**2.781**	**23.854**	**6.752**	**30.606**
1981 Total	**3.157**	**8.257**	**8.285**	**.033**	**-.016**	**19.715**	**2.817**	**22.533**	**6.707**	**29.240**
1982 Total	**2.552**	**7.121**	**7.794**	**.033**	**-.022**	**17.479**	**2.542**	**20.020**	**6.125**	**26.145**
1983 Total	**2.490**	**6.826**	**7.420**	**.033**	**-.016**	**16.753**	**2.648**	**19.401**	**6.359**	**25.759**
1984 Total	**2.842**	**7.448**	**8.014**	**.033**	**-.011**	**18.325**	**2.859**	**21.184**	**6.683**	**27.867**
1985 Total	**2.760**	**7.080**	**7.805**	**.033**	**-.013**	**17.665**	**2.855**	**20.520**	**6.694**	**27.214**
1986 Total	**2.640**	**6.690**	**7.920**	**.033**	**-.017**	**17.267**	**2.834**	**20.101**	**6.529**	**26.630**
1987 Total	**2.673**	**7.323**	**8.150**	**.033**	**.009**	**18.188**	**2.928**	**21.116**	**6.710**	**27.826**
1988 Total	**2.828**	**7.696**	**8.430**	**.033**	**.040**	**19.026**	**3.059**	**22.085**	**6.901**	**28.986**
1989 Total	**2.787**	**8.131**	**8.133**	**.033**	**.030**	**19.113**	**3.158**	**22.272**	**7.082**	**29.353**
1990 Total	**2.756**	**8.502**	**8.319**	**.033**	**.005**	**19.615**	**3.226**	**22.841**	**7.095**	**29.936**
1991 Total	**2.601**	**8.619**	**8.057**	**.033**	**.009**	**19.319**	**3.230**	**22.549**	**7.021**	**29.570**
1992 January	.217	.830	.744	.003	.004	1.798	.264	2.062	.571	2.633
February	.214	.759	.700	.003	.003	1.678	.262	1.940	.517	2.458
March	.222	.795	.721	.003	.003	1.744	.271	2.014	.576	2.590
April	.201	.746	.689	.003	.003	1.642	.267	1.909	.549	2.458
May	.202	.740	.694	.003	.001	1.641	.276	1.917	.598	2.515
June	.199	.694	.676	.003	.003	1.575	.285	1.860	.634	2.494
July	.208	.706	.695	.003	.001	1.613	.289	1.902	.656	2.558
August	.206	.698	.694	.002	.001	1.601	.292	1.893	.627	2.520
September	.202	.701	.670	.002	.001	1.576	.286	1.862	.582	2.444
October	.217	.730	.794	.002	.002	1.746	.284	2.030	.580	2.610
November	.214	.763	.735	.002	.001	1.715	.276	1.992	.596	2.588
December	.214	.805	.826	.002	.005	1.852	.266	2.118	.593	2.711
Total	**2.515**	**8.967**	**8.638**	**.033**	**.027**	**20.180**	**3.319**	**23.498**	**7.079**	**30.577**
1993 January	.213	.838	.713	.003	.004	1.772	.266	2.037	.565	2.602
February	.209	.798	.704	.003	(s)	1.714	.263	1.977	.527	2.504
March	.214	.840	.772	.003	.003	1.831	.273	2.104	.568	2.672
April	.201	.770	.676	.003	.002	1.653	.271	1.924	.543	2.467
May	.204	.729	.660	.003	.002	1.599	.280	1.879	.610	2.489
June	.202	.727	.640	.003	.003	1.576	.290	1.865	.643	2.508
July	.202	.746	.690	.003	(s)	1.641	.291	1.932	.649	2.581
August	.202	.744	.659	.002	.002	1.610	.296	1.906	.641	2.547
September	.201	.810	.675	.002	-.001	1.687	.286	1.973	.541	2.514
October	.219	.789	.786	.002	.001	1.798	.285	2.082	.575	2.658
November	.214	.782	.722	.002	(s)	1.721	.279	2.000	.591	2.590
December	.219	.851	.763	.002	.002	1.838	.275	2.113	.600	2.713
Total	**2.502**	**[R]9.425**	**8.462**	**.033**	**.017**	**20.439**	**3.354**	**23.793**	**7.053**	**30.846**
1994 January	.214	.872	.804	.003	.004	1.898	.274	2.172	.580	2.752
February	.211	.826	.756	.003	-.001	1.795	.266	2.061	.516	2.577
March	.217	.837	.746	.003	.002	1.805	.280	2.085	.575	2.659
April	.206	.775	.707	.003	.003	1.693	.272	1.965	.558	2.523
May	.206	[R].755	.709	.003	.002	[R]1.675	.285	[R]1.960	.621	[R]2.581
June	.199	.754	.672	.003	.003	1.631	.294	1.926	.659	2.584
6-Month Total	**1.253**	**4.820**	**4.393**	**.018**	**.012**	**10.496**	**1.671**	**12.168**	**3.509**	**15.677**
1993 6-Month Total	**1.244**	**4.702**	**4.166**	**.018**	**.014**	**10.144**	**1.642**	**11.787**	**3.455**	**15.242**
1992 6-Month Total	**1.254**	**4.564**	**4.225**	**.018**	**.017**	**10.077**	**1.624**	**11.702**	**3.445**	**15.147**

[a] Includes supplemental gaseous fuels.

[b] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, an estimated 2.7 quadrillion Btu of renewable energy consumed by the U.S. industrial sector (primarily the pulp and paper industry) is not included.

R=Revised data. (s)=Less than +0.5 trillion Btu and greater than -0.5 trillion Btu.

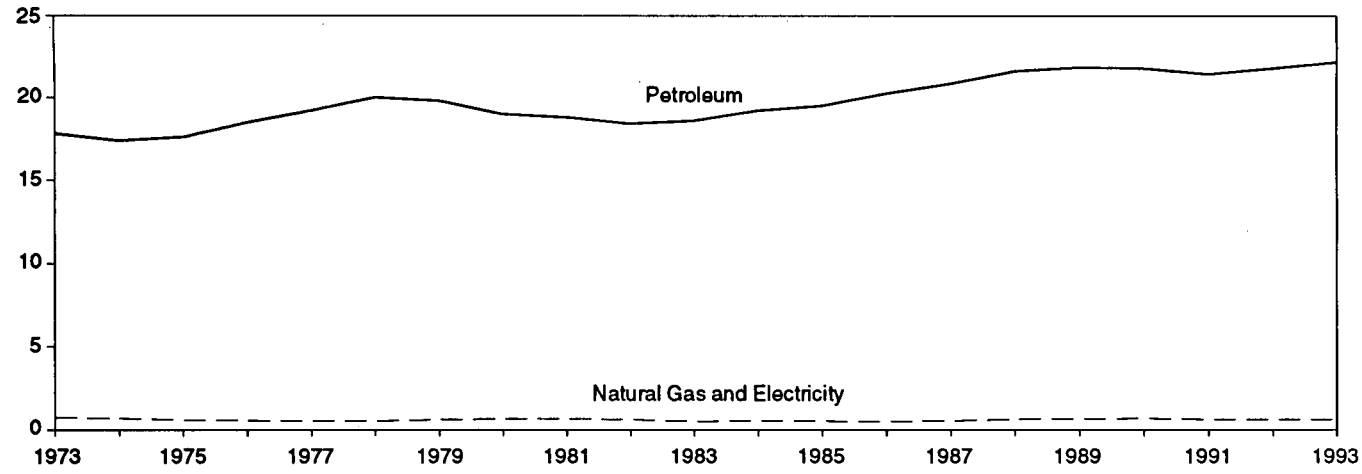
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

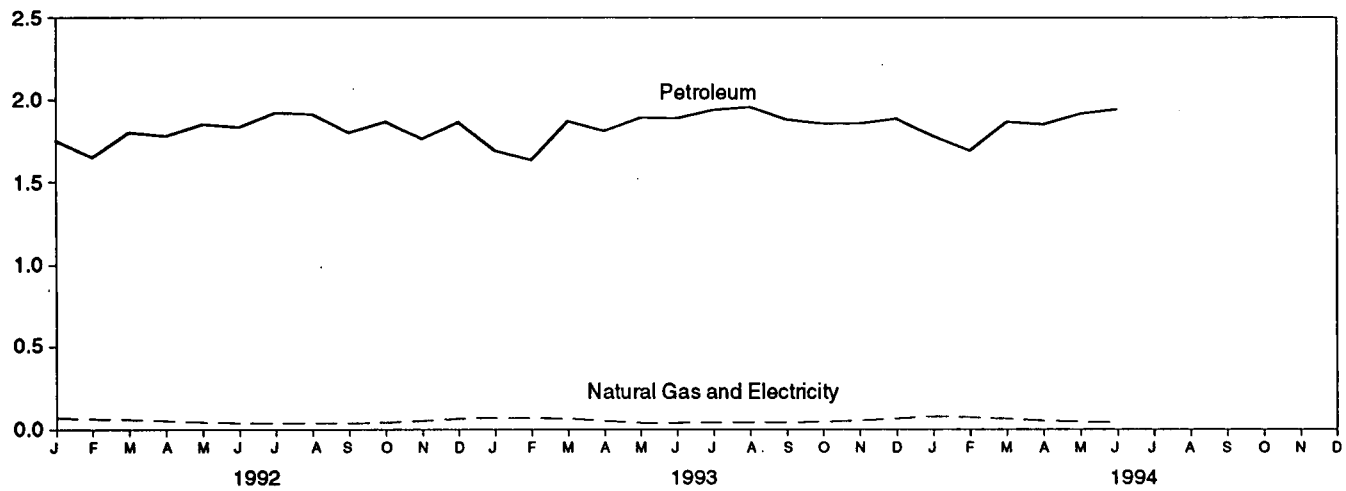
Figure 2.4 Transportation Energy Consumption

(Quadrillion Btu)

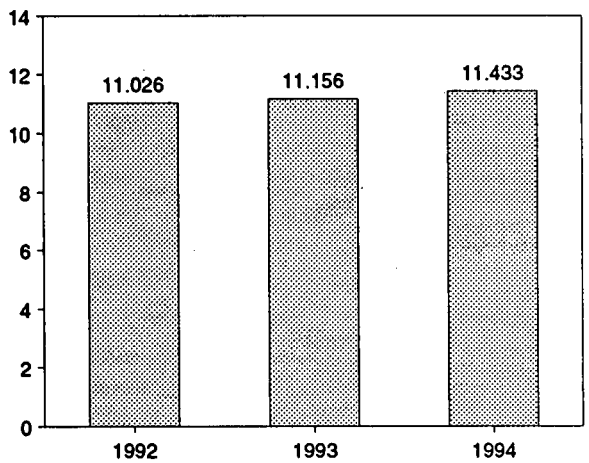
Consumption by Major Sources, 1973-1993



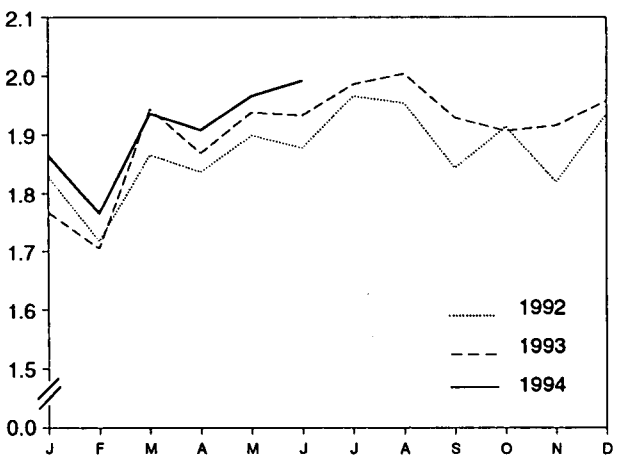
Consumption by Major Sources, Monthly



Total Consumption, January-June



Total Consumption, Monthly



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 2.5.

Table 2.5 Transportation Energy Consumption

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Primary Consumption	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[b]
1973 Total	0.003	0.743	17.831	18.576	0.008	18.584	0.020	18.605
1974 Total	.002	.685	17.399	18.086	.009	18.095	.022	18.117
1975 Total	.001	.595	17.614	18.209	.010	18.219	.025	18.244
1976 Total	(s)	.559	18.506	19.065	.010	19.076	.025	19.101
1977 Total	(s)	.543	19.241	19.784	.010	19.794	.025	19.819
1978 Total	(c)	.539	20.041	20.580	.009	20.589	.022	20.611
1979 Total	(c)	.612	19.825	20.436	.010	20.447	.025	20.472
1980 Total	(c)	.650	19.008	19.658	.011	19.669	.026	19.695
1981 Total	(c)	.658	18.811	19.469	.011	19.480	.026	19.507
1982 Total	(c)	.612	18.420	19.032	.011	19.043	.026	19.069
1983 Total	(c)	.505	18.593	19.098	.011	19.109	.026	19.135
1984 Total	(c)	.545	19.216	19.761	.012	19.773	.028	19.801
1985 Total	(c)	.519	19.504	20.024	.013	20.036	.030	20.067
1986 Total	(c)	.499	20.269	20.768	.013	20.781	.031	20.812
1987 Total	(c)	.535	20.871	21.406	.013	21.419	.029	21.448
1988 Total	(c)	.632	21.629	22.260	.014	22.274	.031	22.305
1989 Total	(c)	.649	21.868	22.517	.014	22.530	.031	22.561
1990 Total	(c)	.680	21.810	22.490	.014	22.504	.031	22.535
1991 Total	(c)	.620	21.456	22.076	.014	22.090	.030	22.120
1992 January	(c)	.070	1.754	1.825	.001	1.826	.002	1.828
February	(c)	.064	1.651	1.715	.001	1.716	.002	1.718
March	(c)	.060	1.803	1.863	.001	1.864	.002	1.866
April	(c)	.052	1.781	1.833	.001	1.834	.002	1.837
May	(c)	.044	1.852	1.896	.001	1.897	.002	1.899
June	(c)	.039	1.835	1.874	.001	1.875	.003	1.878
July	(c)	.040	1.922	1.962	.001	1.963	.003	1.966
August	(c)	.039	1.912	1.950	.001	1.952	.003	1.954
September	(c)	.038	1.803	1.841	.001	1.842	.002	1.844
October	(c)	.042	1.868	1.910	.001	1.911	.002	1.914
November	(c)	.052	1.765	1.817	.001	1.818	.002	1.820
December	(c)	.066	1.866	1.932	.001	1.933	.003	1.936
Total	(c)	.606	21.812	22.418	.014	22.432	.029	22.461
1993 January	(c)	.071	1.692	1.764	.001	1.765	.002	1.767
February	(c)	.068	1.634	1.702	.001	1.703	.002	1.705
March	(c)	.067	1.873	1.940	.001	1.941	.002	1.944
April	(c)	.052	1.814	1.866	.001	1.867	.002	1.869
May	(c)	.040	1.894	1.934	.001	1.935	.002	1.938
June	(c)	.040	1.890	1.930	.001	1.931	.003	1.933
July	(c)	.042	1.940	1.982	.001	1.983	.003	1.986
August	(c)	.042	1.958	2.000	.001	2.001	.003	2.004
September	(c)	.042	1.883	1.925	.001	1.926	.002	1.929
October	(c)	.046	1.858	1.903	.001	1.905	.002	1.907
November	(c)	.054	1.859	1.913	.001	1.914	.002	1.916
December	(c)	.066	1.888	1.954	.001	1.955	.003	1.958
Total	(c)	.629	22.183	22.812	.014	22.826	.029	22.856
1994 January	(c)	.079	1.781	1.860	.001	1.861	.003	R 1.864
February	(c)	R .072	1.692	1.763	.001	1.764	.002	1.766
March	(c)	.064	1.869	1.933	.001	1.934	.002	1.936
April	(c)	.051	1.854	1.905	.001	1.906	.002	R 1.908
May	(c)	.044	1.918	1.962	.001	1.963	.002	1.966
June	(c)	.043	1.945	1.988	.001	1.989	.003	1.992
6-Month Total	(c)	.353	11.059	11.412	.007	11.419	.014	11.433
1993 6-Month Total	(c)	.338	10.797	11.135	.007	11.142	.014	11.156
1992 6-Month Total	(c)	.329	10.676	11.006	.007	11.012	.014	11.026

[a] Pipeline fuel only, including supplemental gaseous fuels.

[b] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1991, an estimated 0.1 quadrillion Btu of renewable energy consumed by the U.S. transportation sector is not included.

[c] Since 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

R=Revised data. (s)=Less than 0.5 trillion Btu.

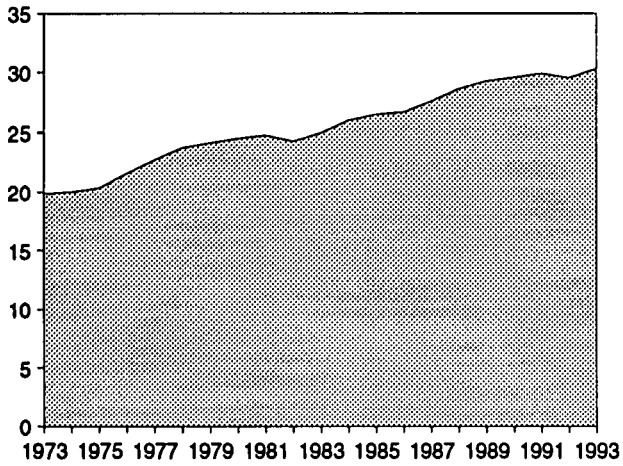
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

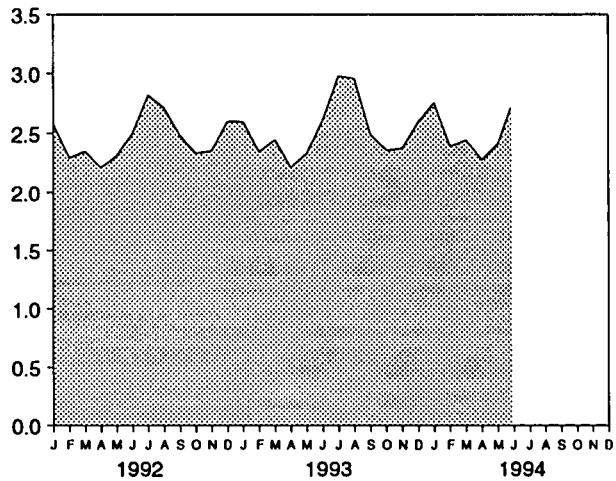
Figure 2.5 Energy Input at Electric Utilities

(Quadrillion Btu)

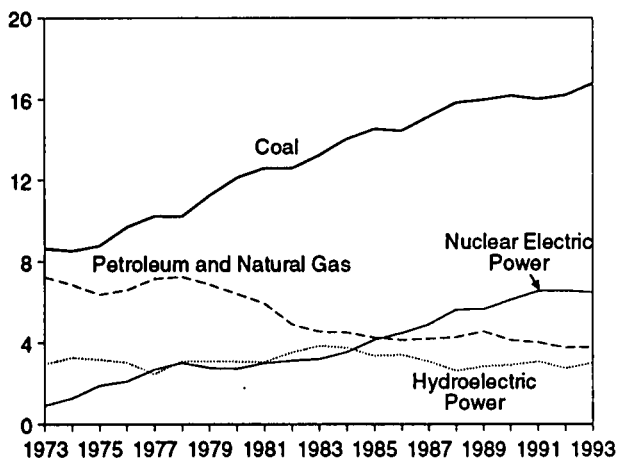
Total Input, 1973-1993



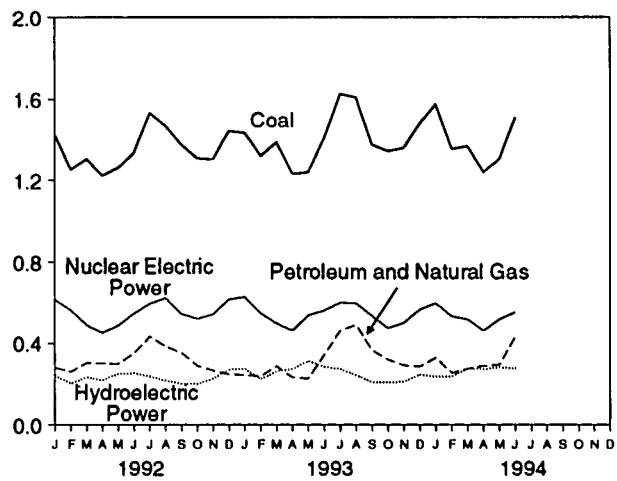
Total Input, Monthly



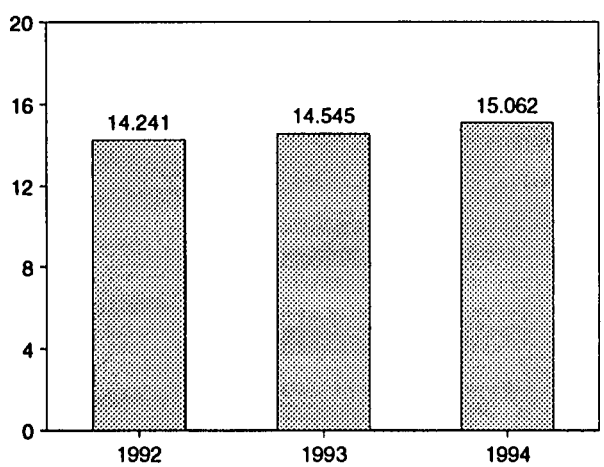
Input by Major Sources, 1973-1993



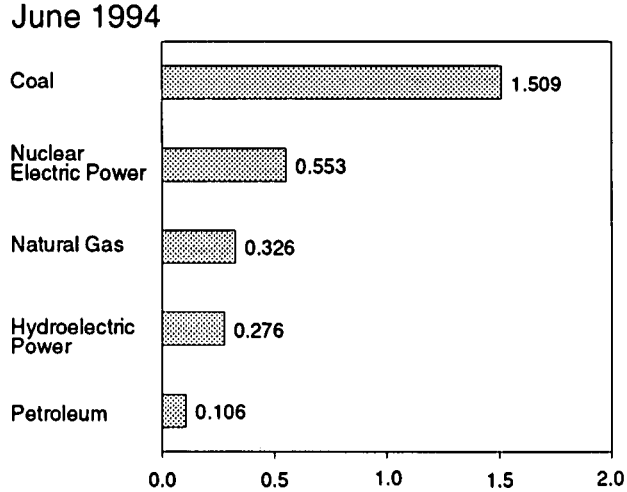
Input by Major Sources, Monthly



Total Input, January-June



Input by Major Sources, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 2.6.

Table 2.6 Energy Input at Electric Utilities

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum[b]	Nuclear Electric Power	Hydro-electric Power[c]	Geothermal Energy	Other[d]	Total
1973 Total	8.658	3.748	3.515	0.910	2.975	0.043	0.003	19.852
1974 Total	8.534	3.519	3.365	1.272	3.276	.053	.003	20.022
1975 Total	8.786	3.240	3.166	1.900	3.187	.070	.002	20.350
1976 Total	9.720	3.152	3.477	2.111	3.032	.078	.003	21.574
1977 Total	10.262	3.284	3.901	2.702	2.482	.077	.005	22.713
1978 Total	10.238	3.297	3.987	3.024	3.110	.064	.003	23.724
1979 Total	11.260	3.613	3.283	2.776	3.107	.084	.005	24.128
1980 Total	12.123	3.810	2.634	2.739	3.085	.110	.005	24.505
1981 Total	12.583	3.768	2.202	3.008	3.072	.123	.004	24.760
1982 Total	12.582	3.342	1.568	3.131	3.539	.105	.003	24.270
1983 Total	13.213	2.998	1.544	3.203	3.866	.129	.004	24.956
1984 Total	14.020	3.220	1.286	3.553	3.767	.165	.009	26.020
1985 Total	14.542	3.160	1.090	4.149	3.365	.198	.015	26.519
1986 Total	14.444	2.691	1.452	4.471	3.413	.219	.012	26.703
1987 Total	15.173	2.935	1.257	4.906	3.084	.229	.016	27.600
1988 Total	15.850	2.709	1.563	5.661	2.630	.217	.017	28.648
1989 Total	15.988	2.871	1.685	5.677	2.848	.197	.020	29.286
1990 Total	16.189	2.882	1.250	6.161	2.914	.181	.021	29.599
1991 Total	16.028	2.856	1.178	6.579	3.083	.170	.021	29.915
1992 January	1.419	.173	.108	.618	.242	.015	.002	2.577
February	1.251	.174	.087	.564	.203	.013	.002	2.294
March	1.303	.212	.092	.489	.234	.015	.002	2.348
April	1.222	.234	.069	.451	.219	.014	.001	2.211
May	1.260	.242	.056	.487	.251	.014	.002	2.311
June	1.333	.272	.080	.547	.254	.014	.002	2.501
July	1.534	.341	.092	.598	.238	.014	.002	2.820
August	1.468	.309	.076	.626	.217	.014	.002	2.714
September	1.371	.280	.074	.544	.201	.013	.002	2.485
October	1.306	.217	.073	.521	.200	.014	.002	2.333
November	1.302	.193	.074	.542	.227	.014	.002	2.353
December	1.442	.179	.070	.620	.272	.014	.002	2.600
Total	16.211	2.826	.951	6.607	2.760	.170	.022	29.547
1993 January	1.432	.168	.077	.631	.275	.014	.002	2.598
February	1.317	.165	.074	.548	.225	.013	.002	2.345
March	1.384	.198	.090	.498	.262	.014	.002	2.448
April	1.230	.178	.055	.461	.275	.014	.002	2.214
May	1.239	.171	.056	.538	.313	.012	.001	2.330
June	1.406	.260	.083	.562	.285	.012	.001	2.610
July	1.625	.341	.121	.603	.274	.013	.001	2.979
August	1.609	.365	.126	.600	.244	.014	.002	2.959
September	1.372	.264	.102	.534	.209	.013	.002	2.497
October	1.340	.240	.080	.474	.207	.013	.002	2.357
November	1.356	.213	.079	.500	.211	.013	.002	2.375
December	1.480	.178	.108	.567	.247	.013	.002	2.596
Total	16.790	2.741	1.052	6.517	3.027	.159	.021	30.306
1994 January	1.576	.174	.155	.600	.236	.013	.002	2.756
February	1.351	.152	.103	.532	.238	.012	.002	2.390
March	1.364	.191	.084	.518	.274	.012	.002	2.445
April	1.239	.209	.081	.461	.273	.012	.002	2.278
May	1.302	.221	.074	.518	.283	.012	.002	2.411
June	1.509	.326	.106	.553	.276	.011	.002	2.782
6-Month Total	8.341	1.273	.603	3.182	1.579	.073	.010	15.062
1993 6-Month Total	8.008	1.140	.436	3.237	1.635	.079	.010	14.545
1992 6-Month Total	7.788	1.306	.492	3.156	1.403	.085	.010	14.241

[a] Includes supplemental gaseous fuels.

[b] Includes residual and distillate fuel oils, petroleum coke, and small amounts of kerosene and jet fuel.

[c] Includes net imports of electricity.

[d] "Other" is electricity generated for distribution from wood, waste, wind, photovoltaic, and solar thermal energy.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

Energy Consumption Notes and Sources

The data in this section of the *Monthly Energy Review* (*MER*) are obtained initially from a group of energy-related surveys, typically called "supply surveys," conducted by the Energy Information Administration (EIA). Supply surveys are those surveys directed to suppliers and marketers of specific energy sources. They measure the quantities of specific energy sources produced, or the quantities supplied to the market, or both. The data obtained from the EIA's supply surveys are integrated to yield the summary consumption statistics published in this section (and in Section 1) of the *MER*. Users of the EIA's energy consumption statistics should be aware of a second group of energy-related surveys, typically called "consumption surveys." Consumption surveys gather information on the types of energy consumed by end users of energy, along with the characteristics of those end users that can be associated with energy use. For example, the Manufacturing Energy Consumption Survey belongs to the consumption survey group because it collects information directly from end users (the manufacturing establishments). There are important differences between the supply and consumption surveys that need to be taken into account in any analysis that uses both data sources. For information on those differences, see *Energy Consumption by End-Use Sector, A Comparison of Measures by Consumption and Supply Surveys,* DOE/EIA-0533, Energy Information Administration, Washington, DC, April 6, 1990. The numbered notes that follow elaborate on essential information in Section 2.

1. Total Energy Consumed: Total energy consumed includes coal, natural gas (including supplemental gaseous fuels), petroleum products supplied, electric utility and industrial generation of hydroelectric power, net imports of electricity generated from hydroelectric power, and electricity generated from nuclear power. Total energy consumed also includes electricity generated from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy but excludes other energy obtained from those sources because consistent historical data are not available.

2. Economic Sectors: Energy use is assigned to the major economic sectors according to the following guidelines as closely as possible:

- Residential—All private residences, whether occupied or vacant, owned or rented, including single-family homes, multifamily housing units, and mobile homes. Secondary homes, such as summer homes, are also included. Institutional housing, such as school dormitories, hospitals, and military barracks, generally are not included in the residential sector; they are included in the commercial sector.
- Commercial—Business establishments that are not engaged in transportation or in manufacturing or other types of industrial activity (agriculture, mining, or construction). Commercial establishments include hotels, motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; religious and nonprofit organizations; health, social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included if the establishment operating them is considered commercial.
- Industrial—Manufacturing industries, which make up the largest part of the sector, along with mining, construction, agriculture, fisheries, and forestry. Establishments in this sector range from steel mills to small farms to companies assembling electronic components.
- Transportation—Private and public vehicles that move people and commodities. Included are automobiles, trucks, buses, motorcycles, railroads and railways (including streetcars), aircraft, ships, barges, and natural gas pipelines.
- Electric Utility—Privately and publicly owned establishments that generate, transmit, distribute, and sell electricity primarily for use by the public and meet the definition of an electric utility. Nonutility power producers are not included in the electric utility sector.

Although the end-use allocations are made according to these aggregations as closely as possible, some data are collected by using different classifications. For example, data on agricultural use of natural gas are collected and reported in the commercial sector, rather than in the industrial sector. Since agricultural use of natural gas cannot be identified separately, it is included in the commercial sector in this report. Another example is master-metered condominiums and apartments, and buildings with a combination of residential and commercial units. In many cases, the metering and billing practices cause residential energy usage of electricity, natural gas, or fuel oil to be included in the commercial sector. No adjustments for these discrepancies were made.

3. Conversion Factors: See the conversion factors listed in Appendix A.

4. Coal: Coal is anthracite, bituminous coal (including subbituminous coal), and lignite. Sources:

- 1973-September 1977: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook* and *Minerals Industry Surveys.*
- Electric Utilities—October 1977 forward: Energy Information Administration (EIA), Form EIA-759 (formerly Form FPC-4), "Monthly Power Plant Report."
- Other Industrial—October 1977-December 1979: EIA, Form EIA-3, "Monthly Coal Consumption Report - Manufacturing Plants"; January 1980 for-

ward: EIA, Form EIA-3, "Quarterly Coal Consumption Report - Manufacturing Plants," and Form EIA-6, "Coal Distribution Report," quarterly.

- Coke Plants—October 1977-December 1980: EIA, Form EIA-5/5A, "Coke and Coal Chemicals - Monthly/Annual"; January 1981-December 1984: EIA, Form EIA-5/5A, "Coke Plant Report - Quarterly/Annual Supplement"; January 1985 forward: EIA, Form EIA-5/5A, "Coke Plant Report - Quarterly."
- Residential and Commercial—October 1977-December 1979: EIA, Form EIA-2, "Monthly Coal Report, Retail Dealers - Upper Lake Docks"; January 1980 forward: EIA, Form EIA-6, "Coal Distribution Report," quarterly.

5. Natural Gas: Natural gas consumption by end use is based on data presented in Table 4.4 of this report. For Section 2 calculations, lease and plant fuel consumption are added to industrial deliveries, and pipeline fuel represents transportation use of natural gas. Values in Btu are derived by using the conversion factors provided in Appendix A. Sources:

- 1973-1975: DOI, BOM, *Minerals Yearbook*, "Natural Gas" chapter.
- 1976-1978: EIA, *Energy Data Reports*, "Natural Gas, Annual."
- 1979: EIA, *Natural Gas Production and Consumption 1979*.
- 1980-1992: EIA, *Natural Gas Annual*.
- 1993: EIA, *Natural Gas Monthly*.
- Electric Utilities—1973-1976: Form FPC-4, "Monthly Power Plant Report"; 1977-1981: Federal Energy Regulatory Commission (FERC), Form FPC-4, "Monthly Power Plant Report"; 1982 forward: EIA, Form EIA-759, "Monthly Power Plant Report."
- American Gas Association, "Monthly Gas Utility Statistical Report," residential and commercial monthly sales data for 1973-1979, which are used to estimate monthly consumption values from EIA annual consumption values.

6. Petroleum: Petroleum consumption by end use is the sum of all individual petroleum products estimated to be consumed in each end-use sector. First, total consumption by product is determined. Petroleum consumption in this section of the *Monthly Energy Review (MER)* is the series called "petroleum products supplied" in Section 3. Sources for petroleum products supplied by individual products are:

- 1973-1975: DOI, BOM, *Mineral Industry Surveys*, "Petroleum Statement, Annual."
- 1976-1980: EIA, *Energy Data Reports*, "Petroleum Statement, Annual."
- 1981-1992: EIA, *Petroleum Supply Annual*.
- 1993 and 1994: EIA, *Petroleum Supply Monthly*.

Specific petroleum products' end-use allocation procedures follow:

- **Aviation Gasoline**—All product supplied is assigned to the transportation sector.
- **Asphalt**—All product supplied is assigned to the industrial sector.
- **Distillate Fuel**—Product supplied is assigned to electric utilities and non-electric utilities as follows:

Electric Utilities, All Periods.

For 1973-1979, consumption of distillate fuel is assumed to be the amount of petroleum (minus small amounts of kerosene and kerosene-type jet fuel deliveries) consumed in gas turbine and internal combustion plants. For 1980 forward, consumption of distillate fuel is assumed to be the amount of light oil (minus small amounts of kerosene deliveries through 1982) consumed at electric utilities. (See Table 7.3)

Sources: 1973-September 1977: FPC, Form FPC-4, "Monthly Power Plant Report"; October 1977-1981: FERC, Form FPC-4, "Monthly Power Plant Report"; 1982 forward: EIA, Form EIA-759, "Monthly Power Plant Report."

Sectors Other Than Electric Utilities, Annual Estimates Through 1992.

The aggregate non-electric utility use of distillate fuel is total distillate fuel supplied minus the electric utility consumption. The non-electric utility annual consumption totals are allocated to the individual non-electric utility sectors (residential, commercial, industrial, and transportation) in proportion to the share of "adjusted sales" of each end-use sector, as reported in EIA's *Fuel Oil and Kerosene Sales* report series (DOE/EIA-0535), which is based primarily on data collected by Form EIA-821, previously Form EIA-172. "Adjusted sales" are sales that have been adjusted at the PAD district level to equal EIA volume estimates of petroleum products supplied in the U.S. market. Following are notes on the individual sector groupings:

- Since 1979, the residential sector adjusted sales total is directly from the *Sales* reports. Prior to 1979, each year's sales subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares.

- Since 1979, the commercial sector adjusted sales total is directly from the *Sales* reports. Prior to 1979, each year's sales subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares.

- Since 1979, the industrial sector adjusted sales total is the sum of the adjusted sales for industrial, farm, oil company, off-highway, diesel, and all other uses. Prior to 1979, each year's sales subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares, and this estimated industrial portion is added to oil company, off-highway diesel, and all other uses.

- The transportation sector adjusted sales total is the sum of the adjusted sales for railroad, vessel bunkering, on-highway diesel, and military uses for all years.

Sectors Other Than Electric Utilities, Monthly Estimates Through 1992.

- Residential and commercial monthly consumption is estimated by allocating the annual estimates, which are described above, into the months in proportion to each month's share of the year's sales of No. 2 heating oil. The years' sales totals are from the following sources: for 1973-1980, the Ethyl Corporation, *Monthly Report of Heating Oil Sales;* for 1981 and 1982, the American Petroleum Institute, *Monthly Report of Heating Oil Sales;* and for 1983-1992, EIA, Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale.

- The transportation highway use portion is allocated into the months in proportion to each month's share of the year's total sales for highway use as reported by the Federal Highway Administration's Table MF-25, "Private and Commercial Highway Use of Special Fuels by Months." The remaining transportation use of distillate fuel (i.e., for railroads, vessel bunkering, and military use) is evenly distributed over the months, adjusted for the number of days per month.

- Industrial monthly estimates are made by subtracting the residential and commercial, transportation, and electric utility sector estimates from each month's total distillate fuel supplied.

Sectors Other Than Electric Utilities, 1993 and 1994

Each month's non-electric utility consumption subtotal is disaggregated into the major end-use sectors in proportion to the shares each sector held of the non-electric utility subtotal in the same month in 1992.

- **Jet Fuel**—Through 1982, small amounts of kerosene-type jet fuel were consumed by electric utilities. Kerosene-type jet fuel deliveries to electric utilities as reported on the Form FERC-423 (formerly Form FPC-423) were used as estimates of this consumption. All remaining jet fuel (kerosene-type and naphtha-type) is consumed by the transportation sector.
- **Kerosene**—Total product supplied monthly is allocated to the major end-use sectors in proportion to annual sales grouped into end-use sectors from EIA's *Fuel Oil and Kerosene Sales* reports (based primarily on data collected by Form EIA-821, previously Form EIA-172), as follows:

  - Residential deliveries are directly from the *Sales* reports for 1979-1992. Sales for 1992 are used as estimates for succeeding periods. Prior to 1979, each year's sales category called "heating" is split into residential, commercial, and industrial in proportion to the 1979 shares.

  - Commercial sales are directly from the *Sales* reports for 1979-1992. Sales for 1992 are used as estimates for succeeding periods. Prior to 1979, each year's sales category called "heating" is split into residential, commercial, and industrial in proportion to the 1979 shares.

  - Industrial sales are directly from the *Sales* reports for 1979-1992. Sales for 1992 are used as estimates for succeeding periods. Prior to 1979, each year's sales category called "heating" is split into residential, commercial and industrial in proportion to the 1979 shares, and this estimated industrial (including farm) portion is added to all other uses.
- **Liquefied Petroleum Gases (LPG)**—The annual shares of LPG's total consumption that are estimated to be consumed by each end-use sector are applied to each month's total LPG consumption (i.e., product supplied) to create monthly end-use consumption estimates. The annual end-use shares are calculated in the following manner:

  - Sales of LPG to the residential and commercial sector are converted from thousand gallons per year to thousand barrels per year and are assumed to be the annual consumption of LPG by the sector.

  - The quantity of LPG sold each year for consumption in internal combustion engines is allocated between the transportation and industrial sectors on the basis of data for special fuels used on highways published by the U.S. Department of Transportation, Federal Highway Administration, in *Highway Statistics*. The allocations of LPG sold for internal combustion engine use to the transportation sector range from a high of 67 percent in 1981 to a low of 37 percent in 1987.

  - LPG consumed annually by the industrial sector is estimated as the difference between LPG total supplied and the estimated consumption of LPG by the sum of the residential and commercial sector and the transportation sector. The industrial sector includes LPG used by chemical plants as raw materials or solvents and used in the production of synthetic rubber; refinery fuel use; use as synthetic

natural gas feedstock and use in secondary recovery projects; all farm use; LPG sold to gas utility companies for distribution through the mains; and a portion of the use of LPG as an internal combustion engine fuel.

The sources of the annual sales data for creating annual end-use shares are:

- 1973-1982: EIA's "Sales of Liquefied Petroleum Gases and Ethane" reports, based primarily on data collected by Form EIA-174.

- 1983: End-use consumption estimates for 1983 are based on 1982 end-use consumption because the collection of data under Form EIA-174 was discontinued after data year 1982.

- 1984-1992: American Petroleum Institute (API), "Sales of Natural Gas Liquids and Liquefied Refinery Gases," which is based on an LPG sales survey jointly sponsored by API, the Gas Processors Association, and the National Liquefied Petroleum Gas Association.

- 1993 and 1994: The 1992 source is used to estimate succeeding periods.

- **Lubricants**—Total product supplied is allocated to the industrial and transportation sectors for all months according to proportions developed from annual sales of lubricants to the two sectors from U.S. Department of Commerce, Bureau of the Census, *Current Industrial Reports*, "Sales of Lubricating and Industrial Oils and Greases." The 1973 shares are applied to 1973 and 1974; the 1975 shares are applied to 1975 and 1976; and the 1977 shares are applied to 1977 forward.
- **Motor Gasoline**—Total product supplied monthly is allocated to the major end-use sectors in proportion to aggregations of annual sales categories created on the basis of the U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, Tables MF-21, MF-24, and MF-25, as follows:

  - Commercial sales are the sum of sales for public non-highway use and miscellaneous and unclassified uses.

  - Industrial sales are the sum of sales for agriculture, construction, and industrial and commercial use as classified in the *Highway Statistics*.

  - Transportation sales are the sum of sales for highway use (minus the sales of special fuels, which are primarily diesel fuel and are accounted for in the transportation sector of distillate fuel) and sales for marine use.
- **Petroleum Coke**—The portion consumed by electric utilities is from Form EIA-759, "Monthly Power Plant Report" (formerly Form FPC-4). The remaining petroleum coke is assigned to the industrial sector.
- **Residual Fuel**—Product supplied is assigned to electric utilities and non-electric utilities as follows:

  Electric Utilities, All Periods.

  For 1973-1979, consumption of residual fuel is assumed to be the amount of petroleum consumed in steam-electric power plants. For 1980 forward, consumption of residual fuel is assumed to be the amount of heavy oil consumed at electric utilities. (See Table 7.3)

  Sources: 1973-September 1977: Form FPC-4, "Monthly Power Plant Report"; October 1977-1981: FERC, Form FPC-4, "Monthly Power Plant Report"; 1982 forward: EIA, Form EIA-759, "Monthly Power Plant Report."

  Sectors Other Than Electric Utilities, Annual Estimates Through 1992.

  The aggregate non-electric utility use of residual fuel is total residual fuel supplied minus the electric utility consumption. The non-electric utility annual totals are allocated into the individual non-electric utility sectors in proportion to the amount of residual fuel sold to end users, grouped into sectors from EIA's *Fuel Oil and Kerosene Sales* reports (based primarily on data collected by Form EIA-821, previously Form EIA-172), as follows:

  - Since 1979, commercial sales data are directly from the *Sales* reports. Prior to 1979, each year's sales subtotal of the heating plus industrial category is split into commercial and industrial in proportion to the 1979 shares.

  - Since 1979, industrial sales data are the sum of sales for industrial, oil company, and all other uses. Prior to 1979, each year's sales subtotal of the heating plus industrial category is split into commercial and industrial in proportion to the 1979 shares, and this estimated industrial portion is added to oil company and all other uses.

  - Transportation sales are the sum of sales for railroad, vessel bunkering, and military uses for all years.

  Sectors Other Than Electric Utilities, Monthly Estimates Through 1992.

  - Commercial monthly consumption is estimated by allocating the annual estimates, which are described above, into the months in proportion to each month's share of the year's sales of No. 2 heating oil. The years' sales totals are from the following sources: for 1973-1980, the Ethyl Corporation, *Monthly Report of Heating Oil Sales*; for 1981 and

1982, the American Petroleum Institute, *Monthly Report of Heating Oil Sales;* and for 1983-1992, EIA, Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale.

- Transportation monthly estimates are made by evenly distributing the annual sector estimate over the months, adjusting for the number of days per month.

- Industrial monthly estimates are made by subtracting the commercial, transportation, and electric utility sector estimates from each month's total residual fuel supplied.

Sectors Other Than Electric Utilities, 1993 and 1994

Each month's non-electric utility consumption subtotal is disaggregated into the major end-use sectors in proportion to the shares each sector held of the non-electric utility subtotal in the same month in 1992.

- **Road Oil**—All product supplied is assigned to the industrial sector.
- **All Other Petroleum Products**—The product supplied of all remaining petroleum products is assigned to the industrial sector.

7. Nuclear Electric Power, Geothermal, and Wood, Waste, Wind, Photovoltaic, and Solar Thermal Energy Sources Connected to Electric Utility Distribution Systems: Sources:

- 1973-1976: FPC, Form FPC-4, "Monthly Power Plant Report."
- 1977-1981: FERC, Form FPC-4, "Monthly Power Plant Report."
- 1982 forward: EIA, Form EIA-759, "Monthly Power Plant Report."

8. Hydroelectric Power: Includes electricity generated by hydroelectric power at electric utilities, small amounts in the industrial sector, and net imports of electricity, which are assumed to be generated by hydroelectric power and are included in the electric utilities sector.

Sources for electric utilities sector:

- 1973-1976: FPC, Form FPC-4, "Monthly Power Plant Report."
- 1977-1981: FERC, Form FPC-4, "Monthly Power Plant Report."
- 1982 forward: EIA, Form EIA-759, "Monthly Power Plant Report."

Sources for industrial sector:

- 1973-1978: FPC, Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts, and FPC, Form FPC-12C, "Industrial Electric Generating Capacity," for all other plants.
- 1979: FPC, Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts and EIA estimates for all other plants.
- 1980 forward: Annual generation estimated by EIA as the average generation over the 6-year period of 1974-1979; monthly generation estimated to be in proportion to each month's hydroelectricity generation in the electric utility industry in 1980.

Sources for imports and exports of electricity:

- 1973-September 1977: Unpublished Federal Power Commission data.
- October 1977-1980: Unpublished Economic Regulatory Administration (ERA) data.
- 1981: DOE, Office of Energy Emergency Operations, "Report on Electric Energy Exchanges with Canada and Mexico for Calendar Year 1981," April 1982 (revised June 1982).
- 1982 and 1983: DOE, ERA, *Electricity Exchanges Across International Borders.*
- 1984-1986: DOE, ERA, *Electricity Transactions Across International Borders.*
- 1987 and 1988: DOE, ERA, Form ERA-781R, "Annual Report of International Electrical Export/Import Data."
- 1989-1991: DOE, Assistant Secretary for Fossil Energy, Form FE-781-R, "Annual Report of International Electrical Export/Import Data."
- 1992 forward: EIA estimates based on preliminary data from the National Energy Board of Canada and DOE, Assistant Secretary for Fossil Energy.

9. Net Imports of Coal Coke: Net imports means imports minus exports, and a minus sign indicates that exports are greater than imports. Sources:

- 1973-1975: DOI, BOM, *Minerals Yearbook,* "Coke and Coal Chemicals" chapter.
- 1976-1980: EIA, *Energy Data Report,* "Coke and Coal Chemicals" annual.
- 1981: EIA, *Energy Data Report,* "Coke Plant Report," quarterly.
- 1982 forward: EIA, *Quarterly Coal Report.*

10. Electricity: End-use consumption of electricity is based on Table 7.2 sales data. "Other," which is primarily for use in government buildings, is added to the commercial sector, except for approximately 4 per-

cent used by railroads and railways and attributed to the transportation sector. For 1973-1983 and 1993, "Monthly Series" data are used directly. For 1984-1992, monthly estimates are created by dividing each month's "Monthly Series" value by the "Monthly Series" total for the year and multiplying by the "Annual Series" value for the year. Kilowatthours are converted to Btu at the rate of 3,412 Btu per kilowatthour. See Table 7.2 for sources of the electricity sales data.

11. Electrical System Energy Losses: Electrical system energy losses are calculated as the difference between total energy input at electric utilities and the total energy content of electricity sold to end-use consumers. Most of those losses occur at steam-electric power plants (conventional and nuclear) in the conversion of heat energy into mechanical energy to turn electric generators. The loss is a thermodynamically necessary feature of the steam-electric cycle. Part of the energy input-to-output losses is a result of imputing fossil energy equivalent inputs for hydroelectric and other energy sources, since there is no generally accepted practice for measuring those thermal conversion rates. In addition to conversion losses, other losses include power plant use of electricity, transmission and distribution of electricity from power plants to end-use consumers (also called "line losses"), and unaccounted for electricity. Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity sales. Overall, approximately 67 percent of total energy input is lost in conversion; of electricity generated, approximately 5 percent is lost in plant use and 9 percent is lost in transmission and distribution. Calculated electrical system energy losses may be less than actual losses, because primary consumption does not include the energy equivalent of utility purchases of electricity from non-electric utilities and from Canada and Mexico, although they are included in electricity sales.

Section 3. Petroleum

Total petroleum imports[2] averaged 9.6 million barrels per day in August 1994, 2 percent[3] lower than the previous month's rate but 14 percent higher than the August 1993 rate.

In August 1994, 17.8 million barrels per day of petroleum products were supplied for domestic use, 3 percent higher than the August 1993 rate. Motor gasoline accounted for 44 percent of the total; distillate fuel oil, 17 percent; and residual fuel oil, 5 percent.

Motor gasoline supplied during August 1994 averaged 7.9 million barrels per day, 1 percent higher than both the previous month's rate and the August 1993 rate. Total motor gasoline stocks were 204 million barrels at the end of August 1994, 5 million barrels below the stock level in the previous month but 2 million barrels above the level 1 year earlier.

Distillate fuel oil supplied during August 1994 averaged 3.1 million barrels per day, 15 percent higher than the previous month's rate and 9 percent higher than the August 1993 rate. Distillate fuel oil ending stocks for August 1994 were 138 million barrels, 4 million barrels above the stock level in the previous month and 10 million barrels above the level 1 year earlier.

Residual fuel oil supplied in August 1994 averaged 0.9 million barrels per day, 9 percent lower than the previous month's rate and 11 percent lower than the August 1993 rate. Residual fuel oil stocks measured 39 million barrels at the end of August 1994, the same as the stock level in the previous month but 5 million barrels below the stock level 1 year earlier.

Estimates (except of crude production) for the most current month are based on Energy Information Administration (EIA) weekly data and will be revised to conform with data from the EIA Petroleum Reporting System as available. For the most recent month, crude production is an EIA estimate based on historical and provisional data through May 1994.

[2]Total import data include imports into the Strategic Petroleum Reserve.
[3]Percentage changes are based on numbers shown in the following tables.

Table 3.1a Petroleum Overview: Field Production, Stock Change, Petroleum Products Supplied, and Ending Stocks

	Field Production			Stock Change[a]			Ending Stocks[b]
	Total Domestic[c]	Crude Oil	Natural Gas Plant Production	Crude Oil[d]	Petroleum Products	Petroleum Products Supplied	Crude Oil[d] and Petroleum Products
	Thousand Barrels per Day						Million Barrels
1973 Average	10,975	9,208	1,738	-11	146	17,308	1,008
1974 Average	10,498	8,774	1,688	62	117	16,653	e1,074
1975 Average	10,045	8,375	1,633	e17	e15	16,322	1,133
1976 Average	9,774	8,132	f1,604	39	-96	17,461	1,112
1977 Average	9,913	8,245	1,618	170	378	18,431	1,312
1978 Average	10,328	8,707	1,567	78	-172	18,847	1,278
1979 Average	10,179	8,552	1,584	148	25	18,513	1,341
1980 Average	10,214	8,597	1,573	98	42	17,056	e1,392
1981 Average	10,230	8,572	1,609	e290	e-130	16,058	1,484
1982 Average	10,252	8,649	1,550	136	-283	15,296	e1,430
1983 Average	10,299	8,688	1,559	e214	e-234	15,231	1,454
1984 Average	10,554	8,879	1,630	199	81	15,726	1,556
1985 Average	10,636	8,971	1,609	50	-153	15,726	1,519
1986 Average	10,289	8,680	1,551	78	124	16,281	1,593
1987 Average	10,008	8,349	1,595	128	-87	16,665	1,607
1988 Average	9,818	8,140	1,625	1	-29	17,283	1,597
1989 Average	9,219	7,613	1,546	86	-129	17,325	1,581
1990 Average	8,994	7,355	1,559	-35	142	16,988	1,621
1991 Average	9,168	7,417	1,659	-42	32	16,714	1,617
1992 January	9,176	7,361	1,688	540	-757	17,012	1,610
February	9,175	7,389	1,696	171	-951	16,893	1,588
March	9,123	7,348	1,694	-250	-291	16,825	1,571
April	9,072	7,293	1,693	315	92	16,764	1,583
May	8,949	7,169	1,695	-144	770	16,485	1,602
June	8,968	7,167	1,701	-581	604	16,978	1,603
July	8,961	7,131	1,683	244	290	17,143	1,620
August	8,678	6,922	1,638	-124	161	16,929	1,621
September	8,843	7,030	1,660	-160	653	16,876	1,636
October	9,025	7,126	1,722	411	-258	17,448	1,640
November	8,975	7,024	1,754	-227	77	17,091	1,636
December	9,019	7,103	1,744	-212	-1,203	17,928	e1,592
Average	8,996	7,171	1,697	-1	-68	17,033	e1,592
1993 January	g9,254	6,961	1,737	295	e560	16,173	1,618
February	8,907	6,943	1,777	219	-796	17,334	1,602
March	8,987	6,974	1,793	212	-602	17,575	1,590
April	8,897	6,881	1,802	523	356	16,781	1,617
May	8,800	6,847	1,732	147	915	16,508	1,650
June	8,747	6,795	1,753	2	573	17,096	1,667
July	8,657	6,688	1,741	6	497	17,357	1,682
August	8,720	6,758	1,747	-505	299	17,332	1,676
September	8,652	6,712	1,732	-439	86	17,650	1,665
October	8,893	6,839	1,768	328	403	17,323	1,688
November	8,847	6,912	1,670	251	-320	17,780	1,686
December	8,668	6,858	1,579	-53	-1,198	17,953	1,647
Average	8,836	6,847	1,736	81	70	17,237	1,647
1994 January	E8,674	E6,777	1,619	-16	-831	17,924	1,620
February	E8,586	E6,745	1,642	-164	-1,225	18,302	1,581
March	E8,688	E6,719	1,676	339	-438	17,289	1,578
April	E8,528	E6,634	1,687	-58	311	17,428	1,585
May	E8,546	E6,658	1,715	-213	977	17,094	1,609
June	E8,546	E6,567	1,736	-204	457	17,830	1,616
July	RE8,580	RE6,528	R1,756	R187	R855	R17,474	R1,649
August	E8,477	PE6,551	E1,724	E-125	E535	E17,844	E1,653
8-Month Average	E8,578	PE6,647	E1,695	E-29	E94	E17,640	E1,653
1993 8-Month Average	8,871	6,855	1,760	110	236	17,016	1,676
1992 8-Month Average	9,011	7,221	1,686	21	-5	16,879	1,621

[a] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[b] Stocks are totals as of end of period.
[c] Includes crude oil, natural gas plant liquids, and other liquids.
[d] Includes stocks located in the Strategic Petroleum Reserve.
[e] See Note 4 at end of section.
[f] See Note 6 at end of section.
[g] Beginning in 1993, includes fuel ethanol blended into finished motor gasoline and oxygenate production from merchant MTBE (methyl tertiary butyl ether) plants.

PE=Preliminary estimate. R=Revised data. NA=Not available. E=Estimate.

Notes: • Crude oil includes lease condensate. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S1. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S1.

Table 3.1b Petroleum Overview: Imports, Exports, and Net Imports

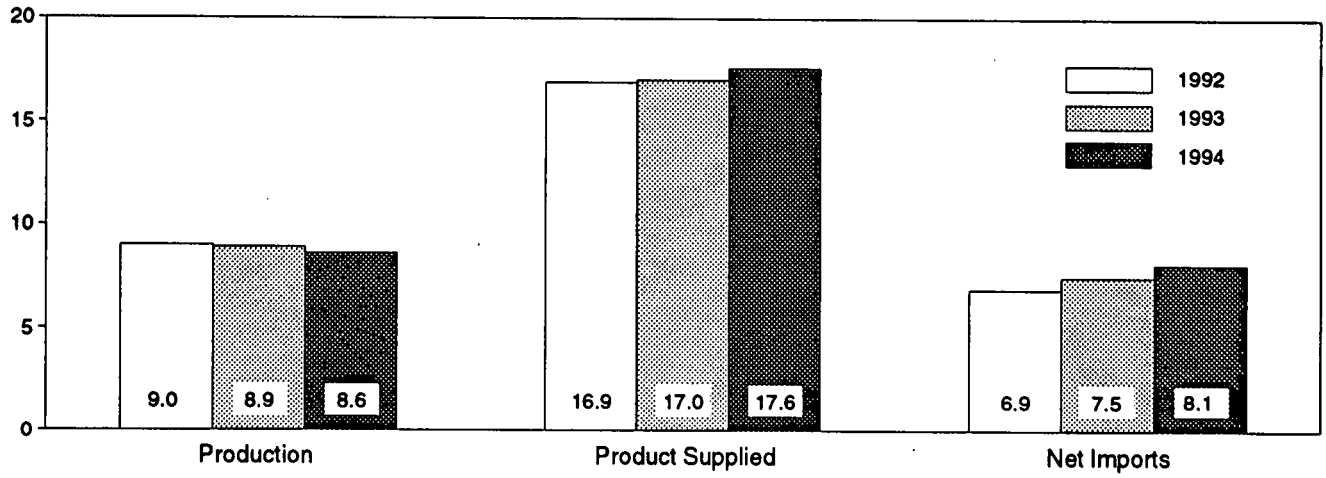
	Imports			Exports			Net Imports[b]
	Total	Crude Oil[a]	Petroleum Products	Total	Crude Oil	Petroleum Products	
	Thousand Barrels per Day						
1973 Average	**6,256**	**3,244**	**3,012**	**231**	**2**	**229**	**6,025**
1974 Average	**6,112**	**3,477**	**2,635**	**221**	**3**	**218**	**5,892**
1975 Average	**6,056**	**4,105**	**1,951**	**209**	**6**	**204**	**5,846**
1976 Average	**7,313**	**5,287**	**2,026**	**223**	**8**	**215**	**7,090**
1977 Average	**8,807**	**6,615**	**2,193**	**243**	**50**	**193**	**8,565**
1978 Average	**8,363**	**6,356**	**2,008**	**362**	**158**	**204**	**8,002**
1979 Average	**8,456**	**6,519**	**1,937**	[c] **471**	**235**	[c] **236**	[c] **7,985**
1980 Average	**6,909**	**5,263**	**1,646**	**544**	**287**	**258**	**6,365**
1981 Average	**5,996**	**4,396**	**1,599**	**595**	**228**	**367**	**5,401**
1982 Average	**5,113**	**3,488**	**1,625**	**815**	**236**	**579**	**4,298**
1983 Average	**5,051**	**3,329**	**1,722**	**739**	**164**	**575**	**4,312**
1984 Average	**5,437**	**3,426**	**2,011**	**722**	**181**	**541**	**4,715**
1985 Average	**5,067**	**3,201**	**1,866**	**781**	**204**	**577**	**4,286**
1986 Average	**6,224**	**4,178**	**2,045**	**785**	**154**	**631**	**5,439**
1987 Average	**6,678**	**4,674**	**2,004**	**764**	**151**	**613**	**5,914**
1988 Average	**7,402**	**5,107**	**2,295**	**815**	**155**	**661**	**6,587**
1989 Average	**8,061**	**5,843**	**2,217**	**859**	**142**	**717**	**7,202**
1990 Average	**8,018**	**5,894**	**2,123**	**857**	**109**	**748**	**7,161**
1991 Average	**7,627**	**5,782**	**1,844**	**1,001**	**116**	**885**	**6,626**
1992 January	7,712	5,956	1,756	1,144	118	1,026	6,568
February	6,827	5,079	1,748	852	22	829	5,975
March	7,068	5,321	1,747	912	105	807	6,156
April	8,092	6,127	1,966	937	23	914	7,155
May	7,823	6,060	1,763	885	106	779	6,939
June	7,946	6,171	1,775	957	107	850	6,989
July	8,479	6,796	1,683	929	53	876	7,550
August	8,260	6,457	1,803	789	133	657	7,470
September	8,178	6,218	1,960	848	68	780	7,330
October	8,505	6,696	1,810	902	106	796	7,603
November	7,872	6,121	1,751	995	111	885	6,877
December	7,839	5,937	1,901	1,237	107	1,130	6,602
Average	**7,888**	**6,083**	**1,805**	**950**	**89**	**861**	**6,938**
1993 January	8,004	6,292	1,712	1,135	129	1,006	6,869
February	7,948	6,156	1,792	1,033	166	867	6,915
March	8,285	6,488	1,797	970	139	831	7,315
April	8,768	6,928	1,840	1,067	73	994	7,701
May	8,663	6,809	1,854	1,082	112	970	7,581
June	8,805	7,201	1,604	900	150	750	7,905
July	9,219	7,289	1,930	1,001	62	938	8,218
August	8,429	6,641	1,789	829	55	774	7,600
September	8,531	6,581	1,950	902	107	795	7,629
October	9,197	7,181	2,015	881	62	819	8,316
November	8,903	6,997	1,906	980	67	913	7,923
December	8,645	6,838	1,807	1,250	63	1,188	7,394
Average	**8,620**	**6,787**	**1,833**	**1,003**	**98**	**904**	**7,618**
1994 January	7,914	5,961	1,953	927	110	817	6,987
February	8,501	6,313	2,187	882	116	766	7,619
March	8,500	6,377	2,123	936	40	896	7,564
April	8,927	6,937	1,990	868	120	749	8,059
May	9,155	7,163	1,993	929	118	812	8,226
June	9,263	7,358	1,906	867	107	760	8,396
July	[R] 9,778	[R] 7,867	[R] 1,911	[R] 877	[R] 84	[R] 793	[R] 8,901
August	[E] 9,592	[E] 7,630	[E] 1,963	[E] 897	[E] 102	[E] 796	[E] 8,695
8-Month Average	[E] **8,958**	[E] **6,957**	[E] **2,001**	[E] **898**	[E] **99**	[E] **799**	[E] **8,060**
1993 8-Month Average	**8,520**	**6,730**	**1,790**	**1,002**	**110**	**892**	**7,518**
1992 8-Month Average	**7,782**	**6,002**	**1,780**	**926**	**84**	**842**	**6,856**

[a] Includes crude oil for storage in the Strategic Petroleum Reserve.
[b] Net imports equals imports minus exports.
[c] See Note 6 at end of section.
R=Revised data. E=Estimate.
Notes: • Crude oil includes lease condensate. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S1. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S1.

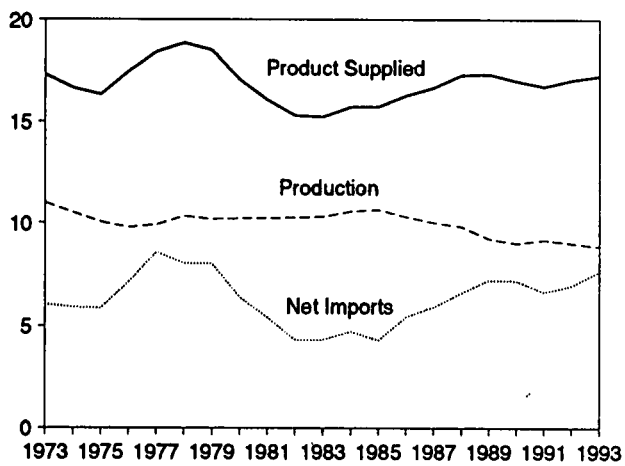
Figure 3.1 Petroleum Overview

(Million Barrels per Day)

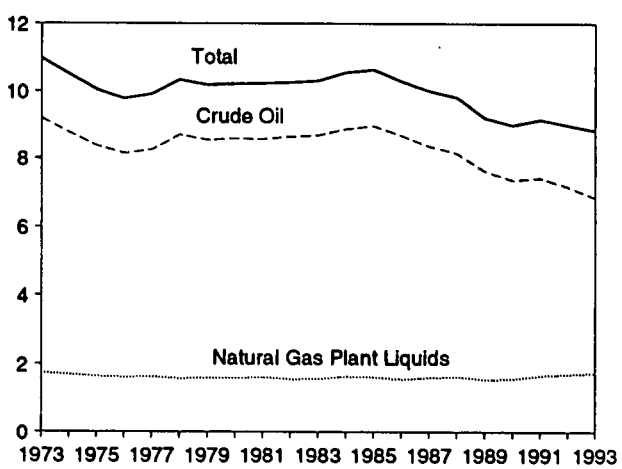
Overview, January-August



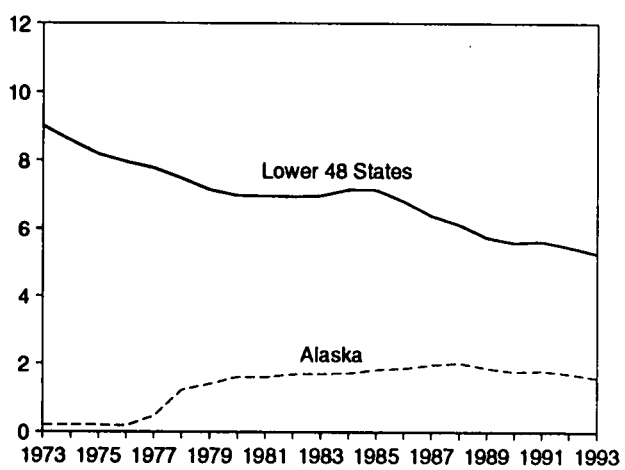
Overview, 1973-1993



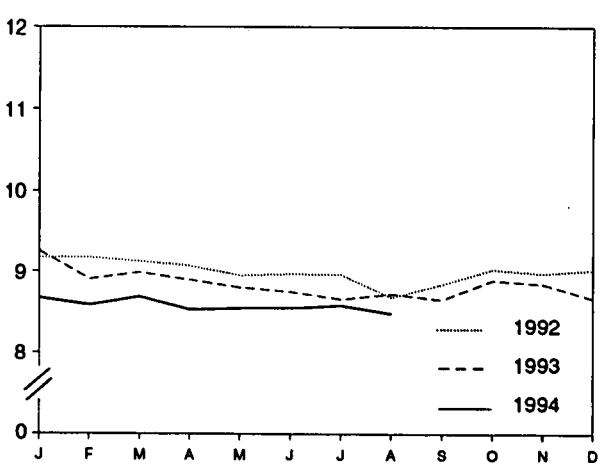
Production, 1973-1993



Crude Oil Production, 1973-1993



Total Production, Monthly

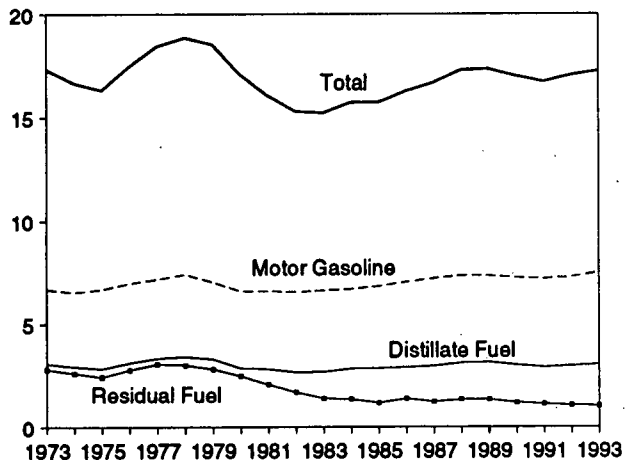


Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 3.1a, 3.1b, and 3.2a.

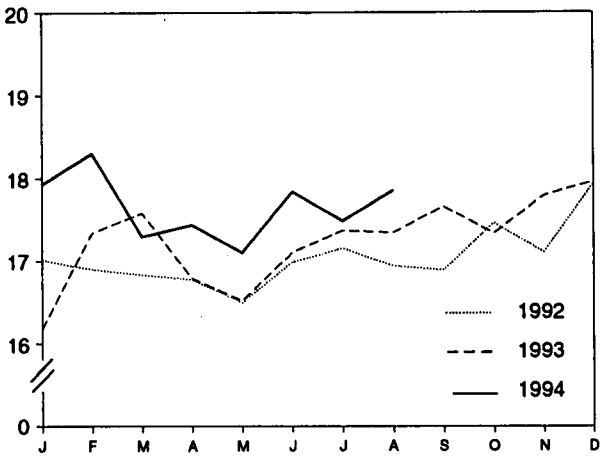
Figure 3.1 Petroleum Overview (Continued)

(Million Barrels per Day, Except as Noted)

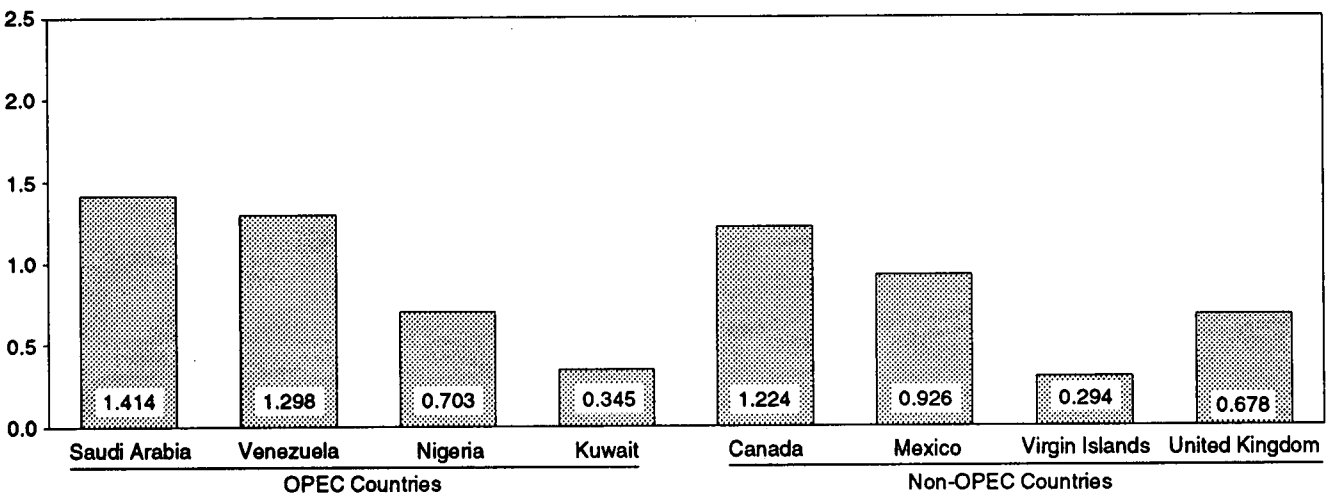
Product Supplied, 1973-1993



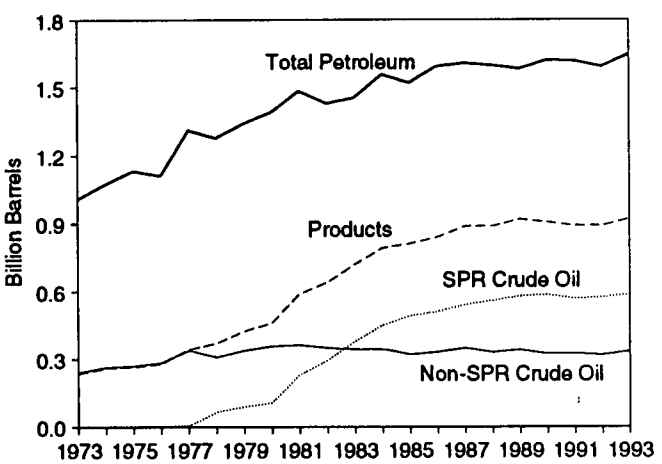
Total Product Supplied, Monthly



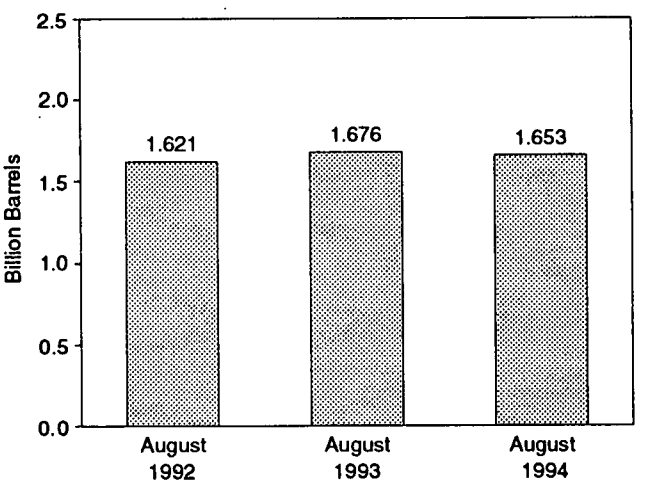
Imports from Selected Countries, July 1994



Stocks, End of Year, 1973-1993



Total Petroleum Stocks, End of Month



Notes: • OPEC = Organization of Petroleum Exporting Countries. • SPR = Strategic Petroleum Reserve. • Because vertical scales differ, graphs should not be compared.

Sources: Tables 3.1a, 3.2b, 3.3a, 3.3b, 3.3d-3.3h, 3.4, 3.5, and 3.6.

Table 3.2a Crude Oil Supply and Disposition: Supply

	Supply						
	Field Production		Imports			Unaccounted-for Crude Oil[b]	Crude Oil Used Directly[c]
	Total Domestic	Alaskan	Total	SPR[a]	Other		
	Thousand Barrels per Day						
1973 Average	9,208	198	3,244	–	3,244	3	-19
1974 Average	8,774	193	3,477	–	3,477	-25	-15
1975 Average	8,375	191	4,105	–	4,105	17	-17
1976 Average	8,132	173	5,287	–	5,287	77	[d]-19
1977 Average	8,245	464	6,615	21	6,594	-6	-14
1978 Average	8,707	1,229	6,356	[d]161	6,195	-57	[d]-15
1979 Average	8,552	1,401	6,519	67	6,452	-11	[d]-14
1980 Average	8,597	1,617	5,263	44	5,219	34	[d]-14
1981 Average	8,572	1,609	4,396	256	4,141	83	-58
1982 Average	8,649	1,696	3,488	165	3,323	71	-59
1983 Average	8,688	1,714	3,329	234	3,096	114	–
1984 Average	8,879	1,722	3,426	197	3,229	185	–
1985 Average	8,971	1,825	3,201	118	3,083	145	–
1986 Average	8,680	1,867	4,178	48	4,130	139	–
1987 Average	8,349	1,962	4,674	73	4,601	145	–
1988 Average	8,140	2,017	5,107	51	5,055	196	–
1989 Average	7,613	1,874	5,843	56	5,787	200	–
1990 Average	7,355	1,773	5,894	27	5,867	258	–
1991 Average	7,417	1,798	5,782	0	5,782	195	–
1992 January	7,361	1,789	5,956	0	5,956	290	–
February	7,389	1,808	5,079	0	5,079	229	–
March	7,348	1,785	5,321	0	5,321	287	–
April	7,293	1,741	6,127	0	6,127	189	–
May	7,169	1,682	6,060	0	6,060	421	–
June	7,167	1,703	6,171	34	6,138	259	–
July	7,131	1,655	6,796	0	6,796	332	–
August	6,922	1,635	6,457	18	6,439	65	–
September	7,030	1,700	6,218	16	6,202	385	–
October	7,126	1,696	6,696	49	6,647	290	–
November	7,024	1,674	6,121	0	6,121	296	–
December	7,103	1,705	5,937	0	5,937	61	–
Average	7,171	1,714	6,083	10	6,073	258	–
1993 January	6,961	1,654	6,292	0	6,292	118	–
February	6,943	1,628	6,156	0	6,156	162	–
March	6,974	1,639	6,488	32	6,455	101	–
April	6,881	1,587	6,928	112	6,817	333	–
May	6,847	1,568	6,809	0	6,809	443	–
June	6,795	1,520	7,201	0	7,201	293	–
July	6,688	1,441	7,289	0	7,289	236	–
August	6,758	1,528	6,641	0	6,641	3	–
September	6,712	1,471	6,581	34	6,547	224	–
October	6,839	1,610	7,181	0	7,181	109	–
November	6,912	1,670	6,997	0	6,997	106	–
December	6,858	1,671	6,838	0	6,838	-98	–
Average	6,847	1,582	6,787	15	6,772	168	–
1994 January	[E]6,777	[E]1,658	5,961	0	5,961	651	–
February	[E]6,745	[E]1,594	6,313	0	6,313	37	–
March	[E]6,719	[E]1,581	6,377	99	6,278	272	–
April	[E]6,634	[E]1,502	6,937	31	6,906	316	–
May	[E]6,658	[E]1,576	7,163	0	7,163	361	–
June	[E]6,567	[E]1,514	7,358	17	7,341	350	–
July	[RE]6,528	[RE]1,492	[R]7,867	[R]0	[R]7,867	[R]241	–
August	[PE]6,551	[PE]1,497	[E]7,630	[E]0	[E]7,630	[E]287	–
8-Month Average	[PE]6,647	[PE]1,552	[E]6,957	[E]18	[E]6,938	[E]318	–
1993 8-Month Average	6,855	1,570	6,730	18	6,712	211	–
1992 8-Month Average	7,221	1,724	6,002	6	5,996	260	–

[a] Strategic Petroleum Reserve.
[b] A balancing item.
[c] Beginning in January 1983, crude oil used directly as fuel is shown as product supplied.
[d] See Note 6 at end of section.
PE=Preliminary estimate. R=Revised data. – =Not applicable. E=Estimate.

Notes: • Crude oil includes lease condensate. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S2. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S2.

Table 3.2b Crude Oil Supply and Disposition: Disposition and Ending Stocks

	Disposition						Ending Stocks[a]		
	Crude Losses	Stock Change[b] SPR[c]	Stock Change[b] Other	Refinery Inputs	Exports	Product Supplied[d]	Total	SPR[c]	Other Primary
	Thousand Barrels per Day						Million Barrels		
1973 Average	13	–	-11	12,431	2	–	242	–	242
1974 Average	13	–	62	12,133	3	–	265	–	265
1975 Average	13	–	17	12,442	6	–	271	–	271
1976 Average	[e]14	–	39	13,416	8	–	285	–	285
1977 Average	16	20	150	14,602	50	–	348	7	340
1978 Average	16	163	-84	14,739	158	–	376	67	309
1979 Average	16	67	81	14,648	235	–	430	91	339
1980 Average	[e]14	45	52	13,481	287	–	[f]466	108	[f]358
1981 Average	5	336	[f]-46	12,470	228	–	594	230	363
1982 Average	3	174	-38	11,774	236	–	[g]644	294	[g]350
1983 Average	2	234	[g]-20	11,685	164	66	723	379	344
1984 Average	2	195	4	12,044	181	64	796	451	345
1985 Average	1	117	-67	12,002	204	60	814	493	321
1986 Average	(s)	50	28	12,716	154	49	843	512	331
1987 Average	(s)	80	49	12,854	151	34	890	541	349
1988 Average	(s)	52	-51	13,246	155	40	890	560	330
1989 Average	(s)	56	30	13,401	142	28	921	580	341
1990 Average	(s)	16	-51	13,409	109	24	908	586	323
1991 Average	(s)	-47	5	13,301	116	18	893	569	325
1992 January	0	(s)	540	12,923	118	26	910	569	341
February	(s)	0	171	12,486	22	17	915	569	346
March	(s)	(s)	-250	13,083	105	18	907	569	339
April	0	0	315	13,260	23	11	917	569	348
May	0	(s)	-145	13,679	106	10	912	569	344
June	(s)	34	-615	14,059	107	12	895	570	325
July	0	(s)	244	13,953	53	9	902	570	333
August	(s)	20	-144	13,426	133	8	898	570	328
September	0	43	-204	13,714	68	11	893	571	322
October	(s)	69	342	13,584	106	10	906	574	333
November	(s)	15	-243	13,547	111	10	899	574	325
December	(s)	22	-234	13,194	107	12	893	575	318
Average	(s)	17	-18	13,411	89	13	893	575	318
1993 January	(s)	19	276	12,938	129	10	902	575	327
February	(s)	18	201	12,865	166	10	908	576	332
March	0	58	154	13,200	139	11	915	578	337
April	(s)	136	387	13,538	73	9	930	582	349
May	0	13	134	13,829	112	10	935	582	353
June	0	21	-20	14,129	150	8	935	583	352
July	0	19	-13	14,136	62	9	935	583	352
August	0	24	-529	13,844	55	8	920	584	335
September	(s)	52	-491	13,841	107	8	906	586	321
October	0	19	309	13,729	62	10	917	586	330
November	0	18	233	13,686	67	10	924	587	337
December	0	9	-62	13,571	63	16	922	587	335
Average	(s)	34	47	13,613	98	10	922	587	335
1994 January	0	4	-19	13,285	110	10	922	587	335
February	0	(s)	-164	13,132	116	12	917	587	330
March	0	99	241	12,978	40	10	928	590	338
April	(s)	31	-89	13,817	120	9	926	591	335
May	0	(s)	-213	14,269	118	9	920	591	328
June	0	16	-220	14,364	107	7	913	592	322
July	0	[R] (s)	[R]187	[R]14,356	[R]84	[R]8	[R]919	592	[R]328
August	[E]0	[E] (s)	[E]-125	[E]14,485	[E]102	[E]8	[E]917	[E]592	[E]325
8-Month Average	[E] (s)	[E]19	[E]-48	[E]13,842	[E]99	[E]9	[E]917	[E]592	[E]325
1993 8-Month Average	(s)	39	71	13,566	110	9	920	584	335
1992 8-Month Average	(s)	7	15	13,363	84	14	898	570	328

[a] Stocks are totals as of end of period.

[b] A negative number indicates a decrease in stocks and a positive number indicates an increase.

[c] Strategic Petroleum Reserve.

[d] Beginning in January 1983, crude oil used directly as fuel is shown as product supplied.

[e] See Note 6 at end of section.

[f] Stocks of Alaskan crude oil in transit are included from January 1981 forward. See Note 5 at end of section.

[g] See Note 4 at end of section.

R=Revised data. – =Not applicable. E=Estimate. (s)=Less than +500 barrels per day and greater than -500 barrels per day.

Notes: • Crude oil includes lease condensate. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S2. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S2.

Table 3.3a Petroleum Imports: Algeria, Iraq, Kuwait, and Libya

(Thousand Barrels per Day)

	Arab OPEC[a]							
	Algeria		Iraq		Kuwait[b]		Libya	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	**136**	**120**	**4**	**4**	**47**	**42**	**164**	**133**
1974 Average	**190**	**180**	**0**	**0**	**5**	**5**	**4**	**4**
1975 Average	**282**	**264**	**2**	**2**	**16**	**4**	**232**	**223**
1976 Average	**432**	**408**	**26**	**26**	**5**	**1**	**453**	**444**
1977 Average	**559**	**544**	**74**	**74**	**48**	**42**	**723**	**704**
1978 Average	**649**	**634**	**62**	**62**	**6**	**5**	**654**	**638**
1979 Average	**636**	**608**	**88**	**88**	**8**	**5**	**658**	**642**
1980 Average	**488**	**456**	**28**	**28**	**27**	**27**	**554**	**548**
1981 Average	**311**	**261**	**(s)**	**0**	**0**	**0**	**319**	**317**
1982 Average	**170**	**90**	**3**	**3**	**5**	**2**	**26**	**23**
1983 Average	**240**	**176**	**10**	**10**	**14**	**7**	**0**	**0**
1984 Average	**323**	**194**	**12**	**12**	**36**	**24**	**1**	**0**
1985 Average	**187**	**84**	**46**	**46**	**21**	**4**	**4**	**0**
1986 Average	**271**	**78**	**81**	**81**	**68**	**28**	**0**	**0**
1987 Average	**295**	**115**	**83**	**82**	**84**	**70**	**0**	**0**
1988 Average	**300**	**58**	**345**	**343**	**92**	**80**	**0**	**0**
1989 Average	**269**	**60**	**449**	**441**	**157**	**155**	**0**	**0**
1990 Average	**280**	**63**	**518**	**514**	**86**	**79**	**0**	**0**
1991 Average	**253**	**44**	**0**	**0**	**6**	**6**	**0**	**0**
1992 January	206	37	0	0	0	0	0	0
February	218	57	0	0	0	0	0	0
March	215	37	0	0	0	0	0	0
April	182	19	0	0	0	0	0	0
May	202	7	0	0	0	0	0	0
June	144	12	0	0	0	0	0	0
July	179	37	0	0	58	23	0	0
August	261	45	0	0	66	33	0	0
September	184	19	0	0	70	33	0	0
October	186	8	0	0	137	109	0	0
November	171	0	0	0	117	117	0	0
December	203	9	0	0	165	149	0	0
Average	**196**	**24**	**0**	**0**	**51**	**39**	**0**	**0**
1993 January	153	28	0	0	144	129	0	0
February	256	0	0	0	251	229	0	0
March	185	7	0	0	316	300	0	0
April	258	26	0	0	279	279	0	0
May	228	3	0	0	222	222	0	0
June	169	32	0	0	235	235	0	0
July	246	6	0	0	368	362	0	0
August	241	28	0	0	467	451	0	0
September	192	0	0	0	445	431	0	0
October	317	80	0	0	530	526	0	0
November	222	52	0	0	486	470	0	0
December	169	25	0	0	484	484	0	0
Average	**220**	**24**	**0**	**0**	**353**	**344**	**0**	**0**
1994 January	233	35	0	0	309	309	0	0
February	226	20	0	0	423	423	0	0
March	278	22	0	0	476	476	0	0
April	245	30	0	0	261	238	0	0
May	261	0	0	0	362	362	0	0
June	178	2	0	0	255	255	0	0
July	301	38	0	0	345	345	0	0
7-Month Average	**247**	**21**	**0**	**0**	**347**	**344**	**0**	**0**
1993 7-Month Average	**213**	**15**	**0**	**0**	**259**	**251**	**0**	**0**
1992 7-Month Average	**192**	**29**	**0**	**0**	**8**	**3**	**0**	**0**

[a] Excludes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] Imports from the Neutral Zone between Kuwait and Saudi Arabia are included in Saudi Arabia.

(s)=Less than 500 barrels per day.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3b Petroleum Imports: Qatar, Saudi Arabia, U.A.E., and Total Arab OPEC

(Thousand Barrels per Day)

	Arab OPEC[a]						Total Arab OPEC[a]	
	Qatar		Saudi Arabia[b]		United Arab Emirates			
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	**7**	**7**	**486**	**462**	**71**	**71**	**915**	**838**
1974 Average	**17**	**17**	**461**	**438**	**74**	**69**	**752**	**713**
1975 Average	**18**	**18**	**715**	**701**	**117**	**117**	**1,383**	**1,330**
1976 Average	**24**	**24**	**1,230**	**1,222**	**254**	**254**	**2,424**	**2,378**
1977 Average	**67**	**67**	**1,380**	**1,373**	**335**	**333**	**3,185**	**3,136**
1978 Average	**64**	**64**	**1,144**	**1,142**	**385**	**385**	**2,963**	**2,930**
1979 Average	**31**	**31**	**1,356**	**1,347**	**281**	**281**	**3,058**	**3,002**
1980 Average	**22**	**22**	**1,261**	**1,250**	**172**	**172**	**2,551**	**2,503**
1981 Average	**7**	**7**	**1,129**	**1,112**	**81**	**77**	**1,848**	**1,774**
1982 Average	**7**	**7**	**552**	**530**	**92**	**81**	**854**	**736**
1983 Average	**(s)**	**0**	**337**	**321**	**30**	**18**	**632**	**533**
1984 Average	**5**	**4**	**325**	**309**	**117**	**90**	**819**	**634**
1985 Average	**(s)**	**0**	**168**	**132**	**45**	**35**	**472**	**300**
1986 Average	**13**	**12**	**685**	**618**	**44**	**38**	**1,162**	**854**
1987 Average	**0**	**0**	**751**	**642**	**61**	**56**	**1,274**	**965**
1988 Average	**0**	**0**	**1,073**	**911**	**29**	**23**	**1,839**	**1,415**
1989 Average	**2**	**2**	**1,224**	**1,116**	**28**	**21**	**2,130**	**1,794**
1990 Average	**4**	**4**	**1,339**	**1,195**	**17**	**9**	**2,244**	**1,864**
1991 Average	**0**	**0**	**1,802**	**1,703**	**3**	**2**	**2,064**	**1,754**
1992 January	0	0	2,017	1,900	18	0	2,241	1,937
February	0	0	1,776	1,687	0	0	1,995	1,745
March	0	0	1,707	1,568	0	0	1,922	1,605
April	0	0	1,734	1,524	0	0	1,916	1,543
May	0	0	1,764	1,584	0	0	1,966	1,591
June	0	0	1,744	1,610	0	0	1,888	1,621
July	8	0	1,713	1,599	0	0	1,958	1,659
August	0	0	1,594	1,473	7	0	1,929	1,551
September	0	0	1,593	1,477	0	0	1,847	1,529
October	0	0	1,593	1,482	4	0	1,920	1,599
November	0	0	1,608	1,540	17	0	1,913	1,657
December	0	0	1,793	1,725	28	0	2,188	1,882
Average	**1**	**0**	**1,720**	**1,597**	**6**	**0**	**1,974**	**1,660**
1993 January	0	0	1,688	1,571	0	0	1,984	1,728
February	0	0	1,626	1,480	0	0	2,133	1,709
March	6	0	1,479	1,349	0	0	1,987	1,655
April	0	0	1,644	1,515	17	17	2,198	1,837
May	0	0	1,524	1,361	59	59	2,034	1,646
June	0	0	1,540	1,413	66	66	2,010	1,746
July	0	0	1,283	1,171	19	0	1,917	1,538
August	0	0	1,151	1,036	0	0	1,859	1,515
September	0	0	1,329	1,181	0	0	1,966	1,612
October	0	0	1,115	969	0	0	1,961	1,574
November	0	0	1,281	1,152	1	0	1,989	1,673
December	0	0	1,330	1,205	0	0	1,983	1,713
Average	**1**	**0**	**1,414**	**1,282**	**14**	**12**	**2,000**	**1,661**
1994 January	0	0	1,320	1,175	0	0	1,863	1,520
February	0	0	1,071	1,023	0	0	1,719	1,467
March	0	0	1,128	1,055	0	0	1,883	1,553
April	0	0	1,586	1,428	4	0	2,097	1,696
May	0	0	1,438	1,394	0	0	2,062	1,757
June	0	0	1,395	1,277	0	0	1,829	1,535
July	0	0	1,414	1,310	53	53	2,113	1,745
7-Month Average	**0**	**0**	**1,338**	**1,239**	**8**	**8**	**1,941**	**1,612**
1993 7-Month Average	**1**	**0**	**1,539**	**1,407**	**23**	**21**	**2,036**	**1,693**
1992 7-Month Average	**1**	**0**	**1,780**	**1,639**	**3**	**0**	**1,984**	**1,672**

[a] Excludes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] Imports from the Neutral Zone between Kuwait and Saudi Arabia are included in Saudi Arabia.

(s)=Less than 500 barrels per day.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3c Petroleum Imports: Ecuador, Gabon, Indonesia, and Iran

(Thousand Barrels per Day)

	Non-Arab OPEC[a]							
	Ecuador[b]		Gabon		Indonesia		Iran	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	48	47	0	0	213	200	223	216
1974 Average	42	42	23	23	300	284	469	463
1975 Average	57	57	27	27	390	379	280	278
1976 Average	51	51	28	26	539	537	298	298
1977 Average	57	55	42	35	541	507	535	530
1978 Average	54	38	41	38	573	533	555	554
1979 Average	42	30	42	42	420	380	304	297
1980 Average	27	17	26	25	348	314	9	8
1981 Average	48	38	35	35	366	318	0	0
1982 Average	42	32	40	40	248	226	35	35
1983 Average	61	56	59	59	338	315	48	48
1984 Average	55	47	58	57	343	304	10	10
1985 Average	67	56	52	51	314	292	27	27
1986 Average	77	64	26	25	318	297	19	19
1987 Average	29	23	35	35	285	262	98	98
1988 Average	47	33	16	15	205	186	[c] (s)	[c] (s)
1989 Average	89	80	50	49	183	158	0	0
1990 Average	49	38	64	64	114	98	0	0
1991 Average	63	53	84	84	111	102	32	32
1992 January	56	56	91	91	125	117	0	0
February	61	48	105	105	39	39	0	0
March	26	26	25	25	85	83	0	0
April	53	46	186	186	54	49	0	0
May	51	51	135	135	155	133	0	0
June	105	101	129	129	109	102	0	0
July	111	111	143	143	65	65	0	0
August	99	93	108	108	91	85	0	0
September	97	97	165	158	57	38	0	0
October	42	36	167	167	54	43	0	0
November	53	53	114	114	36	23	0	0
December	24	24	120	120	60	60	0	0
Average	65	62	124	123	78	70	0	0
1993 January	([b])	([b])	90	89	37	37	0	0
February	([b])	([b])	88	88	52	51	0	0
March	([b])	([b])	126	123	67	64	0	0
April	([b])	([b])	127	127	76	76	0	0
May	([b])	([b])	169	169	82	82	0	0
June	([b])	([b])	107	107	97	67	0	0
July	([b])	([b])	168	166	55	55	0	0
August	([b])	([b])	152	152	95	80	0	0
September	([b])	([b])	211	211	51	40	0	0
October	([b])	([b])	242	242	131	82	0	0
November	([b])	([b])	143	136	74	34	0	0
December	([b])	([b])	191	191	156	114	0	0
Average	([b])	([b])	152	151	81	65	0	0
1994 January	([b])	([b])	144	144	140	81	0	0
February	([b])	([b])	212	208	103	59	0	0
March	([b])	([b])	91	91	112	50	0	0
April	([b])	([b])	288	288	88	88	0	0
May	([b])	([b])	187	187	94	76	0	0
June	([b])	([b])	223	223	155	155	0	0
July	([b])	([b])	216	216	196	196	0	0
7-Month Average	([b])	([b])	194	193	127	101	0	0
1993 7-Month Average	([b])	([b])	126	125	67	62	0	0
1992 7-Month Average	66	63	116	116	91	85	0	0

[a] Excludes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] Ecuador withdrew from OPEC on December 31, 1992. As of January 1993, imports from Ecuador appear on Table 3.3f under "Non-OPEC."

[c] A small amount of Iranian crude oil entered the United States in January 1988 from the Virgin Islands. The oil originated in Iran and was exported to the Virgin Islands prior to the signing of Executive Order 12613 on October 29, 1987.

(s)=Less than 500 barrels per day.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3d Petroleum Imports: Nigeria, Venezuela, Total Non-Arab OPEC, and Total OPEC

(Thousand Barrels per Day)

	Non-Arab OPEC[a]				Total Non-Arab OPEC[a,b]		Total OPEC[a,b]	
	Nigeria		Venezuela					
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	459	448	1,135	344	2,078	1,257	2,993	2,095
1974 Average	713	697	979	319	2,527	1,827	3,280	2,540
1975 Average	762	746	702	395	2,219	1,882	3,601	3,211
1976 Average	1,025	1,014	700	241	2,642	2,167	5,066	4,545
1977 Average	1,143	1,130	690	250	3,008	2,507	6,193	5,643
1978 Average	919	910	646	181	2,788	2,254	5,751	5,184
1979 Average	1,080	1,069	690	293	2,579	2,110	5,637	5,112
1980 Average	857	841	481	156	1,749	1,361	4,300	3,864
1981 Average	620	611	406	147	1,476	1,149	3,323	2,922
1982 Average	514	510	412	155	1,291	998	2,146	1,734
1983 Average	302	301	422	164	1,231	944	1,862	1,477
1984 Average	216	207	548	253	1,230	878	2,049	1,512
1985 Average	293	280	605	306	1,358	1,012	1,830	1,312
1986 Average	440	437	793	416	1,674	1,259	2,837	2,113
1987 Average	535	529	804	488	1,787	1,435	3,060	2,400
1988 Average	618	607	794	439	1,681	1,281	3,520	2,696
1989 Average	815	800	873	495	2,010	1,582	4,140	3,376
1990 Average	800	784	1,025	666	2,052	1,650	4,296	3,514
1991 Average	703	683	1,035	668	2,028	1,622	4,092	3,377
1992 January	593	566	1,119	787	1,984	1,617	4,224	3,554
February	322	303	1,028	655	1,555	1,150	3,549	2,895
March	441	409	1,106	793	1,684	1,336	3,606	2,941
April	798	788	1,079	722	2,169	1,791	4,085	3,334
May	773	773	1,038	745	2,152	1,837	4,118	3,428
June	740	740	1,059	738	2,141	1,809	4,029	3,430
July	900	883	1,163	912	2,382	2,114	4,339	3,772
August	815	795	1,102	841	2,215	1,922	4,144	3,473
September	774	754	1,333	953	2,426	2,001	4,274	3,531
October	827	813	1,497	1,073	2,587	2,133	4,507	3,732
November	626	608	1,343	921	2,173	1,719	4,086	3,376
December	549	532	1,164	763	1,917	1,499	4,105	3,381
Average	681	665	1,170	826	2,117	1,746	4,092	3,406
1993 January	729	729	1,397	1,038	[b]2,254	[b]1,892	[b]4,238	[b]3,620
February	927	913	1,296	925	2,363	1,976	4,496	3,685
March	928	892	1,173	835	2,295	1,914	4,282	3,570
April	892	871	1,314	1,023	2,409	2,097	4,608	3,934
May	760	741	1,264	992	2,276	1,985	4,309	3,630
June	848	827	1,292	999	2,343	2,000	4,353	3,746
July	893	888	1,384	1,068	2,500	2,177	4,417	3,715
August	562	549	1,383	1,135	2,192	1,915	4,051	3,431
September	514	496	1,273	1,050	2,048	1,796	4,014	3,408
October	603	593	1,276	993	2,251	1,910	4,213	3,484
November	636	612	1,322	1,108	2,175	1,891	4,165	3,563
December	598	569	1,230	952	2,176	1,827	4,159	3,540
Average	740	722	1,300	1,010	2,273	1,948	4,273	3,609
1994 January	310	274	1,185	901	1,780	1,400	3,643	2,920
February	576	557	1,204	946	2,094	1,770	3,814	3,237
March	441	402	1,219	915	1,862	1,457	3,745	3,010
April	631	621	1,272	1,016	2,280	2,014	4,377	3,710
May	732	730	1,297	1,004	2,309	1,996	4,371	3,753
June	842	837	1,449	1,088	2,669	2,303	4,498	3,838
July	703	694	1,298	1,030	2,413	2,136	4,525	3,881
7-Month Average	604	587	1,275	986	2,200	1,867	4,141	3,479
1993 7-Month Average	853	836	1,303	983	2,348	2,006	4,384	3,699
1992 7-Month Average	654	639	1,085	766	2,012	1,668	3,997	3,340

[a] Excludes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] As of January 1993, excludes petroleum imported from Ecuador, which withdrew from OPEC on December 31, 1992.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3e Petroleum Imports: Angola, Australia, Bahama Islands, Brazil, Canada, and China

(Thousand Barrels per Day)

	Non-OPEC[a]											
	Angola		Australia		Bahama Islands		Brazil		Canada		China	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	**49**	**49**	**2**	**0**	**174**	**0**	**9**	**0**	**1,325**	**1,001**	**(s)**	**0**
1974 Average	**49**	**48**	**1**	**0**	**164**	**0**	**2**	**0**	**1,070**	**791**	**0**	**0**
1975 Average	**75**	**71**	**5**	**0**	**152**	**0**	**5**	**0**	**846**	**600**	**0**	**0**
1976 Average	**12**	**7**	**2**	**0**	**118**	**0**	**0**	**0**	**599**	**371**	**0**	**0**
1977 Average	**24**	**17**	**3**	**0**	**171**	**0**	**0**	**0**	**517**	**279**	**0**	**0**
1978 Average	**20**	**6**	**5**	**0**	**160**	**0**	**0**	**0**	**467**	**248**	**0**	**0**
1979 Average	**43**	**39**	**6**	**0**	**147**	**0**	**1**	**0**	**538**	**271**	**13**	**13**
1980 Average	**42**	**37**	**1**	**0**	**78**	**0**	**3**	**1**	**455**	**199**	**(s)**	**0**
1981 Average	**49**	**45**	**5**	**0**	**74**	**0**	**23**	**14**	**447**	**164**	**18**	**0**
1982 Average	**44**	**42**	**5**	**(s)**	**65**	**0**	**47**	**19**	**482**	**214**	**40**	**8**
1983 Average	**78**	**71**	**4**	**0**	**125**	**0**	**41**	**2**	**547**	**274**	**34**	**6**
1984 Average	**90**	**85**	**38**	**25**	**88**	**0**	**60**	**(s)**	**630**	**341**	**46**	**15**
1985 Average	**110**	**104**	**37**	**21**	**40**	**0**	**61**	**0**	**770**	**468**	**59**	**36**
1986 Average	**112**	**102**	**41**	**30**	**37**	**0**	**50**	**0**	**807**	**570**	**90**	**68**
1987 Average	**192**	**180**	**58**	**49**	**37**	**0**	**84**	**0**	**848**	**608**	**82**	**63**
1988 Average	**212**	**203**	**64**	**59**	**32**	**0**	**98**	**0**	**999**	**681**	**88**	**82**
1989 Average	**284**	**279**	**36**	**31**	**34**	**0**	**82**	**0**	**931**	**630**	**80**	**76**
1990 Average	**237**	**236**	**53**	**47**	**37**	**0**	**49**	**0**	**934**	**643**	**80**	**77**
1991 Average	**254**	**254**	**26**	**21**	**35**	**0**	**22**	**0**	**1,033**	**743**	**91**	**87**
1992 January	360	360	11	11	63	0	18	0	1,045	786	144	144
February	246	246	10	10	47	0	12	0	1,147	834	80	69
March	339	339	0	0	76	0	(s)	0	1,100	832	75	75
April	381	381	39	22	67	0	17	0	1,121	835	86	69
May	264	264	0	0	46	0	18	0	1,013	779	129	114
June	286	286	21	21	57	0	28	0	970	736	110	95
July	443	443	20	20	22	0	25	0	1,044	798	68	64
August	335	323	21	21	8	0	10	0	1,038	762	66	66
September	248	248	0	0	8	0	21	0	1,131	839	80	75
October	395	395	11	11	1	0	10	0	1,063	761	61	61
November	458	458	53	49	20	0	32	0	1,037	784	86	86
December	279	279	38	38	19	0	50	0	1,122	816	97	90
Average	**336**	**336**	**19**	**17**	**36**	**0**	**20**	**0**	**1,069**	**797**	**90**	**84**
1993 January	354	354	(s)	0	18	0	3	0	1,052	778	60	60
February	348	348	0	0	26	0	22	0	1,095	782	44	44
March	408	408	0	0	38	0	27	0	1,033	770	79	73
April	344	344	0	0	16	0	56	0	1,052	783	0	0
May	299	299	13	13	8	0	41	0	1,128	874	40	40
June	209	209	34	34	7	0	19	0	1,117	911	48	46
July	402	402	40	40	31	0	48	0	1,264	991	24	24
August	258	258	33	27	41	0	32	0	1,247	966	38	38
September	282	282	0	0	37	0	59	0	1,319	1,023	91	89
October	440	440	53	47	53	0	15	0	1,370	1,030	61	61
November	307	307	0	0	29	0	61	0	1,236	917	68	68
December	379	379	53	53	30	0	10	0	1,255	964	61	61
Average	**336**	**336**	**19**	**18**	**28**	**0**	**33**	**0**	**1,181**	**900**	**51**	**50**
1994 January	338	338	12	0	28	0	11	0	1,234	905	81	78
February	295	282	0	0	79	0	12	0	1,364	994	44	44
March	291	265	11	11	52	0	10	0	1,328	987	107	104
April	284	284	0	0	39	0	42	0	1,191	930	70	67
May	354	331	32	32	58	0	96	0	1,157	905	80	80
June	278	278	11	11	14	0	62	0	1,202	973	37	36
July	304	299	44	44	18	0	53	0	1,224	984	92	92
7-Month Average	**307**	**297**	**16**	**14**	**41**	**0**	**41**	**0**	**1,242**	**953**	**74**	**72**
1993 7-Month Average	**338**	**338**	**13**	**13**	**20**	**0**	**31**	**0**	**1,106**	**842**	**42**	**41**
1992 7-Month Average	**332**	**332**	**14**	**12**	**54**	**0**	**17**	**0**	**1,062**	**800**	**99**	**90**

[a] Includes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

(s)=Less than 500 barrels per day.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3f Petroleum Imports: Colombia, Ecuador, Italy, Malaysia, Mexico, and Netherlands

(Thousand Barrels per Day)

	Non-OPEC[a]											
	Colombia		Ecuador[b]		Italy		Malaysia		Mexico		Netherlands	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	**9**	**2**	**–**	**–**	**125**	**0**	**12**	**1**	**16**	**1**	**53**	**0**
1974 Average	**5**	**0**	**–**	**–**	**74**	**0**	**12**	**1**	**8**	**2**	**43**	**0**
1975 Average	**9**	**0**	**–**	**–**	**27**	**0**	**8**	**5**	**71**	**70**	**19**	**4**
1976 Average	**21**	**6**	**–**	**–**	**39**	**0**	**18**	**16**	**87**	**87**	**8**	**0**
1977 Average	**17**	**0**	**–**	**–**	**51**	**0**	**66**	**55**	**179**	**177**	**31**	**4**
1978 Average	**20**	**0**	**–**	**–**	**38**	**0**	**42**	**37**	**318**	**316**	**5**	**2**
1979 Average	**18**	**0**	**–**	**–**	**30**	**0**	**66**	**52**	**439**	**437**	**23**	**7**
1980 Average	**4**	**0**	**–**	**–**	**4**	**0**	**70**	**61**	**533**	**507**	**2**	**(s)**
1981 Average	**1**	**0**	**–**	**–**	**11**	**0**	**36**	**33**	**522**	**469**	**30**	**(s)**
1982 Average	**5**	**0**	**–**	**–**	**18**	**(s)**	**20**	**18**	**685**	**645**	**35**	**(s)**
1983 Average	**10**	**0**	**–**	**–**	**18**	**(s)**	**4**	**3**	**826**	**766**	**65**	**3**
1984 Average	**8**	**0**	**–**	**–**	**45**	**(s)**	**1**	**0**	**748**	**659**	**65**	**3**
1985 Average	**23**	**0**	**–**	**–**	**60**	**(s)**	**3**	**1**	**816**	**715**	**58**	**0**
1986 Average	**87**	**57**	**–**	**–**	**76**	**0**	**12**	**11**	**699**	**621**	**54**	**0**
1987 Average	**148**	**115**	**–**	**–**	**54**	**1**	**13**	**12**	**655**	**602**	**60**	**0**
1988 Average	**134**	**106**	**–**	**–**	**65**	**5**	**19**	**19**	**747**	**674**	**61**	**0**
1989 Average	**172**	**136**	**–**	**–**	**34**	**3**	**39**	**39**	**767**	**716**	**49**	**0**
1990 Average	**182**	**140**	**–**	**–**	**58**	**2**	**41**	**40**	**755**	**689**	**55**	**0**
1991 Average	**163**	**123**	**–**	**–**	**47**	**3**	**24**	**24**	**807**	**759**	**29**	**0**
1992 January	158	111	–	–	51	0	0	0	764	721	31	0
February	114	92	–	–	48	0	0	0	838	807	9	0
March	101	74	–	–	44	0	0	0	846	809	34	0
April	150	129	–	–	75	0	0	0	857	795	8	0
May	57	46	–	–	57	0	5	5	788	764	27	0
June	135	114	–	–	69	0	8	8	905	883	25	0
July	103	93	–	–	36	0	40	40	830	788	21	0
August	156	142	–	–	94	0	22	22	857	790	45	0
September	190	179	–	–	81	0	17	17	755	720	39	0
October	153	132	–	–	37	0	17	17	829	783	18	0
November	127	84	–	–	33	0	8	8	762	700	26	0
December	66	34	–	–	37	0	4	4	930	888	33	0
Average	**126**	**102**	**–**	**–**	**55**	**0**	**10**	**10**	**830**	**787**	**26**	**0**
1993 January	188	167	76	70	56	0	0	0	858	820	11	0
February	148	137	14	14	34	0	0	0	807	748	18	0
March	161	129	59	59	43	0	11	10	844	798	10	0
April	178	165	74	62	14	0	8	8	832	796	0	0
May	147	90	56	56	26	0	21	10	917	846	10	0
June	176	143	75	75	25	0	0	0	987	959	10	0
July	204	184	96	96	25	0	11	11	943	878	21	0
August	131	101	121	121	50	0	14	14	862	809	17	0
September	224	170	49	49	32	0	28	28	929	867	22	0
October	192	182	146	135	40	0	14	10	1,013	951	0	0
November	164	143	115	106	30	0	0	0	1,116	1,041	(s)	0
December	134	85	84	84	0	0	28	28	909	837	6	0
Average	**171**	**141**	**81**	**78**	**31**	**0**	**11**	**10**	**919**	**863**	**10**	**0**
1994 January	182	149	128	128	8	0	11	0	971	945	35	0
February	184	131	96	96	35	0	19	15	967	926	43	0
March	188	167	37	37	16	0	13	0	1,067	1,014	33	0
April	241	197	52	52	13	0	3	0	987	963	23	0
May	105	75	85	85	19	0	0	0	957	917	79	0
June	112	101	72	72	12	0	10	10	1,040	974	38	0
July	127	127	144	144	35	0	36	36	926	889	35	0
7-Month Average	**162**	**135**	**88**	**88**	**19**	**0**	**13**	**9**	**988**	**947**	**41**	**0**
1993 7-Month Average	**172**	**145**	**65**	**62**	**32**	**0**	**7**	**6**	**885**	**836**	**11**	**0**
1992 7-Month Average	**117**	**94**	**–**	**–**	**54**	**0**	**8**	**8**	**832**	**795**	**22**	**0**

[a] Includes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] Through 1992, Ecuador was a member of OPEC. See Table 3.3c.

– =Not applicable. (s)=Less than 500 barrels per day.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3g Petroleum Imports: Netherlands Antilles, Norway, Puerto Rico, Russia, Spain, and Trinidad and Tobago

(Thousand Barrels per Day)

	Non-OPEC[a]											
	Netherlands Antilles		Norway		Puerto Rico		Russia[b]		Spain		Trinidad and Tobago	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	**585**	**0**	**1**	**0**	**99**	**0**	**26**	**0**	**26**	**0**	**255**	**60**
1974 Average	**511**	**0**	**1**	**1**	**90**	**0**	**20**	**0**	**12**	**0**	**251**	**63**
1975 Average	**332**	**0**	**17**	**12**	**90**	**0**	**14**	**0**	**1**	**0**	**242**	**115**
1976 Average	**275**	**0**	**36**	**35**	**88**	**0**	**11**	**2**	**1**	**0**	**274**	**104**
1977 Average	**211**	**0**	**50**	**48**	**105**	**0**	**12**	**2**	**10**	**0**	**289**	**134**
1978 Average	**229**	**0**	**104**	**104**	**94**	**0**	**8**	**1**	**3**	**0**	**253**	**142**
1979 Average	**231**	**0**	**75**	**75**	**92**	**0**	**1**	**0**	**4**	**0**	**190**	**123**
1980 Average	**225**	**0**	**144**	**144**	**88**	**0**	**1**	**0**	**1**	**0**	**176**	**115**
1981 Average	**197**	**0**	**119**	**114**	**62**	**0**	**5**	**(s)**	**1**	**(s)**	**133**	**102**
1982 Average	**175**	**0**	**102**	**102**	**50**	**0**	**1**	**0**	**3**	**(s)**	**112**	**92**
1983 Average	**189**	**0**	**66**	**65**	**40**	**0**	**1**	**(s)**	**2**	**(s)**	**96**	**83**
1984 Average	**188**	**0**	**114**	**112**	**42**	**0**	**13**	**(s)**	**11**	**0**	**94**	**87**
1985 Average	**40**	**0**	**32**	**31**	**28**	**0**	**8**	**(s)**	**29**	**1**	**113**	**98**
1986 Average	**25**	**0**	**60**	**53**	**21**	**0**	**18**	**(s)**	**53**	**0**	**125**	**93**
1987 Average	**29**	**0**	**80**	**70**	**21**	**0**	**11**	**0**	**55**	**0**	**106**	**75**
1988 Average	**36**	**0**	**67**	**62**	**22**	**0**	**29**	**0**	**68**	**0**	**97**	**71**
1989 Average	**42**	**0**	**138**	**127**	**32**	**0**	**48**	**0**	**67**	**0**	**94**	**73**
1990 Average	**31**	**0**	**102**	**96**	**32**	**0**	**45**	**1**	**47**	**0**	**96**	**76**
1991 Average	**81**	**0**	**82**	**74**	**27**	**0**	**29**	**1**	**33**	**0**	**88**	**72**
1992 January	40	0	25	17	32	0	17	0	35	0	108	79
February	82	0	11	0	23	0	3	0	16	0	109	76
March	49	0	11	0	18	0	0	0	37	0	105	85
April	73	0	155	147	14	0	0	0	35	0	79	75
May	59	0	210	200	22	0	0	0	30	0	69	54
June	83	0	234	225	36	0	0	0	46	0	94	74
July	49	0	186	179	11	0	72	32	18	0	103	78
August	65	0	142	134	38	0	62	31	29	0	106	54
September	60	0	103	102	37	0	53	0	56	0	84	56
October	90	0	190	177	29	0	9	0	32	0	108	71
November	56	0	111	104	26	0	0	0	36	0	85	62
December	80	0	140	133	28	0	0	0	17	0	91	71
Average	**65**	**0**	**127**	**119**	**26**	**0**	**18**	**5**	**32**	**0**	**95**	**70**
1993 January	73	0	70	70	37	0	0	0	44	0	59	48
February	80	0	62	61	21	0	0	0	19	0	72	58
March	61	0	122	115	26	0	0	0	21	0	92	71
April	97	0	170	170	18	0	32	32	61	0	78	55
May	81	0	222	222	38	0	32	32	42	0	68	51
June	55	0	160	160	29	0	77	51	20	0	77	55
July	52	0	215	215	49	0	157	134	41	0	82	53
August	56	0	180	161	30	0	26	0	37	0	50	37
September	101	0	113	113	28	0	57	29	54	0	70	55
October	122	0	115	93	30	0	176	123	33	0	69	54
November	90	0	162	155	23	0	56	32	30	0	66	55
December	118	0	108	101	14	0	38	0	42	0	103	71
Average	**82**	**0**	**142**	**137**	**29**	**0**	**55**	**36**	**37**	**0**	**74**	**55**
1994 January	162	0	101	96	20	0	11	0	26	0	79	60
February	119	0	199	166	11	0	14	0	31	0	92	80
March	102	0	108	108	14	0	34	34	37	0	68	54
April	73	0	205	184	17	0	0	0	45	0	76	56
May	70	0	159	159	21	0	32	32	53	0	68	58
June	69	0	176	158	42	0	133	133	50	0	106	79
July	121	0	276	257	43	0	82	82	25	0	63	55
7-Month Average	**102**	**0**	**174**	**161**	**24**	**0**	**44**	**40**	**38**	**0**	**79**	**63**
1993 7-Month Average	**71**	**0**	**147**	**146**	**31**	**0**	**43**	**36**	**36**	**0**	**76**	**56**
1992 7-Month Average	**62**	**0**	**119**	**110**	**22**	**0**	**13**	**5**	**31**	**0**	**95**	**74**

[a] Includes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] Imports from other States in the former U.S.S.R. may be included in imports from Russia for the years 1973 through 1992.

(s)=Less than 500 barrels per day.

Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

Table 3.3h Petroleum Imports: United Kingdom, Virgin Islands, Other Non-OPEC, Total Non-OPEC, and Total Imports

(Thousand Barrels per Day)

	Non-OPEC[a]						Total Non-OPEC[a,b]		Total Imports	
	United Kingdom		Virgin Islands		Other Non-OPEC					
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	15	0	329	0	153	36	3,263	1,149	6,256	3,244
1974 Average	8	0	391	0	122	30	2,832	937	6,112	3,477
1975 Average	14	(s)	406	0	120	14	2,454	893	6,056	4,105
1976 Average	31	13	422	0	203	101	2,247	742	7,313	5,287
1977 Average	126	97	466	0	287	157	2,614	971	8,807	6,615
1978 Average	180	169	428	0	239	146	2,612	1,172	8,363	6,356
1979 Average	202	197	431	0	269	192	2,819	1,407	8,456	6,519
1980 Average	176	173	388	0	219	162	2,609	1,399	6,909	5,263
1981 Average	375	369	327	0	236	163	2,672	1,474	5,996	4,396
1982 Average	456	441	316	0	306	174	2,968	1,754	5,113	3,488
1983 Average	382	365	282	0	378	215	3,189	1,853	5,051	3,329
1984 Average	402	378	294	0	411	210	3,388	1,914	5,437	3,426
1985 Average	310	278	247	0	394	137	3,237	1,888	5,067	3,201
1986 Average	350	317	244	0	426	144	3,387	2,065	6,224	4,178
1987 Average	352	304	272	0	459	196	3,617	2,274	6,678	4,674
1988 Average	315	254	242	0	487	196	3,882	2,411	7,402	5,107
1989 Average	215	160	321	0	457	197	3,921	2,467	8,061	5,843
1990 Average	189	155	282	0	417	180	3,721	2,381	8,018	5,894
1991 Average	138	106	243	0	282	137	3,535	2,405	7,627	5,782
1992 January	129	115	250	0	208	59	3,488	2,402	7,712	5,956
February	63	0	222	0	196	50	3,278	2,184	6,827	5,079
March	79	52	202	0	345	114	3,462	2,380	7,068	5,321
April	157	128	234	0	458	212	4,007	2,793	8,092	6,127
May	198	180	246	0	467	225	3,705	2,633	7,823	6,060
June	248	206	266	0	297	95	3,917	2,741	7,946	6,171
July	354	337	280	0	415	152	4,140	3,024	8,479	6,796
August	295	282	263	0	464	357	4,116	2,984	8,260	6,457
September	341	291	217	0	382	160	3,904	2,687	8,178	6,218
October	411	411	254	0	279	144	3,998	2,964	8,505	6,696
November	336	285	274	0	219	124	3,786	2,745	7,872	6,121
December	148	110	273	0	283	92	3,734	2,556	7,839	5,937
Average	230	200	249	0	335	149	3,796	2,676	7,888	6,083
1993 January	229	201	252	0	325	104	[b]3,766	[b]2,672	8,004	6,292
February	173	127	244	0	223	151	3,452	2,471	7,948	6,156
March	332	298	244	0	393	186	4,003	2,918	8,285	6,488
April	413	337	245	0	472	243	4,161	2,995	8,768	6,928
May	522	495	279	0	363	152	4,353	3,179	8,663	6,809
June	458	408	290	0	581	405	4,452	3,455	8,805	7,201
July	292	247	202	0	600	299	4,801	3,574	9,219	7,289
August	343	323	256	0	556	356	4,378	3,210	8,429	6,641
September	286	217	184	0	552	251	4,517	3,173	8,531	6,581
October	353	338	236	0	453	233	4,984	3,698	9,197	7,181
November	351	340	330	0	503	270	4,739	3,434	8,903	6,997
December	432	403	288	0	394	231	4,486	3,298	8,645	6,838
Average	350	312	254	0	452	240	4,347	3,178	8,620	6,787
1994 January	205	161	276	0	353	181	4,271	3,041	7,914	5,961
February	290	232	351	0	441	111	4,687	3,077	8,501	6,313
March	459	394	325	0	454	191	4,755	3,366	8,500	6,377
April	377	282	325	0	488	212	4,550	3,227	8,927	6,937
May	404	345	312	0	643	390	4,784	3,409	9,155	7,163
June	537	485	361	0	405	209	4,766	3,520	9,263	7,358
July	678	578	294	0	634	400	5,253	3,986	[R]9,778	[R]7,867
7-Month Average	423	355	320	0	489	244	4,725	3,379	8,866	6,859
1993 7-Month Average	347	304	251	0	424	220	4,149	3,044	8,533	6,743
1992 7-Month Average	176	146	243	0	342	130	3,715	2,596	7,712	5,936

[a] Includes petroleum imported into the United States indirectly from members of the Organization of Petroleum Exporting Countries (OPEC), primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

[b] As of January 1993, includes petroleum imported from Ecuador, which withdrew from OPEC on December 31, 1992.

R=Revised data. (s)=Less than 500 barrels per day.

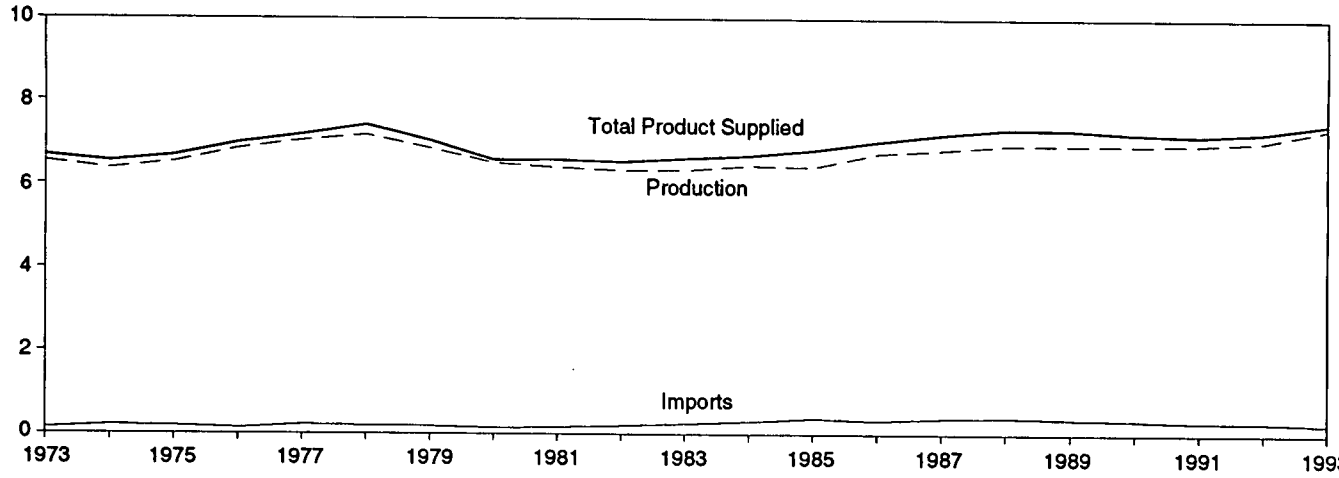
Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S3.

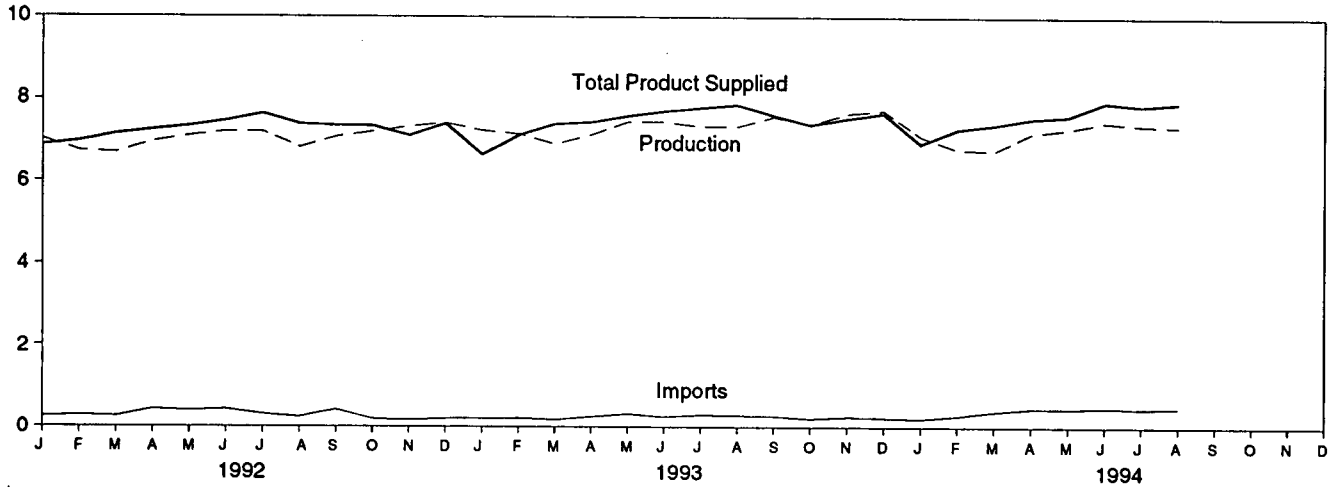
Figure 3.2 Finished Motor Gasoline

(Million Barrels per Day, Except as Noted)

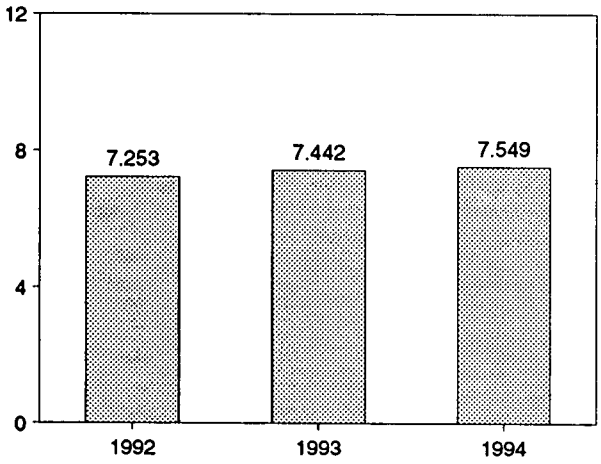
Overview, 1973-1993



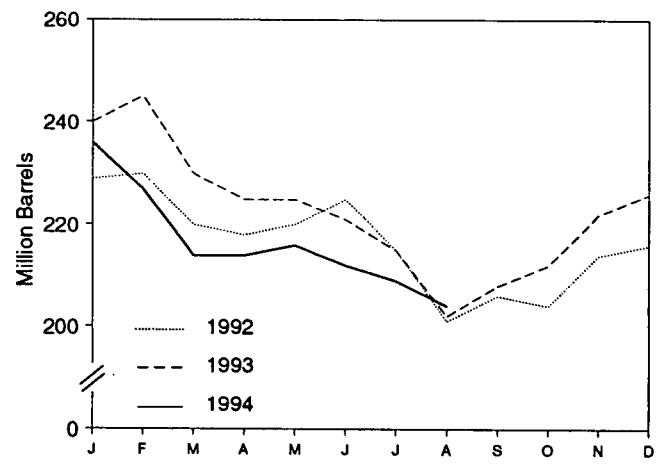
Overview, Monthly



Total Product Supplied, January-August



Total Stocks, End of Month



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 3.4.

Table 3.4 Finished Motor Gasoline Supply and Disposition

	Supply		Disposition			Motor Gasoline Ending Stocks[a]		Oxygenates Ending Stocks[a]
	Total Production	Imports[b]	Stock Change[b,c]	Exports	Product Supplied	Total[d]	Finished	
	Thousand Barrels per Day					Million Barrels		
1973 Average	6,535	134	-9	4	6,674	209	NA	NA
1974 Average	6,360	204	24	2	6,537	[e]218	NA	NA
1975 Average	6,520	184	[e]28	2	6,675	235	NA	NA
1976 Average	6,841	131	-10	3	6,978	231	NA	NA
1977 Average	7,033	217	72	2	7,177	258	NA	NA
1978 Average	7,169	190	-54	1	7,412	238	NA	NA
1979 Average	6,852	181	-2	(s)	7,034	237	NA	NA
1980 Average	6,506	140	66	1	6,579	[e]261	NA	NA
1981 Average[f]	6,405	157	[e]-28	2	6,588	253	203	NA
1982 Average	6,338	197	-25	20	6,539	[e]235	[e]194	NA
1983 Average	6,340	247	[e]-45	10	6,622	222	186	NA
1984 Average	6,453	299	54	6	6,693	243	205	NA
1985 Average	6,419	381	-41	10	6,831	223	190	NA
1986 Average	6,752	326	11	33	7,034	233	194	NA
1987 Average	6,841	384	-15	35	7,206	226	189	NA
1988 Average	6,956	405	3	22	7,336	228	190	NA
1989 Average	6,963	369	-35	39	7,328	213	177	NA
1990 Average	6,959	342	10	55	7,235	220	181	NA
1991 Average	6,975	297	3	82	7,188	219	182	NA
1992 January	7,013	246	304	87	6,869	229	191	NA
February	6,726	275	-22	59	6,963	230	191	NA
March	6,683	247	-278	71	7,137	220	182	NA
April	6,954	428	54	90	7,238	218	183	NA
May	7,092	392	74	82	7,328	220	186	NA
June	7,198	424	76	86	7,460	225	188	NA
July	7,195	303	-249	108	7,639	215	180	NA
August	6,817	240	-446	123	7,380	201	167	NA
September	7,071	418	60	85	7,344	206	168	NA
October	7,198	193	-41	94	7,338	204	167	NA
November	7,323	170	318	74	7,102	214	177	NA
December	7,411	202	32	184	7,396	216	178	NA
Average	7,058	294	-11	96	7,268	216	178	NA
1993 January	[g]7,228	204	652	142	[g]6,639	240	198	[h]15
February	7,144	216	149	99	7,112	245	202	14
March	6,904	177	-417	109	7,389	230	189	15
April	7,126	253	-168	111	7,435	225	184	15
May	7,446	323	93	90	7,585	225	187	17
June	7,442	251	-88	81	7,700	221	184	18
July	7,337	300	-240	92	7,785	215	177	20
August	7,335	283	-323	77	7,864	202	167	21
September	7,573	267	148	85	7,607	208	171	19
October	7,394	210	142	80	7,382	212	176	18
November	7,652	252	245	126	7,533	222	183	16
December	7,725	231	132	162	7,661	226	187	13
Average	7,360	247	26	105	7,476	226	187	13
1994 January	7,098	206	291	97	6,916	236	195	11
February	6,780	281	-288	77	7,272	227	187	11
March	6,740	387	-340	88	7,379	214	176	13
April	7,171	460	28	73	7,530	214	177	15
May	7,282	464	90	64	7,592	216	180	16
June	7,448	473	-93	88	7,926	212	177	18
July	[R]7,372	[R]464	[R]-88	[R]78	[R]7,846	209	174	22
August	[E]7,333	[E]474	[E]-181	[E]74	[E]7,914	[E]204	[E]168	NA
8-Month Average	[E]7,156	[E]402	[E]-70	[E]80	[E]7,549	[E]204	[E]168	NA
1993 8-Month Average	7,246	251	-45	100	7,442	202	167	21
1992 8-Month Average	6,961	319	-62	89	7,253	201	167	NA

[a] Stocks are totals as of end of period.
[b] From 1981 forward, blending components are excluded.
[c] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[d] Includes motor gasoline blending components and gasohol, but excludes oxygenates, which are reported separately.
[e] See Note 4 at end of section.
[f] See Note 2 at end of section.
[g] Beginning in 1993, motor gasoline production and product supplied include blending of fuel ethanol and an adjustment to correct for the imbalance of motor gasoline blending components. See Note 2 at end of section.
[h] See Note 1 at end of section.

R=Revised data. NA=Not available. E=Estimate. (s)=Less than 500 barrels per day.

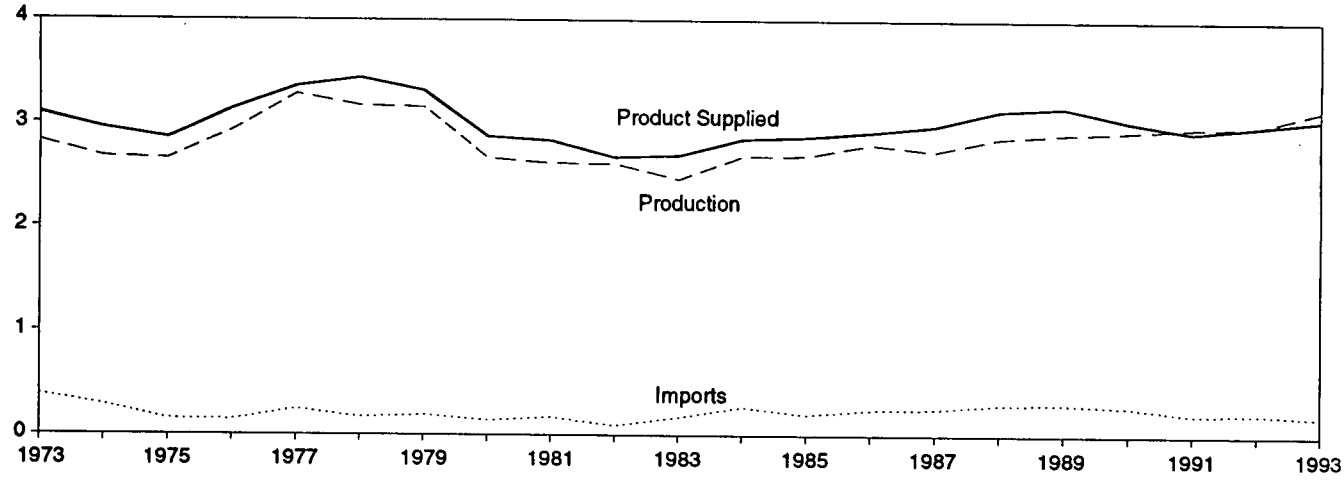
Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S4. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S4.

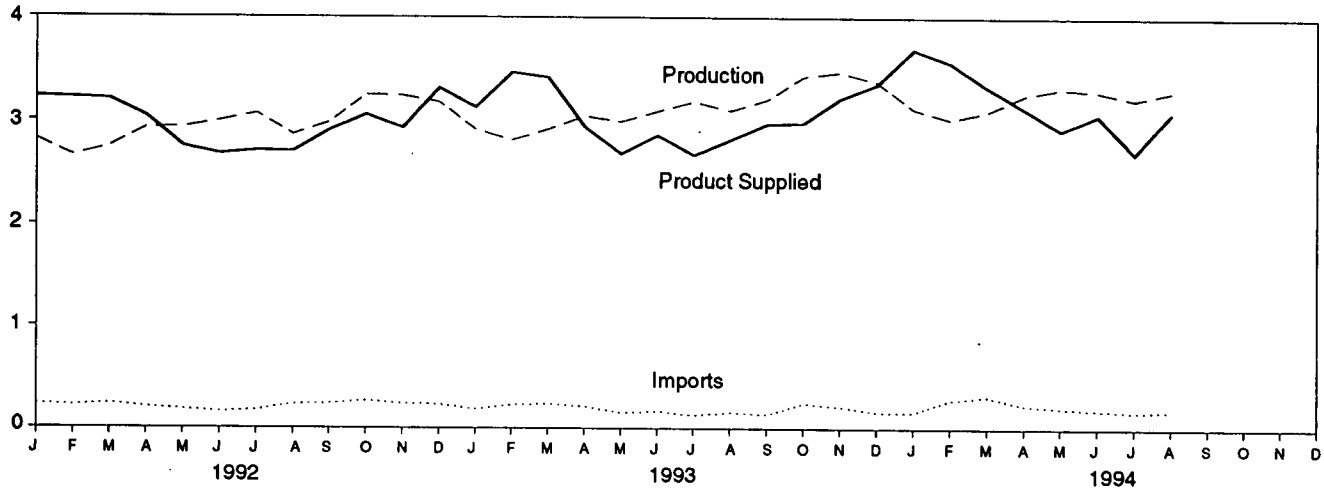
Figure 3.3 Distillate Fuel

(Million Barrels per Day, Except as Noted)

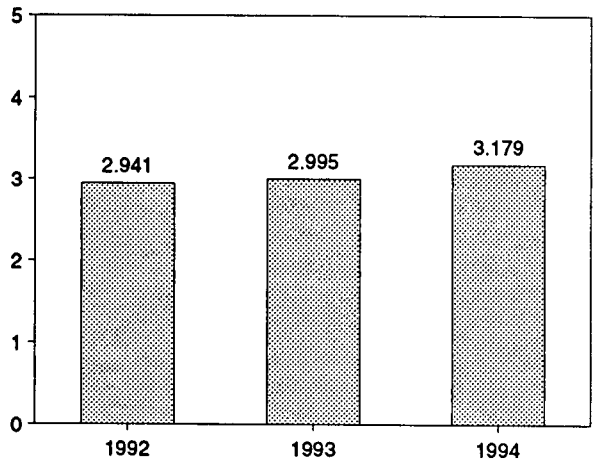
Overview, 1973-1993



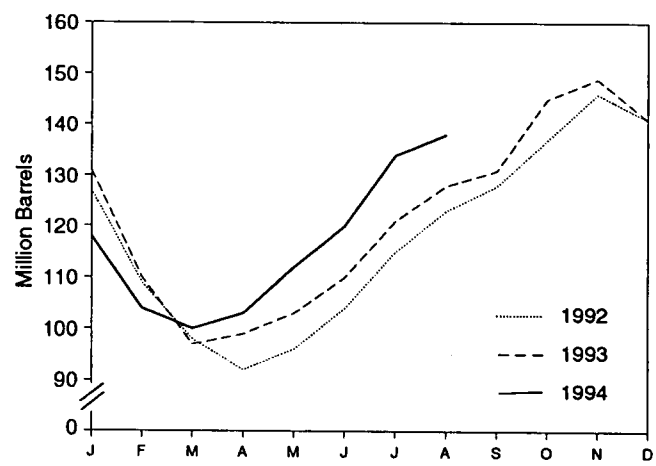
Overview, Monthly



Product Supplied, January-August



Stocks, End of Month



Source: Table 3.5.

Table 3.5 Distillate Fuel Oil Supply and Disposition

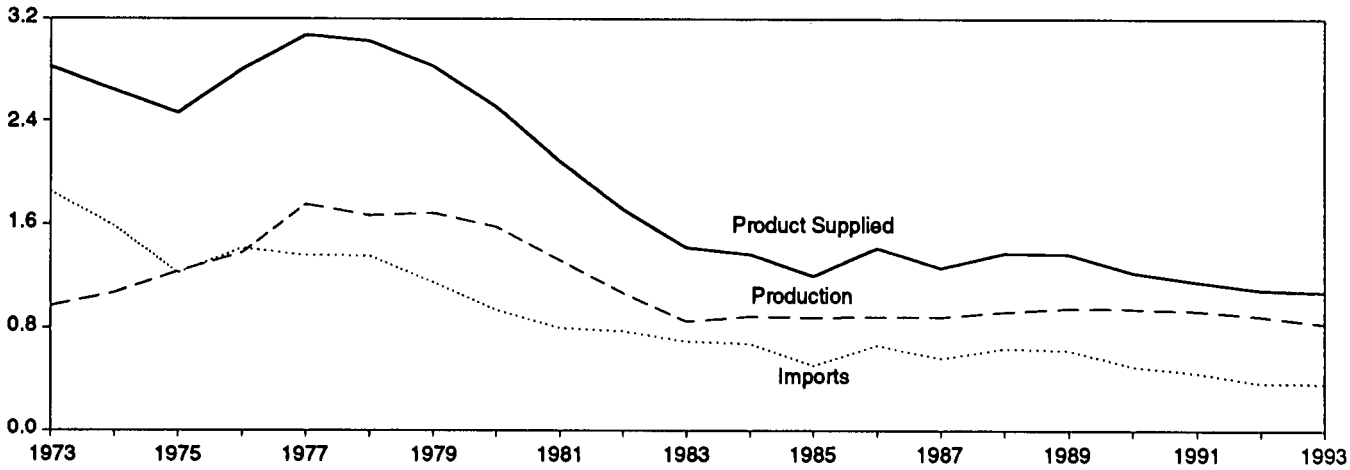
	Supply			Disposition			Ending Stocks[a]		
								Sulfur Content	
	Total Production	Imports	Crude Oil Used Directly[b]	Stock Change[c]	Exports	Product Supplied[b]	Total	0.05 Percent or Less[d]	Greater Than 0.05 Percent[d]
	Thousand Barrels per Day						Million Barrels		
1973 Average	**2,822**	**392**	**2**	**115**	**9**	**3,092**	**196**	**NA**	**NA**
1974 Average	**2,669**	**289**	**2**	**[e] 10**	**2**	**2,948**	**[f] 200**	**NA**	**NA**
1975 Average	**2,654**	**155**	**2**	**[e,f] -41**	**1**	**2,851**	**209**	**NA**	**NA**
1976 Average	**2,924**	**146**	**1**	**-62**	**1**	**3,133**	**186**	**NA**	**NA**
1977 Average	**3,278**	**250**	**1**	**176**	**1**	**3,352**	**250**	**NA**	**NA**
1978 Average	**3,167**	**173**	**1**	**-93**	**3**	**3,432**	**216**	**NA**	**NA**
1979 Average	**3,153**	**193**	**1**	**34**	**3**	**3,311**	**229**	**NA**	**NA**
1980 Average	**2,662**	**142**	**1**	**-64**	**3**	**2,866**	**[f] 205**	**NA**	**NA**
1981 Average[g]	**2,613**	**173**	**10**	**[f] -38**	**5**	**2,829**	**192**	**NA**	**NA**
1982 Average	**2,606**	**93**	**10**	**-35**	**74**	**2,671**	**[f] 179**	**NA**	**NA**
1983 Average	**2,456**	**174**	**–**	**[f] -124**	**64**	**2,690**	**140**	**NA**	**NA**
1984 Average	**2,681**	**272**	**–**	**57**	**51**	**2,845**	**161**	**NA**	**NA**
1985 Average	**2,687**	**200**	**–**	**-48**	**67**	**2,868**	**144**	**NA**	**NA**
1986 Average	**2,798**	**247**	**–**	**31**	**100**	**2,914**	**155**	**NA**	**NA**
1987 Average	**2,731**	**255**	**–**	**-56**	**66**	**2,976**	**134**	**NA**	**NA**
1988 Average	**2,859**	**302**	**–**	**-30**	**69**	**3,122**	**124**	**NA**	**NA**
1989 Average	**2,899**	**306**	**–**	**-49**	**97**	**3,157**	**106**	**NA**	**NA**
1990 Average	**2,925**	**278**	**–**	**73**	**109**	**3,021**	**132**	**NA**	**NA**
1991 Average	**2,962**	**205**	**–**	**31**	**215**	**2,921**	**144**	**NA**	**NA**
1992 January	2,818	232	–	-541	360	3,231	127	NA	NA
February	2,661	217	–	-619	278	3,219	109	NA	NA
March	2,749	238	–	-358	138	3,207	98	NA	NA
April	2,930	202	–	-185	278	3,039	92	NA	NA
May	2,933	179	–	139	222	2,753	96	NA	NA
June	2,995	157	–	268	205	2,679	104	NA	NA
July	3,067	172	–	328	201	2,710	115	NA	NA
August	2,865	229	–	262	127	2,705	123	NA	NA
September	2,983	237	–	168	145	2,908	128	NA	NA
October	3,251	263	–	290	169	3,056	137	NA	NA
November	3,240	236	–	316	230	2,929	146	NA	NA
December	3,179	229	–	-183	276	3,316	141	NA	NA
Average	**2,974**	**216**	**–**	**-8**	**219**	**2,979**	**141**	**NA**	**NA**
1993 January	2,914	182	–	-318	287	3,128	131	[g] 15	[g] 115
February	2,815	224	–	-727	301	3,465	110	12	99
March	2,919	235	–	-420	154	3,420	97	11	87
April	3,047	209	–	71	241	2,943	99	12	88
May	2,994	153	–	106	355	2,685	103	12	91
June	3,093	168	–	241	158	2,863	110	15	95
July	3,186	130	–	346	296	2,674	121	21	100
August	3,100	159	–	243	196	2,820	128	44	84
September	3,205	137	–	102	267	2,973	131	48	84
October	3,432	242	–	453	237	2,983	145	55	90
November	3,474	214	–	127	342	3,218	149	64	85
December	3,382	160	–	-267	453	3,357	141	64	77
Average	**3,132**	**184**	**–**	**1**	**274**	**3,041**	**141**	**64**	**77**
1994 January	3,117	160	–	-746	332	3,692	118	56	62
February	3,019	276	–	-505	235	3,565	104	49	55
March	3,095	313	–	-142	220	3,330	100	50	50
April	3,250	226	–	100	252	3,124	103	56	46
May	3,319	202	–	317	289	2,915	112	61	52
June	3,287	181	–	239	168	3,061	120	61	58
July	[R] 3,211	[R] 164	–	[R] 461	[R] 220	[R] 2,694	[R] 134	[R] 68	[R] 65
August	[E] 3,286	[E] 173	–	[E] 170	[E] 205	[E] 3,085	[E] 138	[E] 66	[E] 72
8-Month Average	**[E] 3,200**	**[E] 211**	**–**	**[E] -9**	**[E] 240**	**[E] 3,179**	**[E] 138**	**[E] 66**	**[E] 72**
1993 8-Month Average	**3,010**	**182**	**–**	**-51**	**248**	**2,995**	**128**	**44**	**84**
1992 8-Month Average	**2,878**	**203**	**–**	**-85**	**226**	**2,941**	**123**	**NA**	**NA**

[a] Stocks are totals as of end of period.
[b] Beginning in January 1983, crude oil used directly as distillate fuel oil is reported as crude oil product supplied on Table 3.2b rather than as distillate fuel oil product supplied.
[c] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[d] By weight.
[e] See Note 6 at end of section.
[f] See Note 4 at end of section.
[g] See Note 3 at end of section.
R=Revised data. NA=Not available. – =Not applicable. E=Estimate.
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S5. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S5.

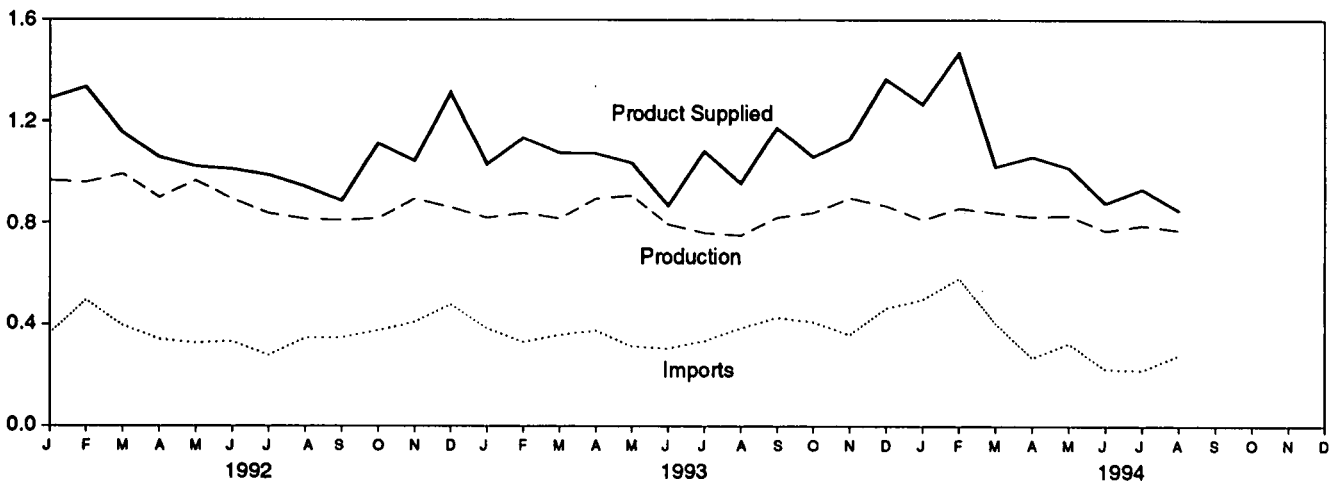
Figure 3.4 Residual Fuel

(Million Barrels per Day, Except as Noted)

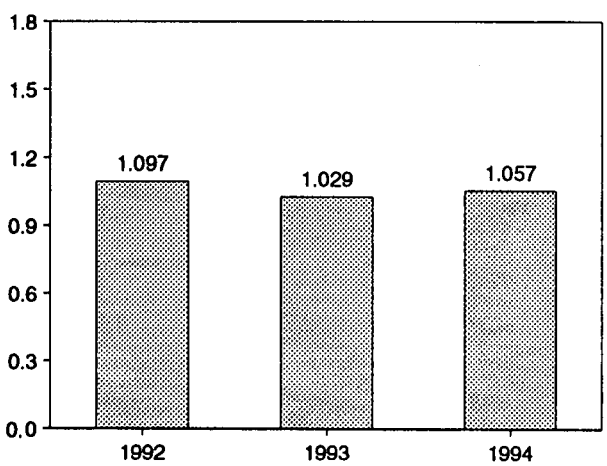
Overview, 1973-1993



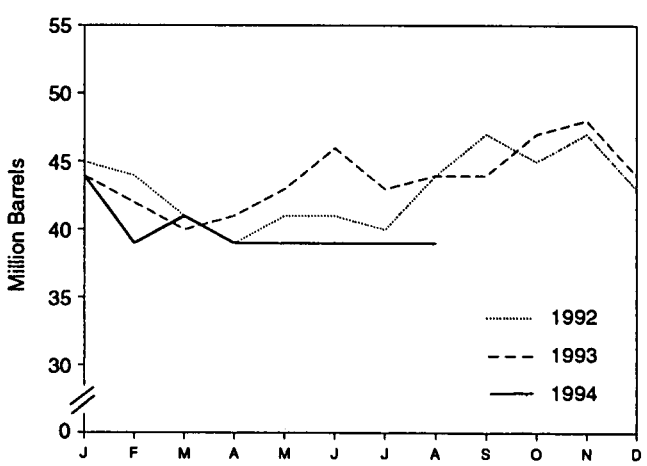
Overview, Monthly



Product Supplied, January-August



Stocks, End of Month



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 3.6.

Table 3.6 Residual Fuel Oil Supply and Disposition

	Supply			Disposition			
	Total Production	Imports	Crude Oil Used Directly[a]	Stock Change[b]	Exports	Product Supplied[a]	Ending Stocks[c]
	Thousand Barrels per Day						Million Barrels
1973 Average	971	1,853	17	-5	23	2,822	53
1974 Average	1,070	1,587	13	17	14	2,639	[d]60
1975 Average	1,235	1,223	15	[d]-2	15	2,462	74
1976 Average	1,377	1,413	17	-5	12	2,801	72
1977 Average	1,754	1,359	13	48	6	3,071	90
1978 Average	1,667	1,355	13	1	13	3,023	90
1979 Average	1,687	1,151	12	15	9	2,826	96
1980 Average	1,580	939	12	-10	33	2,508	[d]92
1981 Average[e]	1,321	800	48	[d]-37	118	2,088	78
1982 Average	1,070	776	48	-32	209	1,716	[d]66
1983 Average	852	699	–	[d]-55	185	1,421	49
1984 Average	891	681	–	12	190	1,369	53
1985 Average	882	510	–	-7	197	1,202	50
1986 Average	889	669	–	-8	147	1,418	47
1987 Average	885	565	–	(s)	186	1,264	47
1988 Average	926	644	–	-8	200	1,378	45
1989 Average	954	629	–	-2	215	1,370	44
1990 Average	950	504	–	13	211	1,229	49
1991 Average	934	453	–	4	226	1,158	50
1992 January	965	364	–	-144	184	1,289	45
February	957	498	–	-55	176	1,334	44
March	990	397	–	-77	310	1,154	41
April	900	342	–	-78	265	1,055	39
May	964	328	–	67	207	1,019	41
June	894	334	–	-11	230	1,009	41
July	838	280	–	-37	169	986	40
August	815	347	–	125	96	941	44
September	810	349	–	123	149	887	47
October	818	376	–	-72	156	1,110	45
November	895	411	–	49	216	1,041	47
December	862	481	–	-127	158	1,312	43
Average	892	375	–	-20	193	1,094	43
1993 January	820	385	–	44	133	1,028	44
February	840	332	–	-74	113	1,132	42
March	818	360	–	-47	152	1,073	40
April	896	377	–	32	169	1,071	41
May	908	316	–	54	137	1,033	43
June	795	308	–	87	147	870	46
July	762	337	–	-102	122	1,079	43
August	752	387	–	64	120	955	44
September	822	430	–	-31	110	1,173	44
October	841	412	–	103	94	1,057	47
November	899	361	–	48	86	1,126	48
December	869	467	–	-129	98	1,367	44
Average	835	373	–	4	123	1,080	44
1994 January	813	503	–	-16	64	1,267	44
February	859	586	–	-152	127	1,470	39
March	841	407	–	54	175	1,019	41
April	825	272	–	-70	110	1,057	39
May	830	328	–	13	129	1,015	39
June	770	227	–	-3	122	879	39
July	[R]791	[R]223	–	[R]-2	[R]83	[R]933	[R]39
August	[E]773	[E]283	–	[E]64	[E]142	[E]850	[E]39
8-Month Average	[E]812	[E]352	–	[E]-12	[E]119	[E]1,057	[E]39
1993 8-Month Average	824	350	–	8	137	1,029	44
1992 8-Month Average	915	360	–	-26	204	1,097	44

[a] Beginning in January 1983, crude oil used directly as residual fuel oil is reported as crude oil product supplied on Table 3.2b rather than as residual fuel oil product supplied.

[b] A negative number indicates a decrease in stocks and a positive number indicates an increase.

[c] Stocks are totals as of end of period.

[d] See Note 4 at end of section.

[e] See Note 3 at end of section.

R=Revised data. – =Not applicable. E=Estimate. (s)=Less than +500 barrels per day and greater than -500 barrels per day.

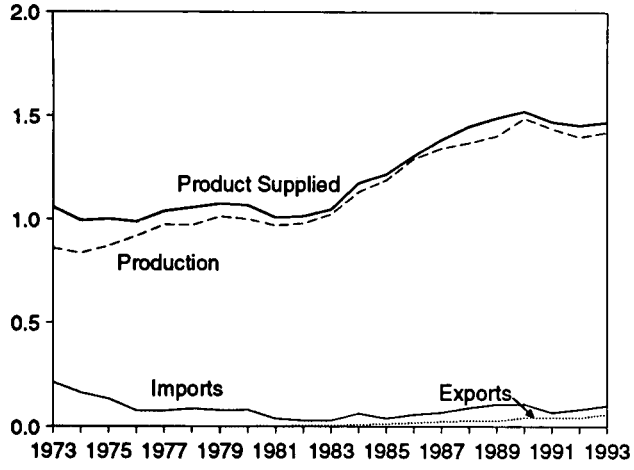
Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S6. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S6.

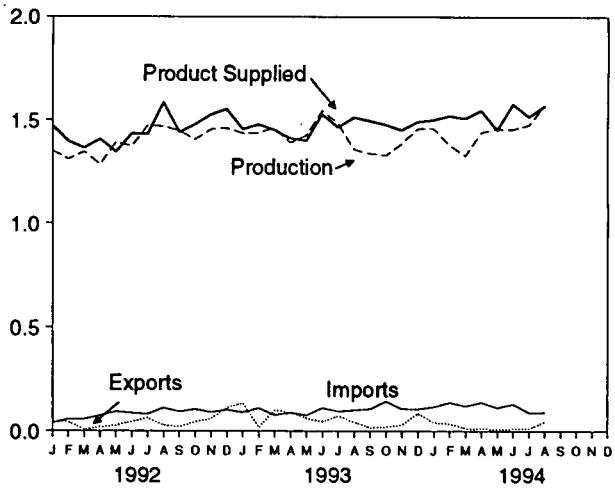
Figure 3.5 Jet Fuel

(Million Barrels per Day, Except as Noted)

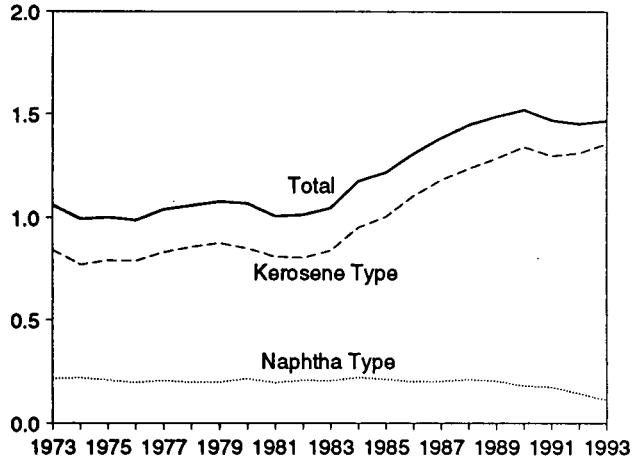
Total Jet Fuel Overview, 1973-1993



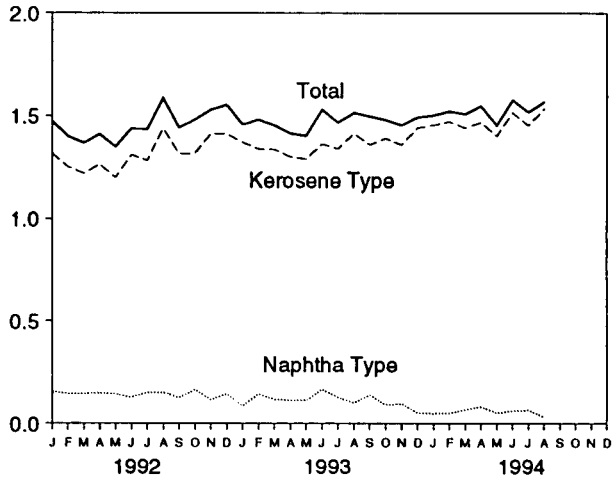
Total Jet Fuel Overview, Monthly



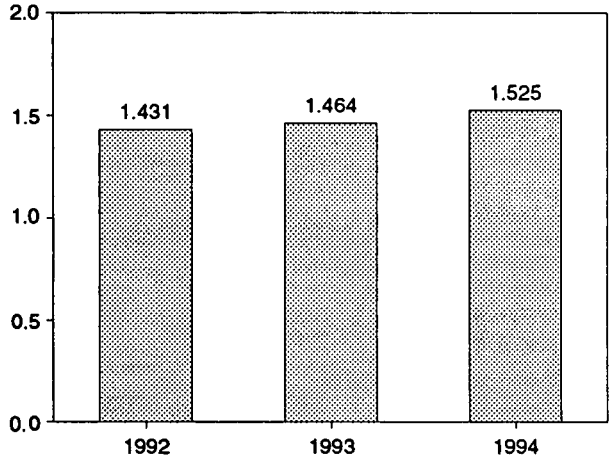
Product Supplied by Type, 1973-1993



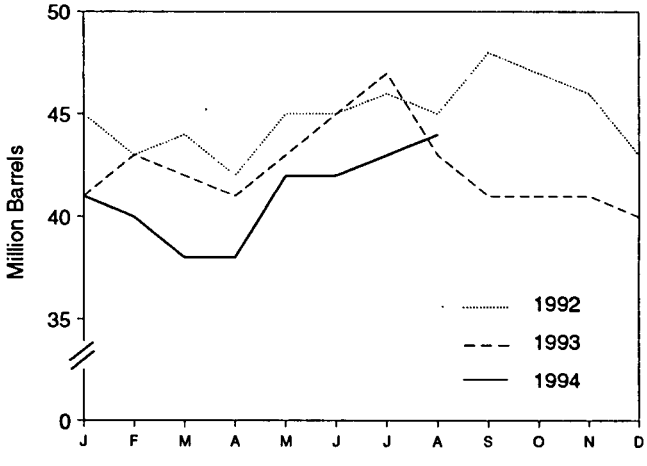
Product Supplied by Type, Monthly



Total Product Supplied, January-August



Total Stocks, End of Month



Source: Table 3.7.

Table 3.7 Jet Fuel Supply and Disposition

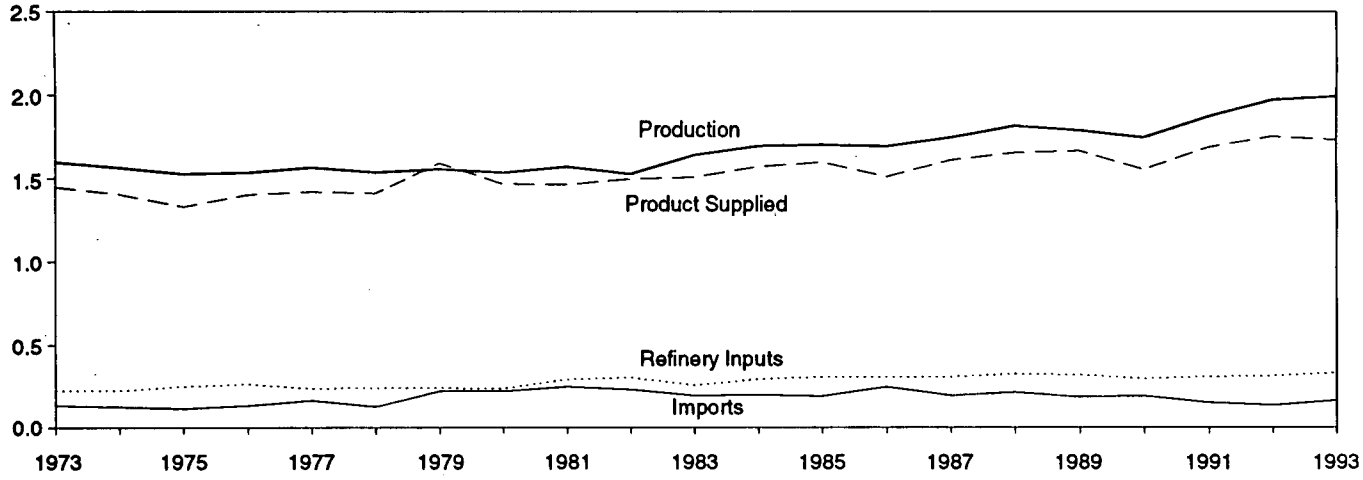
	Supply			Disposition				Ending Stocks[a]	
	Production		Imports	Stock Change[b]	Exports	Product Supplied			
	Total	Kerosene Type				Total	Kerosene Type	Total	Kerosene Type
	Thousand Barrels per Day							Million Barrels	
1973 Average	859	679	212	8	4	1,059	842	29	23
1974 Average	836	641	163	2	3	993	771	[c]29	[c]24
1975 Average	871	691	133	[c]2	2	1,001	791	30	25
1976 Average	918	731	76	5	2	987	789	32	26
1977 Average	973	787	75	7	2	1,039	831	35	28
1978 Average	970	791	86	-2	1	1,057	858	34	28
1979 Average	1,012	835	78	13	1	1,076	876	39	33
1980 Average	999	811	80	10	1	1,068	851	[c]42	[c]36
1981 Average	968	775	38	[c]-4	2	1,007	809	41	34
1982 Average	978	778	29	-12	6	1,013	804	[c]37	[c]31
1983 Average	1,022	817	29	[c](s)	6	1,046	839	39	32
1984 Average	1,132	919	62	9	9	1,175	953	42	35
1985 Average	1,189	983	39	-4	13	1,218	1,005	40	34
1986 Average	1,293	1,097	57	25	18	1,307	1,105	50	43
1987 Average	1,343	1,138	67	(s)	24	1,385	1,181	50	42
1988 Average	1,370	1,164	90	-17	28	1,449	1,236	44	38
1989 Average	1,403	1,197	106	-8	27	1,489	1,284	41	34
1990 Average	1,488	1,311	108	31	43	1,522	1,340	52	46
1991 Average	1,438	1,274	67	-9	43	1,471	1,296	49	44
1992 January	1,352	1,200	39	-127	44	1,473	1,314	45	40
February	1,311	1,164	56	-73	42	1,398	1,250	43	38
March	1,347	1,215	56	31	7	1,365	1,218	44	39
April	1,286	1,131	74	-68	18	1,409	1,262	42	37
May	1,393	1,214	93	114	26	1,346	1,198	45	40
June	1,374	1,234	86	-21	45	1,436	1,308	45	39
July	1,473	1,328	81	59	62	1,433	1,280	46	42
August	1,471	1,339	111	-32	28	1,585	1,438	45	41
September	1,448	1,296	93	78	20	1,442	1,313	48	43
October	1,408	1,265	105	-12	44	1,480	1,315	47	43
November	1,456	1,319	90	-41	59	1,528	1,411	46	41
December	1,462	1,336	102	-101	112	1,553	1,410	43	39
Average	1,399	1,254	82	-16	43	1,454	1,310	43	39
1993 January	1,437	1,308	89	-64	134	1,456	1,369	41	36
February	1,440	1,316	110	53	17	1,480	1,337	43	38
March	1,463	1,332	76	-15	101	1,453	1,335	42	38
April	1,391	1,265	88	-23	88	1,413	1,299	41	37
May	1,427	1,302	75	42	60	1,401	1,288	43	38
June	1,547	1,407	111	83	45	1,530	1,362	45	41
July	1,485	1,359	94	42	71	1,466	1,338	47	43
August	1,358	1,257	100	-98	42	1,514	1,413	43	40
September	1,338	1,241	106	-69	16	1,497	1,357	41	38
October	1,329	1,242	143	-27	20	1,479	1,389	41	37
November	1,386	1,301	105	8	29	1,453	1,357	41	38
December	1,459	1,382	105	-13	85	1,493	1,441	40	38
Average	1,422	1,309	100	-7	59	1,469	1,357	40	38
1994 January	1,461	1,394	116	36	40	1,502	1,453	41	39
February	1,379	1,331	138	-41	35	1,522	1,471	40	38
March	1,327	1,271	120	-77	14	1,509	1,440	38	36
April	1,442	1,393	138	20	12	1,548	1,467	38	36
May	1,456	1,402	112	106	9	1,453	1,401	42	40
June	1,456	1,399	130	-2	11	1,578	1,516	42	40
July	[R]1,477	[R]1,420	[R]88	[R]36	[R]11	[R]1,518	[R]1,452	43	41
August	[E]1,572	[E]1,528	[E]89	[E]47	[E]45	[E]1,569	[E]1,536	[E]44	[E]43
8-Month Average	[E]1,447	[E]1,393	[E]116	[E]16	[E]22	[E]1,525	[E]1,467	[E]44	[E]43
1993 8-Month Average	1,443	1,318	92	2	70	1,464	1,343	43	40
1992 8-Month Average	1,377	1,229	75	-14	34	1,431	1,284	45	41

[a] Stocks are totals as of end of period.
[b] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[c] See Note 4 at end of section.
R=Revised data. E=Estimate. (s)=Less than +500 barrels per day and greater than -500 barrels per day.
Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S7. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S7.

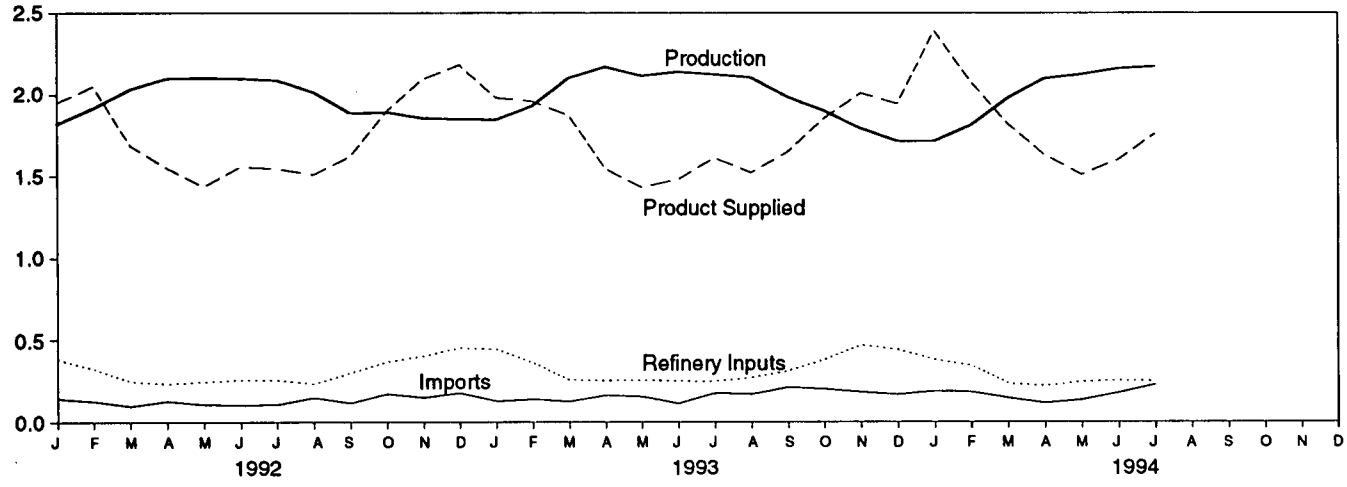
Figure 3.6 Liquefied Petroleum Gases

(Million Barrels per Day, Except as Noted)

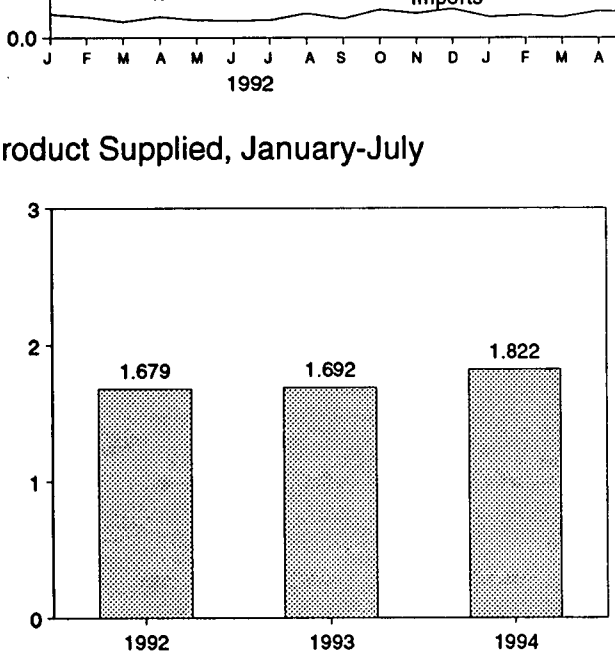
Overview, 1973-1993



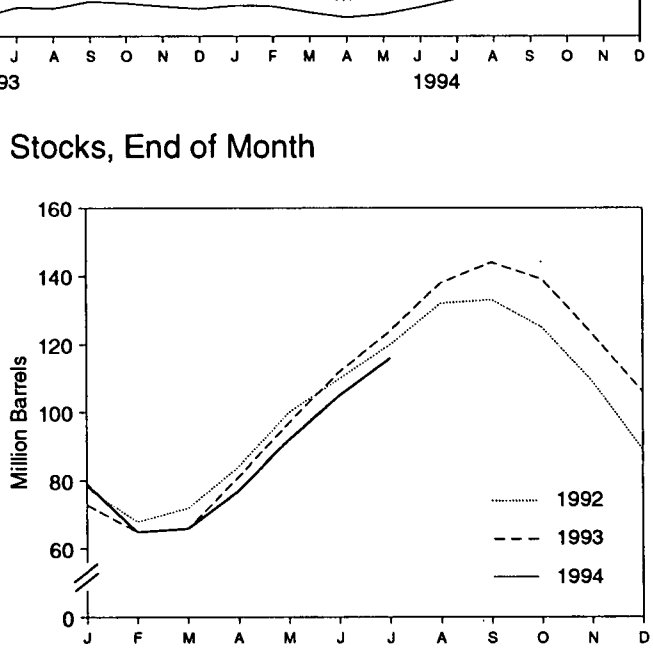
Overview, Monthly



Product Supplied, January-July



Stocks, End of Month



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 3.8.

Table 3.8 Liquefied Petroleum Gases Supply and Disposition

	Supply		Disposition				
	Total Production	Imports	Stock Change[a]	Refinery Inputs	Exports	Product Supplied	Ending Stocks[b]
	Thousand Barrels per Day						Million Barrels
1973 Average	**1,600**	**132**	**35**	**220**	**27**	**1,449**	**99**
1974 Average	**1,565**	**123**	**38**	**220**	**25**	**1,406**	[c] **113**
1975 Average	**1,527**	**112**	[c] **35**	**246**	**26**	**1,333**	**125**
1976 Average	**1,535**	**130**	**-24**	**260**	**25**	**1,404**	**116**
1977 Average	**1,566**	**161**	**55**	**233**	**18**	**1,422**	**136**
1978 Average	**1,537**	**123**	**-12**	**239**	**20**	**1,413**	[c] **132**
1979 Average	**1,556**	**217**	[c] **-70**	**236**	**15**	**1,592**	**111**
1980 Average	**1,535**	**216**	**27**	**233**	**21**	**1,469**	[c] **120**
1981 Average	**1,571**	**244**	[c] **18**	**289**	**42**	**1,466**	**135**
1982 Average	[d] **1,527**	**226**	**-111**	**300**	**65**	**1,499**	[c] **94**
1983 Average	**1,642**	**190**	[c] **-4**	**253**	**73**	**1,509**	[c] **101**
1984 Average	**1,697**	**195**	[c] **-19**	**291**	**48**	**1,572**	**101**
1985 Average	**1,704**	**187**	**-75**	**304**	**62**	**1,599**	**74**
1986 Average	**1,695**	**242**	**80**	**302**	**42**	**1,512**	**103**
1987 Average	**1,748**	**190**	**-15**	**304**	**38**	**1,612**	**97**
1988 Average	**1,817**	**209**	**1**	**321**	**49**	**1,656**	**97**
1989 Average	**1,791**	**181**	**-47**	**315**	**35**	**1,668**	**80**
1990 Average	**1,749**	**188**	**48**	**293**	**40**	**1,556**	**98**
1991 Average	**1,871**	**147**	**-15**	**304**	**41**	**1,689**	**92**
1992 January	1,820	142	-452	384	80	1,950	78
February	1,917	126	-365	326	33	2,051	68
March	2,033	97	153	247	43	1,687	72
April	2,102	127	401	233	45	1,549	84
May	2,106	106	489	245	44	1,433	100
June	2,102	104	334	257	59	1,556	110
July	2,090	106	345	255	52	1,544	120
August	2,016	148	369	233	55	1,507	132
September	1,886	114	37	299	45	1,620	133
October	1,892	171	-242	369	39	1,898	125
November	1,854	148	-541	403	43	2,097	109
December	1,849	176	-660	453	49	2,184	89
Average	**1,972**	**131**	**-10**	**309**	**49**	**1,755**	**89**
1993 January	1,845	126	-492	444	39	1,980	73
February	1,929	138	-309	363	55	1,958	65
March	2,103	124	53	256	47	1,871	66
April	2,172	161	472	250	69	1,542	81
May	2,116	153	540	254	50	1,425	97
June	2,141	111	489	247	41	1,476	112
July	2,125	175	391	246	54	1,609	124
August	2,105	168	442	269	45	1,517	138
September	1,984	210	204	312	35	1,644	144
October	1,899	200	-154	381	21	1,851	139
November	1,789	181	-527	469	21	2,007	123
December	1,710	166	-545	440	40	1,942	106
Average	**1,993**	**160**	**49**	**327**	**43**	**1,734**	**106**
1994 January	1,710	187	-902	381	28	2,390	79
February	1,809	182	-474	343	44	2,077	65
March	1,976	144	35	232	37	1,816	66
April	2,099	114	341	218	29	1,625	77
May	2,123	133	477	243	32	1,505	92
June	2,161	177	448	251	41	1,597	105
July	2,174	227	358	246	40	1,757	116
7-Month Average	**2,009**	**166**	**44**	**273**	**36**	**1,822**	**116**
1993 7-Month Average	**2,062**	**141**	**167**	**294**	**50**	**1,692**	**124**
1992 7-Month Average	**2,024**	**115**	**132**	**278**	**51**	**1,679**	**120**

[a] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[b] Stocks are totals as of end of period.
[c] See Note 4 at end of section.
[d] See Note 6 at end of section.

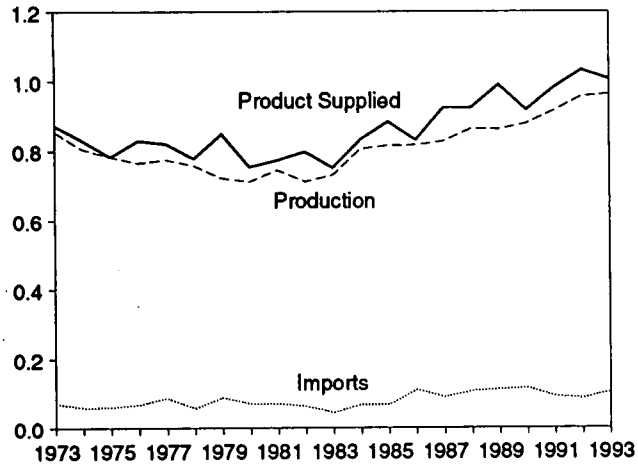
Notes: • Liquefied petroleum gases include ethane, ethylene, propane, propylene, normal butane, butylene, isobutane and isobutylene. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S8. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S9.

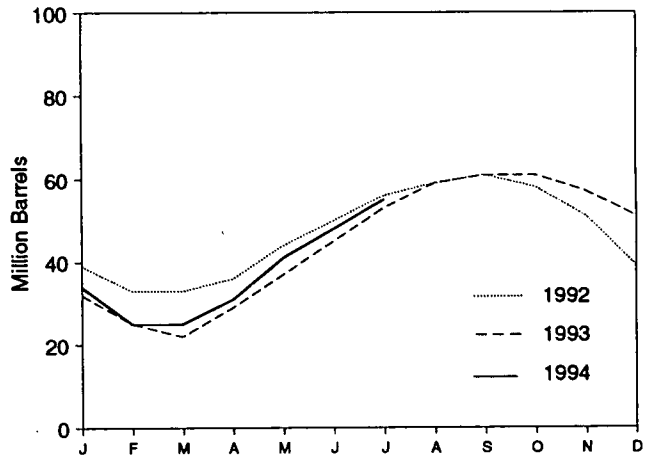
Figure 3.7 Propane and Propylene

(Million Barrels per Day, Except as Noted)

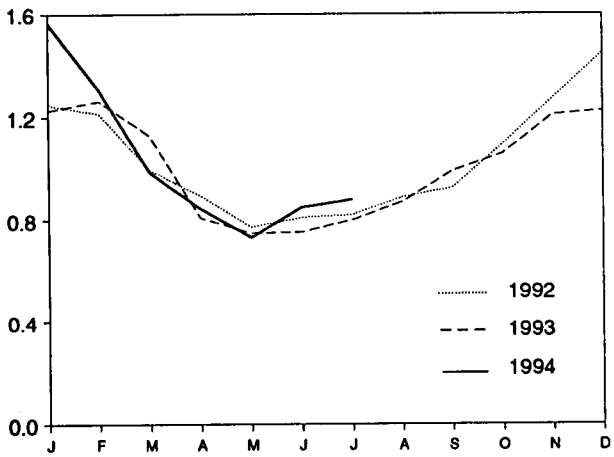
Overview, 1973-1993



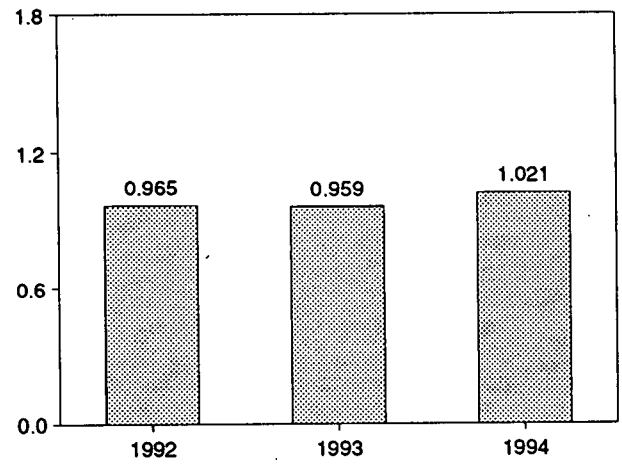
Stocks, End of Month



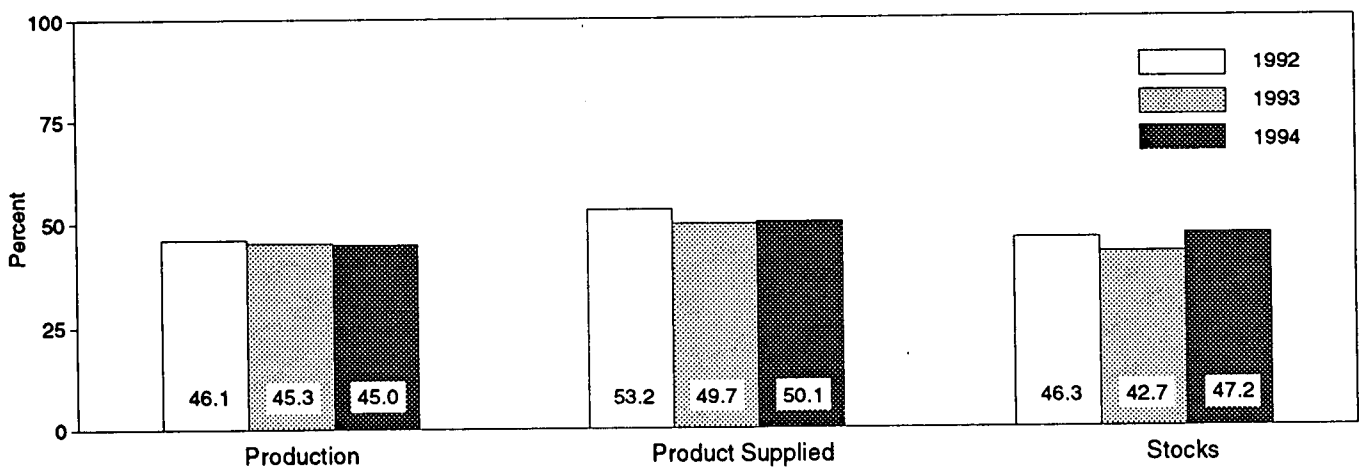
Product Supplied, Monthly



Product Supplied, January-July



Share of Liquefied Petroleum Gases, July



Note: Because vertical scales differ, graphs should not be compared.
Sources: Table 3.9 and, for calculation of shares, data prior to rounding for publication in Tables 3.8 and 3.9.

Table 3.9 Propane and Propylene Supply and Disposition (A Subset of Table 3.8)

	Supply		Disposition				
	Total Production	Imports	Stock Change[a]	Refinery Inputs	Exports	Product Supplied	Ending Stocks[b]
	Thousand Barrels per Day						Million Barrels
1973 Average	854	71	30	8	15	872	65
1974 Average	805	59	11	9	14	830	69
1975 Average	783	60	36	11	13	783	82
1976 Average	766	68	-22	12	13	830	74
1977 Average	775	86	21	10	10	821	81
1978 Average	758	57	15	13	9	778	[c]87
1979 Average	721	88	[c]-61	14	8	849	64
1980 Average	711	69	4	12	10	754	[c]65
1981 Average	745	70	[c]18	5	18	773	76
1982 Average	711	63	-59	4	31	798	[c]54
1983 Average	730	44	[c]-24	4	43	751	[c]48
1984 Average	806	67	[c]7	4	30	833	58
1985 Average	816	67	-50	3	48	883	39
1986 Average	817	110	64	4	28	831	63
1987 Average	828	88	-41	8	24	924	48
1988 Average	863	106	7	8	31	923	50
1989 Average	862	111	-52	11	24	990	32
1990 Average	878	115	48	(s)	28	917	49
1991 Average	915	91	-3	(s)	28	982	48
1992 January	949	90	-282	(s)	72	1,249	39
February	955	86	-200	(s)	27	1,214	33
March	940	68	-15	(s)	26	997	33
April	961	80	120	0	24	896	36
May	977	72	253	(s)	23	773	44
June	978	66	206	(s)	27	811	50
July	964	68	176	(s)	35	821	56
August	946	85	117	(s)	25	889	59
September	931	71	51	(s)	25	927	61
October	933	104	-88	(s)	30	1,095	58
November	964	99	-243	0	33	1,273	51
December	977	131	-385	0	45	1,448	39
Average	956	85	-24	(s)	33	1,032	39
1993 January	968	79	-212	1	31	1,227	32
February	964	82	-255	(s)	37	1,264	25
March	966	85	-109	(s)	32	1,129	22
April	980	108	238	(s)	40	809	29
May	951	96	266	0	30	750	37
June	967	75	265	0	23	754	45
July	963	118	256	0	26	800	53
August	960	116	178	0	27	871	59
September	969	132	92	0	17	992	61
October	954	107	-11	0	13	1,059	61
November	963	138	-126	0	17	1,209	57
December	953	102	-195	0	25	1,225	51
Average	963	103	34	(s)	26	1,006	51
1994 January	892	134	-555	0	19	1,562	34
February	908	119	-316	6	30	1,308	25
March	941	85	11	0	29	987	25
April	980	81	196	0	20	845	31
May	978	89	313	0	20	733	41
June	979	115	224	0	20	850	48
July	979	149	226	0	22	880	55
7-Month Average	952	110	17	1	23	1,021	55
1993 7-Month Average	965	92	67	(s)	31	959	53
1992 7-Month Average	960	76	38	(s)	34	965	56

[a] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[b] Stocks are totals as of end of period.
[c] See Note 4 at end of section.
(s)=Less than 500 barrels per day.
Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973 through 1975:** U.S. Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, "Petroleum Statement, Annual." • **1976 through 1980:** Energy Information Administration (EIA), *Energy Data Reports*, Petroleum Statement, Annual." • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S8.

Table 3.10 Other Petroleum Products Supply and Disposition

	Supply		Disposition				
	Total Production	Imports	Stock Change[a]	Refinery Inputs	Exports	Products Supplied	Ending Stocks[b]
	Thousand Barrels per Day						Million Barrels
1973 Average	2,833	290	1	750	162	2,211	179
1974 Average	2,722	269	25	665	172	2,129	[c]188
1975 Average	2,547	144	[c]-6	537	158	2,001	188
1976 Average	2,725	129	(s)	524	172	2,158	188
1977 Average	2,939	130	20	514	164	2,371	195
1978 Average	3,076	80	-12	492	165	2,511	191
1979 Average	3,141	116	24	352	208	2,673	200
1980 Average	2,957	130	15	310	197	2,566	[c]205
1981 Average	2,771	188	[c]-42	723	197	2,081	241
1982 Average	2,475	305	-68	787	205	[d]1,857	[c]216
1983 Average	2,437	382	[c]-6	712	236	1,877	[c]217
1984 Average	2,500	503	[c]-32	791	236	2,007	198
1985 Average	2,532	550	22	886	227	1,947	206
1986 Average	2,704	504	-15	888	291	2,045	201
1987 Average	2,737	543	-1	829	264	2,187	200
1988 Average	2,773	645	22	799	294	2,303	208
1989 Average	2,771	627	12	797	305	2,285	213
1990 Average	2,842	705	-32	887	289	2,402	201
1991 Average	2,826	675	18	936	277	2,269	208
1992 January	2,702	734	203	787	272	2,175	214
February	2,642	575	183	883	240	1,911	219
March	2,752	713	238	730	239	2,258	227
April	2,900	793	-31	1,043	217	2,464	226
May	2,929	665	-113	910	199	2,598	222
June	3,126	669	-42	787	225	2,826	221
July	3,207	740	-156	996	284	2,822	216
August	3,068	729	-116	884	227	2,802	212
September	3,114	748	188	675	336	2,663	218
October	2,923	701	-182	954	295	2,557	212
November	2,915	697	-24	989	264	2,383	212
December	2,853	711	-165	1,223	352	2,154	[c]207
Average	2,928	707	-3	906	263	2,470	[c]207
1993 January	[e]3,147	726	[c]739	929	[e]271	[e]1,933	229
February	2,853	773	111	1,057	282	2,176	233
March	2,887	826	245	843	269	2,356	240
April	2,935	753	-29	1,033	315	2,368	239
May	2,941	834	80	1,048	278	2,368	242
June	3,099	654	-239	1,064	278	2,650	235
July	3,213	894	61	1,008	303	2,735	237
August	3,167	693	-28	940	294	2,654	236
September	3,067	800	-268	1,104	282	2,749	228
October	3,195	810	-114	1,189	369	2,561	224
November	3,080	795	-222	1,355	309	2,433	217
December	2,816	678	-376	1,403	349	2,117	206
Average	3,035	770	-2	1,081	300	2,426	206
1994 January	2,719	780	507	590	256	2,147	221
February	2,779	725	236	638	248	2,383	228
March	2,805	753	32	939	361	2,226	229
April	2,901	780	-108	981	272	2,536	226
May	3,088	754	-26	975	288	2,605	225
June	3,127	716	-133	865	331	2,781	221
July	3,155	745	89	733	361	2,717	223
7-Month Average	2,941	751	85	819	303	2,485	223
1993 7-Month Average	3,013	781	141	996	285	2,371	237
1992 7-Month Average	2,895	699	39	876	240	2,439	216

[a] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[b] Stocks are totals as of end of period.
[c] See Note 4 at end of section.
[d] See Note 6 at end of section.
[e] Beginning in 1993, other petroleum products production, exports, and products supplied include an adjustment to oxygenates and motor gasoline blending components.
(s)=Less than +500 barrels per day and greater than -500 barrels per day.

Notes: • Other petroleum products include pentanes plus, other hydrocarbons and oxygenates, unfinished oils, gasoline blending components, and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil, jet fuel, and liquefied petroleum gases. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S9. • **1981 forward:** EIA, *Petroleum Supply Monthly*, September 1994, Table S10.

Petroleum Notes

1. The Energy Information Administration (EIA) uses a number of sources and methods to maintain the survey respondent lists. On a regular basis, survey managers review such industry publications as the *Oil and Gas Journal* and *Oil Daily* for information on facilities or companies starting up or closing down operations. Those sources are augmented by articles in newspapers, letters from respondents indicating changes in status, and information received from survey systems.

To supplement routine frames maintenance and to provide more thorough coverage, a comprehensive frames investigation is conducted every 3 years. This investigation results in the reassessment and recompilation of the complete frame for each survey. The effort also includes the evaluation of the impact of potential frame changes on the historical time series of data published from these respondents. The results of this frame study are usually implemented in January to provide a full year under the same frame.

In 1991, the EIA conducted a frame identifier survey of companies that produce, blend, store, or import oxygenates. A summary of the results from the identification survey was published in the *Weekly Petroleum Status Report* dated February 12, 1992, and in the February 1992 issue of the *Petroleum Supply Monthly*. In order to continue to provide relevant information about U.S. and regional gasoline supply, the EIA conducted a second frame identifier survey of those companies during 1992. As a result, numerous respondents were added to the monthly surveys effective in January 1993. See Explanatory Note 7 in the *Petroleum Supply Monthly*.

2. Motor Gasoline: Beginning in January 1981, the EIA expanded its universe to include non-refinery blenders and separated blending components from finished motor gasoline as a reporting category. Also, survey forms were modified to describe refinery operations more accurately.

Beginning with the reporting of January 1993 data, the EIA made adjustments to the product supplied series for finished motor gasoline. It was recognized that motor gasoline statistics published by the EIA through 1992 were underreported because the reporting system was (1) not collecting all fuel ethanol blending, and (2) there was a misreporting of motor gasoline blending components that were blended into finished gasoline. The adjustments are incorporated into EIA's data beginning in January 1993. To facilitate data analysis across the 1992-1993 period, EIA has prepared a table of 1992 data adjusted according to the 1993 basis. See *Petroleum Supply Monthly*, March 1993, Table H3.

3. Distillate and Residual Fuel Oils: The requirement to report crude oil in pipelines or burned on leases as either distillate or residual fuel oil has been eliminated. Prior to January 1981, the refinery input of unfinished oils typically exceeded the available supply of unfinished oils. That discrepancy was assumed to be due to the redesignation of distillate and residual fuel oils received as such but used as unfinished oil inputs by the receiving refinery. The imbalance between supply and disposition of unfinished oils would then be subtracted from the production of distillate and residual fuel oils. Two-thirds of that difference was subtracted from distillate and one-third from residual. Beginning in January 1981, the EIA modified its survey forms to account for redesignated product and discontinued the above-mentioned adjustment.

Beginning in January 1993, the end-of-month stocks of distillate fuel oil are split into two sulfur categories (0.05 percent sulfur or less and greater than 0.05 percent sulfur) to meet Environmental Protection Agency requirements effective in October 1992. For further details, see the EIA, *Petroleum Supply Monthly*.

4. New Stock Basis: In January 1975, 1979, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys, affecting subsequent stocks reported and stock change calculations. Using the expanded coverage (new basis), the end-of-year stocks, in million barrels, would have been:

- Crude Oil: 1982—645 (Total) and 351 (Other Primary).
- Crude Oil and Petroleum Products: 1974—1,121; 1980—1,425; and 1982—1,461.
- Motor Gasoline: 1974—225; 1980—263; 1982—244 (Total) and 202 (Finished).
- Distillate Fuel Oil: 1974—224; 1980—205; and 1982—186.
- Residual Fuel Oil: 1974—75; 1980—91; and 1982—69.
- Jet Fuel: 1974—30 (Total) and 24 (Kerosene Type); 1980—42 (Total) and 36 (Kerosene Type); and 1982—39 (Total) and 32 (Kerosene Type).
- Liquefied Petroleum Gases: 1974—113; 1978—136; 1980—128; and 1982—102.
- Propane and Propylene: 1978—86; 1980—69; and 1982—57.
- Other Petroleum Products: 1974—190; 1980—207; and 1982—219.

Stock change calculations beginning in 1975, 1979, 1981, and 1983 were made by using new basis stock levels.

In January 1984, changes were made in the reporting of natural gas liquids. As a result, unfractionated stream, which was formerly included in the "Other Petroleum Products Supply and Disposition" table, is now reported on a component basis (ethane, propane, normal butane, isobutane, and pentanes plus). Most of these stocks now appear in the "Liquefied Petroleum Gases Supply and

Disposition" table. This change affects stocks reported and stock change calculations in each table. Under the new basis, end-of-year 1983 stocks, in million barrels, would have been:

- Liquefied Petroleum Gases: 1983—108.
- Propane and Propylene: 1983—55.
- Other Petroleum Products: 1983—210.

In January 1993, changes were made in the monthly surveys to begin collecting bulk terminal and pipeline stocks of oxygenates. This change affected stocks reported and stock change calculations. However, a new basis stock level was not calculated for 1992 end-of-year stocks.

5. Stocks of Alaskan Crude Oil: Stocks of Alaskan Crude oil in transit were included for the first time in January 1981. The major impact of this change is on the reporting of stock change calculations. Using the expanded coverage (new basis), 1980 end-of-year stocks, in million barrels, would have been 488 (Total) and 380 (Other Primary).

6. Data Discrepancies: Due to differences internal to EIA data processing systems, some small discrepancies exist between data in the *Monthly Energy Review (MER)* and the *Petroleum Supply Annual (PSA)* and *Petroleum Supply Monthly (PSM)*. The data that have discrepancies are footnoted in Section 3 tables and summarized here.

Table	Data Series	Year Average	*MER* Data	*PSA* and *PSM* Data
3.1a	Natural Gas Plant Production	1976	1,604	1,603
3.1b	Exports, Total	1979	471	472
3.1b	Exports, Petroleum Products	1979	236	237
3.1b	Net Imports	1979	7,985	7,984
3.2a	Crude Used Directly	1976	-19	-18
3.2a	Imports, SPR	1978	161	162
3.2a	Crude Used Directly	1978	-15	-14
3.2a	Crude Used Directly	1979	-14	-13
3.2a	Crude Used Directly	1980	-14	-13
3.2b	Crude Losses	1976	14	15
3.2b	Crude Losses	1980	14	15
3.5	Stock Change	1974	10	9
3.5	Stock Change	1975	-41	-40
3.8	Total Production	1982	1,527	1,525
3.10	Products Supplied	1982	1,857	1,856

Section 4. Natural Gas

Total dry natural gas production in the United States during July 1994 was an estimated 1.6 trillion cubic feet, 3 percent[4] higher than production during the previous July.

Consumption of natural and supplemental gas in July 1994 was 1.5 trillion cubic feet, 8 percent above the level in July 1993.

Deliveries to residential consumers in June 1994 (latest date for which data are available) were 156 billion cubic feet, 4 percent below the previous June's deliveries. Total deliveries to residential consumers in the first half of 1994 were up 3 percent over deliveries during the first half of 1993. Total deliveries to industrial consumers during June 1994 were 632, 4 percent higher than the previous June's level. During the first half of 1994, deliveries to industrial consumers were up 2 percent from deliveries during the first half of 1993.

Imports of natural gas in July 1994 were 214 billion cubic feet, 10 percent higher than imports in the previous July.

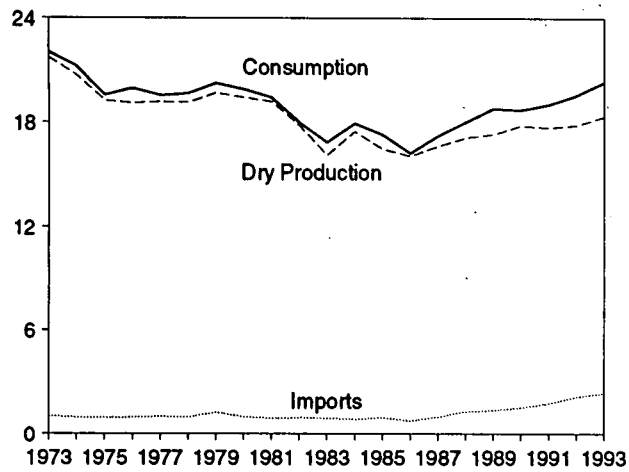
Stocks of working gas[5] in underground natural gas storage reservoirs at the end of July 1994 totaled 2.3 trillion cubic feet, 1 percent above the level of stocks available 1 year earlier. Net injections into storage during July 1994 were 376 billion cubic feet, 7 percent above the amount of injections during the previous July.

[4]Percentage changes are based on unrounded data.
[5]Gas available for withdrawal.

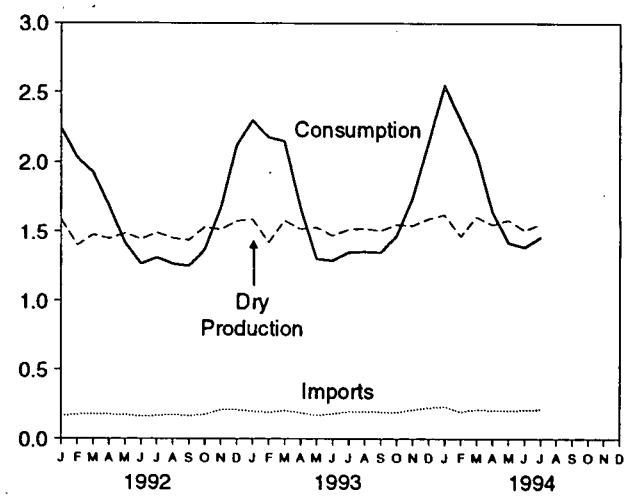
Figure 4.1 Natural Gas

(Trillion Cubic Feet)

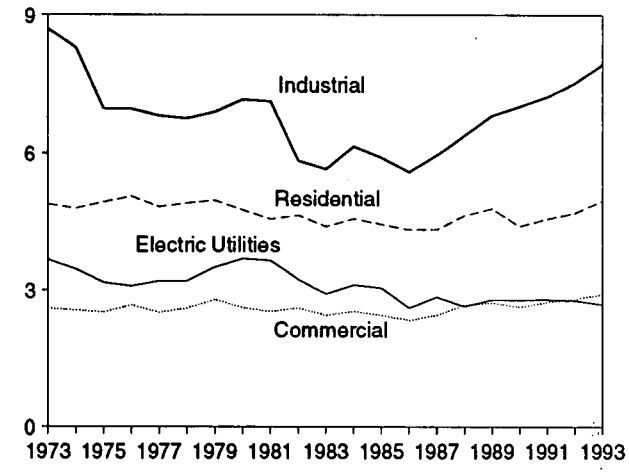
Overview, 1973-1993



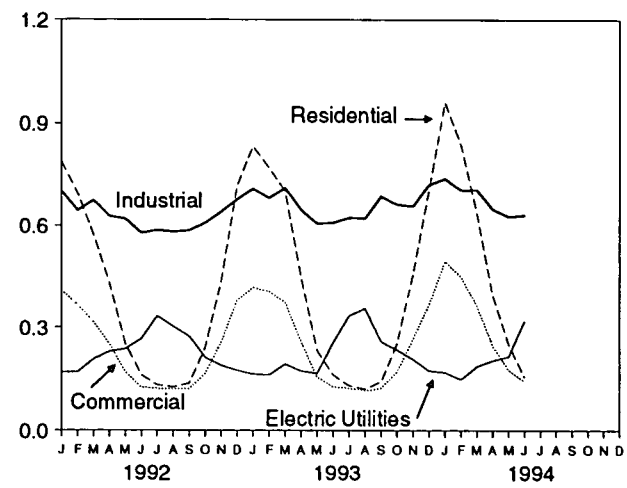
Overview, Monthly



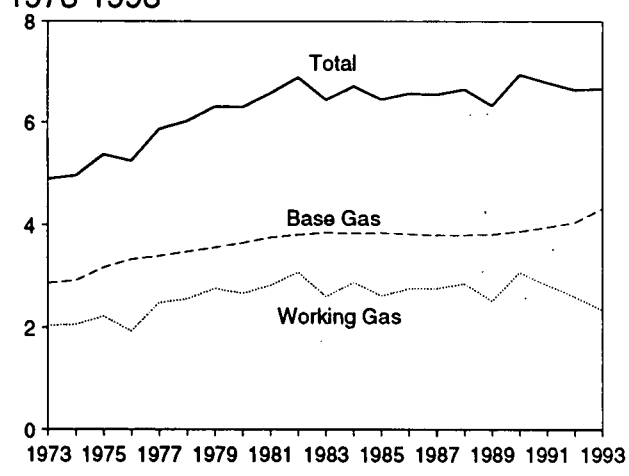
Consumption by Sector, 1973-1993



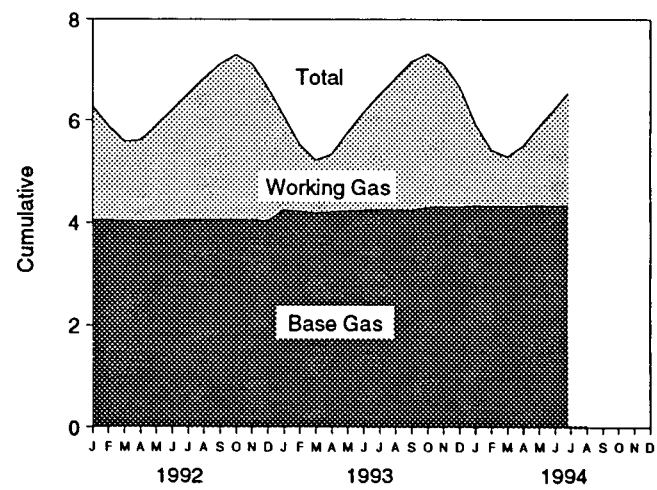
Consumption by Sector, Monthly



Underground Storage, End of Year, 1973-1993



Underground Storage, End of Month



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 4.2, 4.4, and 4.5.

Table 4.1 Natural Gas Production

(Billion Cubic Feet)

	Gross Withdrawals[a]	Repressuring[b]	Nonhydrocarbon Gases Removed[c]	Vented and Flared[d]	Marketed Production (Wet)[e]	Extraction Loss[f]	Total Dry Gas Production[g]
1973 Total	**24,067**	**1,171**	**NA**	**248**	**[h] 22,648**	**917**	**[h] 21,731**
1974 Total	**22,850**	**1,080**	**NA**	**169**	**[h] 21,601**	**887**	**[h] 20,713**
1975 Total	**21,104**	**861**	**NA**	**134**	**[h] 20,109**	**872**	**[h] 19,236**
1976 Total	**20,944**	**859**	**NA**	**132**	**[h] 19,952**	**854**	**[h] 19,098**
1977 Total	**21,097**	**935**	**NA**	**137**	**[h] 20,025**	**863**	**[h] 19,163**
1978 Total	**21,309**	**1,181**	**NA**	**153**	**[h] 19,974**	**852**	**[h] 19,122**
1979 Total	**21,883**	**1,245**	**NA**	**167**	**[h] 20,471**	**808**	**[h] 19,663**
1980 Total	**21,870**	**1,365**	**199**	**125**	**20,180**	**777**	**19,403**
1981 Total	**21,587**	**1,312**	**222**	**98**	**19,956**	**775**	**19,181**
1982 Total	**20,272**	**1,388**	**208**	**93**	**18,582**	**762**	**17,820**
1983 Total	**18,659**	**1,458**	**222**	**95**	**16,884**	**790**	**16,094**
1984 Total	**20,267**	**1,630**	**224**	**108**	**18,304**	**838**	**17,466**
1985 Total	**19,607**	**1,915**	**326**	**95**	**17,270**	**816**	**16,454**
1986 Total	**19,131**	**1,838**	**337**	**98**	**16,859**	**800**	**16,059**
1987 Total	**20,140**	**2,208**	**376**	**124**	**17,433**	**812**	**16,621**
1988 Total	**20,999**	**2,478**	**460**	**143**	**17,918**	**816**	**17,103**
1989 Total	**21,074**	**2,475**	**362**	**142**	**18,095**	**785**	**17,311**
1990 Total	**21,523**	**2,489**	**289**	**150**	**18,594**	**784**	**17,810**
1991 Total	**21,750**	**2,772**	**276**	**170**	**18,532**	**835**	**17,698**
1992 January	1,952	251	24	14	1,663	77	1,586
February	1,748	247	22	13	1,467	68	1,398
March	1,837	254	22	14	1,547	72	1,475
April	1,801	246	24	13	1,518	71	1,447
May	1,842	248	24	12	1,557	73	1,485
June	1,800	246	23	15	1,515	71	1,444
July	1,842	238	24	16	1,564	73	1,491
August	1,799	237	24	15	1,522	71	1,451
September	1,786	242	21	15	1,508	70	1,437
October	1,899	253	25	13	1,608	75	1,533
November	1,871	246	23	14	1,588	74	1,514
December	1,956	263	24	14	1,656	77	1,579
Total	**22,132**	**2,973**	**280**	**168**	**18,712**	**872**	**17,840**
1993 January	1,970	264	24	14	1,668	78	1,590
February	1,774	247	21	15	1,490	69	1,420
March	1,965	268	21	15	1,661	77	1,583
April	1,883	252	22	15	1,593	74	1,519
May	1,906	261	22	16	1,607	75	1,532
June	1,821	240	21	17	1,543	72	1,471
July	[R] 1,872	242	23	17	[R] 1,591	74	[R] 1,516
August	1,894	259	22	16	1,597	74	1,523
September	1,870	250	22	16	1,582	74	1,508
October	1,949	283	22	16	1,628	76	1,552
November	1,950	293	21	15	1,620	75	1,545
December	2,018	308	22	17	1,672	78	1,594
Total	**[R] 22,872**	**3,167**	**264**	**190**	**[R] 19,251**	**897**	**[R] 18,353**
1994 January	2,044	[R] 301	22	16	[R] 1,706	[R] 80	[R] 1,627
February	1,842	271	20	14	1,537	72	[R] 1,466
March	2,028	[R] 300	22	16	[R] 1,690	79	[R] 1,611
April	[R] 1,937	[R] 274	[R] 21	15	[R] 1,627	76	[R] 1,551
May	[R] 1,962	[R] 259	22	15	[R] 1,665	[R] 78	[R] 1,587
June	[E] 1,900	[E] 278	[E] 21	[E] 15	[E] 1,586	[E] 74	[E] 1,512
July	[E] 1,944	[E] 272	[E] 22	[E] 15	[E] 1,635	[E] 76	[E] 1,559
7-Month Total	**[E] 13,658**	**[E] 1,956**	**[E] 150**	**[E] 106**	**[E] 11,445**	**[E] 533**	**[E] 10,912**
1993 7-Month Total	**13,191**	**1,774**	**154**	**110**	**11,152**	**520**	**10,633**
1992 7-Month Total	**12,821**	**1,731**	**164**	**96**	**10,831**	**505**	**10,326**

[a] Gas withdrawn from gas and oil wells.

[b] The injection of natural gas into oil and gas formations for pressure maintenance and cycling purposes.

[c] See Note 1 at end of section.

[d] Vented: Natural gas released into the air on the base site or at processing plants. Flared: Natural gas burned in flares on the base site or at gas processing plants.

[e] "Gross Withdrawals" minus "Repressuring," "Nonhydrocarbon Gases Removed," and "Vented and Flared." See Note 2 at end of section.

[f] See Note 3 at end of section.

[g] "Marketed Production (Wet)" minus "Extraction Loss."

[h] May include unknown quantities of nonhydrocarbon gases.

R=Revised data. NA=Not available. E=Estimate.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1986:** Energy Information Administration (EIA), *Natural Gas Annual 1991*, Table 95. • **1987 forward:** EIA, *Natural Gas Monthly*, September 1994, Table 1.

Table 4.2 Natural Gas Supply and Disposition

(Billion Cubic Feet)

	Supply						Disposition		
	Total Dry Gas Production	Withdrawals from Storage[a]	Supplemental Gaseous Fuels[b]	Imports[c]	Balancing Item[b]	Total Supply/ Disposition[d]	Additions to Storage[a]	Exports[c]	Consumption[b]
1973 Total	[e] **21,731**	**1,533**	**NA**	**1,033**	**-196**	**24,101**	**1,974**	**77**	**22,049**
1974 Total	[e] **20,713**	**1,701**	**NA**	**959**	**-289**	**23,084**	**1,784**	**77**	**21,223**
1975 Total	[e] **19,236**	**1,760**	**NA**	**953**	**-235**	**21,714**	**2,104**	**73**	**19,538**
1976 Total	[e] **19,098**	**1,921**	**NA**	**964**	**-216**	**21,767**	**1,756**	**65**	**19,946**
1977 Total	[e] **19,163**	**1,750**	**NA**	**1,011**	**-41**	**21,883**	**2,307**	**56**	**19,521**
1978 Total	[e] **19,122**	**2,158**	**NA**	**966**	**-287**	**21,958**	**2,278**	**53**	**19,627**
1979 Total	[e] **19,663**	**2,047**	**NA**	**1,253**	**-372**	**22,591**	**2,295**	**56**	**20,241**
1980 Total	**19,403**	**1,972**	**155**	**985**	**-640**	**21,875**	**1,949**	**49**	**19,877**
1981 Total	**19,181**	**1,930**	**176**	**904**	**-500**	**21,691**	**2,228**	**59**	**19,404**
1982 Total	**17,820**	**2,164**	**145**	**933**	**-537**	**20,525**	**2,472**	**52**	**18,001**
1983 Total	**16,094**	**2,270**	**132**	**918**	[f] **-703**	**18,712**	**1,822**	**55**	**16,835**
1984 Total	**17,466**	**2,098**	**110**	**843**	[f] **-217**	**20,300**	**2,295**	**55**	**17,951**
1985 Total	**16,454**	**2,397**	**126**	**950**	**-428**	**19,499**	**2,163**	**55**	**17,281**
1986 Total	**16,059**	**1,837**	**113**	**750**	**-493**	**18,266**	**1,984**	**61**	**16,221**
1987 Total	**16,621**	**1,905**	**101**	**993**	**-444**	**19,176**	**1,911**	**54**	**17,211**
1988 Total	**17,103**	**2,270**	**101**	**1,294**	**-453**	**20,315**	**2,211**	**74**	**18,030**
1989 Total	**17,311**	**2,854**	**107**	**1,382**	**-218**	**21,435**	**2,528**	**107**	**18,801**
1990 Total	**17,810**	**1,986**	**123**	**1,532**	**-149**	**21,302**	**2,499**	**86**	**18,716**
1991 Total	**17,698**	**2,752**	**113**	**1,773**	**-500**	**21,836**	**2,672**	**129**	**19,035**
1992 January	1,586	624	12	165	-71	2,315	60	16	2,239
February	1,398	463	11	175	42	2,089	45	14	2,031
March	1,475	397	11	180	-42	2,022	74	23	1,926
April	1,447	142	10	176	89	1,864	161	18	1,685
May	1,485	44	9	174	68	1,780	344	19	1,418
June	1,444	35	8	162	16	1,666	384	18	1,264
July	1,491	42	8	167	-8	1,700	373	16	1,311
August	1,451	46	8	175	-19	1,662	380	18	1,264
September	1,437	40	8	166	-24	1,629	362	18	1,249
October	1,533	70	10	176	-130	1,659	271	19	1,368
November	1,514	282	11	210	-239	1,778	88	19	1,672
December	1,579	587	12	209	-191	2,195	58	19	2,119
Total	**17,840**	**2,772**	**118**	**2,138**	**-508**	**22,360**	**2,599**	**216**	**19,544**
1993 January	1,590	597	13	200	-44	2,356	41	17	2,299
February	1,420	572	12	191	17	2,212	21	12	2,178
March	1,583	383	12	204	63	2,246	80	16	2,150
April	1,519	104	10	189	82	1,904	215	11	1,677
May	1,532	30	8	171	34	1,776	462	11	1,303
June	1,471	37	10	182	10	1,711	411	11	1,289
July	[R] 1,516	38	9	195	[R] -7	1,752	388	13	1,351
August	1,523	46	9	197	-42	1,733	367	11	1,355
September	1,508	28	9	194	1	1,740	382	10	1,349
October	1,552	102	10	192	-123	1,733	255	9	1,469
November	1,545	316	12	210	-220	1,862	112	10	1,741
December	1,594	500	13	225	-126	2,205	60	10	2,135
Total	[R] **18,353**	**2,754**	**128**	**2,350**	[R] **-355**	**23,230**	**2,794**	**140**	**20,296**
1994 January	[R] 1,627	756	14	233	[R] -36	[R] 2,594	33	11	[R] 2,551
February	[R] 1,466	542	12	195	[R] 155	[R] 2,369	48	11	[R] 2,310
March	[R] 1,611	239	11	214	[R] 115	[R] 2,189	105	19	[R] 2,065
April	[R] 1,551	68	10	206	[R] 98	[R] 1,934	277	8	[R] 1,649
May	[R] 1,587	23	10	206	[R] 16	[R] 1,843	414	9	[R] 1,420
June	[E] 1,512	32	9	210	[R] 11	[R] 1,774	374	11	[R] 1,389
July	[E] 1,559	22	10	214	66	1,871	398	11	1,462
7-Month Total	[E] **10,912**	**1,682**	**76**	**1,479**	**424**	**14,574**	**1,649**	**80**	**12,846**
1993 7-Month Total	**10,633**	**1,762**	**75**	**1,332**	**156**	**13,957**	**1,619**	**91**	**12,247**
1992 7-Month Total	**10,326**	**1,747**	**68**	**1,200**	**95**	**13,437**	**1,441**	**123**	**11,873**

[a] Data for 1980-1992 include underground storage and liquefied natural gas storage. All other data include underground storage only. Computation procedures are discussed in Note 8 at end of section.

[b] See Notes at end of section.

[c] See Table 4.3.

[d] Data for 1978 forward do not include in-transit receipts and deliveries.

[e] May include unknown quantities of nonhydrocarbon gases.

[f] See Note 7 at end of section.

R=Revised data. NA=Not available. E=Estimate.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1986: Total Dry Gas Production**—Energy Information Administration (EIA), *Natural Gas Annual 1991*, Table 95. **Withdrawals from Storage, 1973-1975 and 1980-1986**—EIA, *Natural Gas Annual 1991*, Table 96. **Withdrawals from Storage, 1976-1979**—EIA, *Natural Gas Production and Consumption 1979*, Table 1. **Supplemental Gaseous Fuels, 1980-1986**—EIA, *Natural Gas Annual 1990*, Volume 2, Table 12. **Imports, Additions to Storage, Exports, and Consumption**—EIA, *Natural Gas Annual 1991*, Table 96. **Total Supply/Disposition**—Sum of disposition items. **Balancing Item**—Total supply/disposition minus all other supply items. • **1987 forward:** EIA, *Natural Gas Monthly*, September 1994, Table 2.

Table 4.3 Natural Gas Trade by Country

(Billion Cubic Feet)

	Imports				Exports			
	Canada[a]	Algeria[b]	Other[c]	Total	Canada[a]	Mexico[a]	Japan[b]	Total
1973 Total	**1,028**	**3**	**2**	**1,033**	**15**	**14**	**48**	**77**
1974 Total	**959**	**0**	**(s)**	**959**	**13**	**13**	**50**	**77**
1975 Total	**948**	**5**	**0**	**953**	**10**	**9**	**53**	**73**
1976 Total	**954**	**10**	**0**	**964**	**8**	**7**	**50**	**65**
1977 Total	**997**	**11**	**2**	**1,011**	**(s)**	**4**	**52**	**56**
1978 Total	**881**	**84**	**0**	**966**	**(s)**	**4**	**48**	**53**
1979 Total	**1,001**	**253**	**0**	**1,253**	**(s)**	**4**	**51**	**56**
1980 Total	**797**	**86**	**102**	**985**	**(s)**	**4**	**45**	**49**
1981 Total	**762**	**37**	**105**	**904**	**(s)**	**3**	**56**	**59**
1982 Total	**783**	**55**	**95**	**933**	**(s)**	**2**	**50**	**52**
1983 Total	**712**	**131**	**75**	**918**	**(s)**	**2**	**53**	**55**
1984 Total	**755**	**36**	**52**	**843**	**(s)**	**2**	**53**	**55**
1985 Total	**926**	**24**	**0**	**950**	**(s)**	**2**	**53**	**55**
1986 Total	**749**	**0**	**2**	**750**	**9**	**2**	**50**	**61**
1987 Total	**993**	**0**	**0**	**993**	**3**	**2**	**49**	**54**
1988 Total	**1,276**	**17**	**0**	**1,294**	**20**	**2**	**52**	**74**
1989 Total	**1,339**	**42**	**0**	**1,382**	**38**	**17**	**51**	**107**
1990 Total	**1,448**	**84**	**0**	**1,532**	**17**	**16**	**53**	**86**
1991 Total	**1,710**	**64**	**0**	**1,773**	**15**	**60**	**54**	**129**
1992 January	157	8	0	165	2	10	4	16
February	170	5	0	175	4	6	4	14
March	178	3	0	180	11	7	4	23
April	174	3	0	176	6	7	4	18
May	174	0	0	174	6	7	6	19
June	160	3	0	162	6	7	4	18
July	167	0	0	167	5	6	4	16
August	172	2	0	175	5	9	4	18
September	164	3	0	166	6	8	4	18
October	174	3	0	176	6	10	3	19
November	203	8	0	210	3	11	4	19
December	202	8	0	209	7	8	4	19
Total	**2,094**	**43**	**0**	**2,138**	**68**	**96**	**53**	**216**
1993 January	195	5	0	200	4	8	4	17
February	183	8	0	191	6	2	4	12
March	199	5	0	204	7	4	6	16
April	181	8	0	189	4	3	4	11
May	166	5	0	171	3	4	4	11
June	175	8	0	182	3	4	3	11
July	187	8	0	195	4	4	5	13
August	192	5	0	197	3	3	5	11
September	184	10	0	194	2	2	5	10
October	187	5	0	192	3	2	3	9
November	202	8	0	210	3	2	5	10
December	216	8	R2	225	3	1	7	10
Total	**2,267**	**82**	**R2**	**2,350**	**45**	**40**	**56**	**140**
1994 January	221	10	2	233	4	2	5	11
February	189	5	1	195	6	1	4	11
March	204	8	2	214	12	2	6	19
April	198	8	1	206	3	1	4	8
May	200	5	2	206	4	2	4	9
June	204	5	2	210	4	2	6	11
July	205	8	2	214	4	2	6	11
7-Month Total	**1,421**	**48**	**10**	**1,479**	**36**	**10**	**33**	**80**
1993 7-Month Total	**1,286**	**46**	**0**	**1,332**	**31**	**29**	**31**	**91**
1992 7-Month Total	**1,180**	**20**	**0**	**1,200**	**41**	**51**	**32**	**123**

[a] By pipeline, except for very small amounts of liquefied natural gas imported from Canada in 1973, 1977 and 1981. See Note 5 at end of section.

[b] As liquefied natural gas.

[c] Other imports are from Mexico, except for 1986, when they came from Indonesia.

R=Revised data. (s)=Less than 500 million cubic feet.

Notes: • See Note 5 at end of section. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1987:** Energy Information Administration (EIA), Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." • **1988 forward:** EIA, *Natural Gas Monthly*, September 1994, Tables 5 and 6.

Table 4.4 Natural Gas Consumption by End-Use Sector

(Billion Cubic Feet)

	Lease and Plant Fuel	Pipeline Fuel[a]	Delivered to Consumers					Total Consumption
			Residential	Commercial	Industrial	Electric Utilities	Total	
1973 Total	**1,496**	**728**	**4,879**	**2,597**	**8,689**	**3,660**	**19,825**	**22,049**
1974 Total	**1,477**	**669**	**4,786**	**2,556**	**8,292**	**3,443**	**19,077**	**21,223**
1975 Total	**1,396**	**583**	**4,924**	**2,508**	**6,968**	**3,158**	**17,558**	**19,538**
1976 Total	**1,634**	**548**	**5,051**	**2,668**	**6,964**	**3,081**	**17,764**	**19,946**
1977 Total	**1,659**	**533**	**4,821**	**2,501**	**6,815**	**3,191**	**17,329**	**19,521**
1978 Total	**1,648**	**530**	**4,903**	**2,601**	**6,757**	**3,188**	**17,449**	**19,627**
1979 Total	**1,499**	**601**	**4,965**	**2,786**	**6,899**	**3,491**	**18,141**	**20,241**
1980 Total	**1,026**	**635**	**4,752**	**2,611**	**7,172**	**3,682**	**18,216**	**19,877**
1981 Total	**928**	**642**	**4,546**	**2,520**	**7,128**	**3,640**	**17,834**	**19,404**
1982 Total	**1,109**	**596**	**4,633**	**2,606**	**5,831**	**3,226**	**16,295**	**18,001**
1983 Total	**978**	**490**	**4,381**	**2,433**	**5,643**	**2,911**	**15,367**	**16,835**
1984 Total	**1,077**	**529**	**4,555**	**2,524**	**6,154**	**3,111**	**16,345**	**17,951**
1985 Total	**966**	**504**	**4,433**	**2,432**	**5,901**	**3,044**	**15,811**	**17,281**
1986 Total	**923**	**485**	**4,314**	**2,318**	**5,579**	**2,602**	**14,814**	**16,221**
1987 Total	**1,149**	**519**	**4,315**	**2,430**	**5,953**	**2,844**	**15,542**	**17,211**
1988 Total	**1,096**	**614**	**4,630**	**2,670**	**6,383**	**2,636**	**16,320**	**18,030**
1989 Total	**1,070**	**629**	**4,781**	**2,718**	**6,816**	**2,787**	**17,102**	**18,801**
1990 Total	**1,236**	**660**	**4,391**	**2,623**	**7,018**	**2,787**	**16,820**	**18,716**
1991 Total	**1,129**	**601**	**4,556**	**2,729**	**7,231**	**2,789**	**17,305**	**19,035**
1992 January	104	68	786	410	701	169	2,067	2,239
February	92	62	696	366	644	170	1,876	2,031
March	97	58	574	315	674	208	1,770	1,926
April	95	51	431	250	628	229	1,539	1,685
May	97	42	251	170	620	236	1,278	1,418
June	95	37	162	125	578	266	1,132	1,264
July	98	39	132	122	587	334	1,175	1,311
August	95	37	126	121	582	303	1,131	1,264
September	94	37	137	121	586	274	1,117	1,249
October	101	41	241	166	608	213	1,227	1,368
November	99	50	437	256	641	189	1,523	1,672
December	104	64	717	381	677	176	1,951	2,119
Total	**1,171**	**588**	**4,690**	**2,803**	**7,527**	**2,766**	**17,786**	**19,544**
1993 January	104	69	833	419	709	164	2,125	2,299
February	93	66	770	407	681	162	2,020	2,178
March	104	65	702	374	711	194	1,981	2,150
April	100	50	449	257	647	174	1,527	1,677
May	101	39	233	156	607	167	1,163	1,303
June	97	39	163	127	609	255	1,154	1,289
July	R100	41	130	123	624	334	1,211	1,351
August	100	41	120	115	622	357	1,214	1,355
September	99	41	142	123	686	258	1,209	1,349
October	102	44	252	172	663	235	1,323	1,469
November	101	52	457	265	657	208	1,587	1,741
December	105	64	704	367	721	174	1,966	2,135
Total	**1,205**	**610**	**4,956**	**2,906**	**7,936**	**2,682**	**18,480**	**20,296**
1994 January	R107	R77	961	R497	739	170	R2,367	R2,551
February	96	69	838	R452	705	149	R2,145	R2,310
March	106	62	639	R365	706	187	R1,897	R2,065
April	102	50	397	R247	649	205	R1,498	R1,649
May	R104	R43	R251	R177	R628	R216	R1,273	R1,420
June	99	42	156	142	632	319	1,248	1,389
6-Month Total	**614**	**342**	**3,241**	**1,880**	**4,061**	**1,246**	**10,428**	**11,384**
1993 6-Month Total	**599**	**328**	**3,151**	**1,741**	**3,962**	**1,116**	**9,970**	**10,896**
1992 6-Month Total	**580**	**319**	**2,901**	**1,636**	**3,846**	**1,278**	**9,661**	**10,561**

[a] Natural gas consumed in the operation of pipelines, primarily in compressors.

R=Revised data.

Notes: • Natural gas includes supplemental gaseous fuels. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1986:** Energy Information Administration (EIA), *Natural Gas Annual 1991*, Table 97. • **1987 forward:** EIA, *Natural Gas Monthly*, September 1994, Table 3.

Table 4.5 Natural Gas in Underground Storage

(Volumes in Billion Cubic Feet)

	Natural Gas in Underground Storage, End of Period			Change in Working Gas from Same Period Previous Year		Storage Activity		
	Base Gas	Working Gas	Total[a]	Volume	Percent	Injections[b]	Withdrawals[b]	Net[c]
1973 Total	**2,864**	**2,034**	**4,898**	**305**	**17.6**	**1,974**	**1,533**	**442**
1974 Total	**2,912**	**2,050**	**4,962**	**16**	**.8**	**1,784**	**1,701**	**84**
1975 Total	**3,162**	**2,212**	**5,374**	**162**	**7.9**	**2,104**	**1,760**	**344**
1976 Total	**3,323**	**1,926**	**5,250**	**-286**	**-12.9**	**1,756**	**1,921**	**-165**
1977 Total	**3,391**	**2,475**	**5,866**	**549**	**28.5**	**2,307**	**1,750**	**557**
1978 Total	**3,473**	**2,547**	**6,020**	**72**	**2.9**	**2,278**	**2,158**	**120**
1979 Total	**3,553**	**2,753**	**6,306**	**207**	**8.1**	**2,295**	**2,047**	**248**
1980 Total	**3,642**	**2,655**	**6,297**	**-99**	**-3.6**	**1,896**	**1,910**	**-14**
1981 Total	**3,752**	**2,817**	**6,569**	**162**	**6.1**	**2,180**	**1,887**	**293**
1982 Total	**3,808**	**3,071**	**6,879**	**255**	**9.0**	**2,399**	**2,094**	**306**
1983 Total	**3,847**	**2,595**	**6,442**	**-476**	**-15.5**	**1,700**	**2,142**	**-442**
1984 Total	**3,830**	**2,876**	**6,706**	**281**	**10.8**	**2,252**	**2,064**	**188**
1985 Total	**3,842**	**2,607**	**6,448**	**-270**	**-9.4**	**2,128**	**2,359**	**-231**
1986 Total	**3,819**	**2,749**	**6,567**	**142**	**5.5**	**1,952**	**1,812**	**140**
1987 Total	**3,792**	**2,756**	**6,548**	**7**	**.3**	**1,887**	**1,881**	**6**
1988 Total	**3,800**	**2,850**	**6,650**	**94**	**3.4**	**2,174**	**2,244**	**-69**
1989 Total	**3,812**	**2,513**	**6,325**	**-337**	**-11.8**	**2,491**	**2,804**	**-313**
1990 Total	**3,868**	**3,068**	**6,936**	**555**	**22.1**	**2,433**	**1,934**	**499**
1991 Total	**3,954**	**2,824**	**6,778**	**-244**	**-8.0**	**2,608**	**2,689**	**-80**
1992 January	4,061	2,216	6,277	-146	-6.2	68	591	-524
February	4,057	1,837	5,894	-226	-10.9	52	441	-389
March	4,046	1,545	5,591	-367	-19.2	81	381	-301
April	4,038	1,573	5,611	-463	-22.8	167	150	18
May	4,044	1,848	5,892	-425	-18.7	330	53	277
June	4,050	2,153	6,203	-400	-15.7	366	43	323
July	4,064	2,460	6,524	-311	-11.2	357	50	307
August	4,062	2,761	6,823	-217	-7.3	364	54	309
September	4,061	3,044	7,105	-157	-4.9	346	48	298
October	4,065	3,223	7,288	-146	-4.3	264	78	186
November	4,061	3,054	7,115	-94	-3.0	95	276	-181
December	4,044	2,597	6,641	-227	-8.0	65	557	-491
Total	**4,044**	**2,597**	**6,641**	**-227**	**-8.0**	**2,555**	**2,724**	**-168**
1993 January	4,258	1,829	6,087	-387	-17.5	41	597	-556
February	4,230	1,304	5,534	-534	R-29.0	21	572	-551
March	4,203	1,028	5,232	-516	-33.4	80	383	-303
April	4,219	1,122	5,340	-452	-28.7	215	104	112
May	4,243	1,527	5,771	-321	-17.4	462	30	432
June	4,256	1,901	6,157	-252	-11.7	411	37	373
July	4,256	2,254	6,510	-206	-8.4	388	38	350
August	4,263	2,572	6,835	-189	-6.8	367	46	321
September	4,255	2,904	7,159	-140	-4.6	382	28	354
October	4,314	2,998	7,312	-225	-7.0	255	102	154
November	4,325	2,781	7,106	-273	-8.9	112	316	-204
December	4,325	2,338	6,663	-259	-10.0	60	500	-440
Total	**4,325**	**2,338**	**6,663**	**-259**	**-10.0**	**2,794**	**2,754**	**41**
1994 January	4,347	1,578	5,925	-251	R-13.6	33	756	-724
February	4,336	1,089	5,426	-214	-16.4	48	542	-494
March	4,342	957	5,299	-71	-6.9	105	239	-133
April	4,343	1,166	5,509	44	R4.1	277	68	209
May	4,349	1,546	5,895	19	R1.7	414	23	391
June	4,348	1,892	6,241	-9	R-.1	374	32	341
July	4,351	2,267	6,618	13	.6	398	22	376

[a] For total underground storage capacity at the end of each calendar year, see Note 8 at end of section.

[b] For 1980-1992, data differ from those shown on Table 4.2, which includes liquefied natural gas storage for that period.

[c] Positive numbers indicate injections are greater than withdrawals. Negative numbers indicate withdrawals are greater than injections. Net injections or withdrawals may not equal the difference between applicable ending stocks. See Note 8 at end of section.

R=Revised data.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Storage Activity: 1973-1975**—Energy Information Administration (EIA), *Natural Gas Annual 1990, Volume 2,* Table 9. **1976-1979**—EIA, *Natural Gas Production and Consumption 1979,* Table 1. **1980-1986**—EIA, *Natural Gas Annual 1990, Volume 2,* Table 11. **1987 forward**—EIA, *Natural Gas Monthly,* September 1994, Table 13. • **Other Data: 1973 and 1974**—American Gas Association (AGA), *Gas Facts, 1972 Data,* Table 57, *Gas Facts, 1973 Data,* Table 57, and *Gas Facts, 1974 Data, Table 40.* **1975 and 1976**—Federal Energy Administration (FEA), Form FEA-G318-M-0, "Underground Gas Storage Report," and Federal Power Commission (FPC), Form FPC-8, "Underground Gas Storage Report." **1977 and 1978**—EIA, Form FEA-G318-M-0, "Underground Gas Storage Report," and Federal Energy Regulatory Commission (FERC), Form FERC-8, "Underground Gas Storage Report." **1979-1986**—EIA, Form EIA-191, "Underground Gas Storage Report," and FERC, Form FERC-8, "Underground Gas Storage Report." **1987 forward**—EIA, *Natural Gas Monthly,* September 1994, Table 13.

Natural Gas Notes

1. Nonhydrocarbon Gases Removed: Annual data on nonhydrocarbon gases removed from marketed production—carbon dioxide, helium, hydrogen sulfide, and nitrogen—are from the Energy Information Administration (EIA) *Natural Gas Annual (NGA) 1991*. Data are not available for periods prior to 1980. Monthly data are reported by three States and computed for six States. Monthly data are preliminary until after publication of the EIA *NGA*. Differences between annual data published in the EIA *NGA* and the sum of the preliminary monthly data (January-December) are allocated proportionally to the months to create final monthly data. For further information on methods of estimating preliminary monthly data, see the EIA *Natural Gas Monthly (NGM)*.

2. Production.

- Annual data: Final annual data are from the EIA *NGA*.
- Estimated monthly data: Data for the two most recent months presented are estimated. Some of the data for earlier months are also estimated or computed. For a discussion of computation and estimation procedures, see the EIA *NGM*.
- Preliminary monthly data: Monthly data are considered preliminary until after publication of the EIA *NGA*. Preliminary monthly data are gathered from reports to the Interstate Oil Compact Commission and the U.S. Minerals Management Service. Volumetric data are converted, as necessary, to a standard 14.73 psi pressure base. Unless there are major changes, data are not revised until after publication of the EIA *NGA*.
- Final monthly data: Differences between annual data in the EIA *NGA* and the sum of preliminary monthly data (January-December) are allocated proportionally to the months to create final monthly data.

3. Extraction Loss: Extraction loss is the reduction in volume of natural gas resulting from the removal of natural gas liquid constituents at natural gas processing plants.

Annual data for extraction loss are from the EIA *NGA*, where they are estimated on the basis of the type and quantity of liquid products extracted from the gas stream and the calculated volume of such products at standard conditions. For a detailed explanation of the calculations used to derive estimated extraction losses, see the EIA *NGA*.

Preliminary monthly data are estimated on the basis of extraction loss as an annual percentage of marketed production. This percentage is applied to each month's marketed production to estimate monthly extraction loss.

Monthly data are revised and considered final after the publication of the EIA *NGA*. Final monthly data are estimated by allocating annual extraction loss data to the months on the basis of total natural gas marketed production data from the EIA *NGA*.

4. Supplemental Gaseous Fuels: Any gaseous substance that, introduced into or commingled with natural gas, increases the volume available for disposition. Such substances include, but are not limited to, propane-air, refinery gas, coke oven gas, still gas, manufactured gas, biomass gas, or air or inert gases added for Btu stabilization.

Annual data beginning with 1980 are from the EIA *NGA*. Unknown quantities of supplemental gaseous fuels are included in consumption data for 1979 and earlier years.

Monthly data are considered preliminary until after the publication of the EIA *NGA*. Monthly estimates are based on the annual ratio of supplemental gaseous fuels to the sum of dry gas production, net imports, and net withdrawals from storage. The ratio is applied to the monthly sum of the three elements to compute a monthly supplemental gaseous fuels figure.

5. Imports and Exports: The United States imports natural gas via pipeline from Canada. Prior to 1985, it also imported natural gas via pipeline from Mexico. Liquefied natural gas (LNG) arrives via tanker from Algeria. One shipment of LNG was received from Indonesia in December 1986. Very small amounts of LNG arrived from Canada in 1973 (667 million cubic feet), 1977 (572 million cubic feet), and 1981 (6 million cubic feet). The United States exports natural gas via pipeline to Canada and Mexico and LNG via tanker to Japan.

Annual and final monthly data are from the annual Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas," which requires data to be reported by month for the calendar year.

Preliminary monthly data are EIA estimates. For a discussion of estimation procedures, see the EIA *NGM*. Preliminary data are revised after the publication of the EIA *U.S. Imports and Exports of Natural Gas*.

6. Consumption: Consumption includes pipeline fuel use, lease and plant fuel use, and deliveries to consuming sectors.

Final data are from the EIA *NGA*. Monthly data are considered preliminary until after publication of the EIA *NGA*. For more detailed information on the methods of

estimating preliminary and final monthly data, see the EIA *NGM*.

7. Balancing Item: The balancing item for natural gas represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas disposition. The differences may be due to quantities lost or to the effects of data reporting problems. Reporting problems include differences due to the net result of conversions of flow data metered at varying temperature and pressure bases and converted to a standard temperature and pressure base; the effect of variations in company accounting and billing practices; differences between billing cycle and calendar period time frames; and imbalances resulting from the merger of data reporting systems which vary in scope, format, definitions, and type of respondents.

The increase of 0.2 trillion cubic feet (Tcf) in the "Balancing Item" category in 1983, followed by a decline of 0.5 Tcf in 1984, reflected unusually large differences resulting from the use of the annual billing cycle (essentially December 15 through the following December 14) consumption data in conjunction with calendar year supply data. Record cold temperatures during the last half of December 1983 resulted in a reported 0.3 Tcf increase in net withdrawals from underground storage for peak shaving as compared with the same period in 1982, but the effect of this cold weather was reflected primarily in 1984 consumption data. For underground storage data, see Table F2 in the May 1985 *NGM*, which was published in July 1985.

8. Natural Gas Storage: Gas in storage at the end of a reporting period may not equal the quantity derived by adding or subtracting net injections or withdrawals from the quantity in storage at the end of the previous period. The difference is due to changes in the quantity of native gas included in the base gas and/or losses in base gas due to migration from storage reservoirs.

Monthly underground storage data are collected from the Forms FERC-8 (interstate data) and EIA-191 (intrastate data). Beginning in January 1991, all data are collected on the revised Form EIA-191. Injection and withdrawal data from the FERC-8/EIA-191 survey are adjusted to correspond to data from Form EIA-176 following publication of the EIA *NGA*.

The final monthly and annual storage and withdrawal data for 1980-1989 include both underground and liquefied natural gas (LNG) storage. Annual data on LNG additions and withdrawals are from Form EIA-176. Monthly data are estimated by computing the ratio of each month's underground storage additions and withdrawals to annual underground storage additions and withdrawals and applying the ratio to the annual LNG data.

Total underground storage capacity at the end of each calendar year since 1975 (first year available), in billion cubic feet, was:

1975	6,280	1985	8,067
1976	6,544	1986	8,145
1977	6,678	1987	8,124
1978	6,890	1988	8,124
1979	6,929	1989	8,124
1980	7,434	1990	8,125
1981	7,805	1991	7,993
1982	7,915	1992	7,932
1983	7,985	1993	7,989
1984	8,043		

Current capacity is 7,989 billion cubic feet.

Section 5. Oil and Gas Resource Development

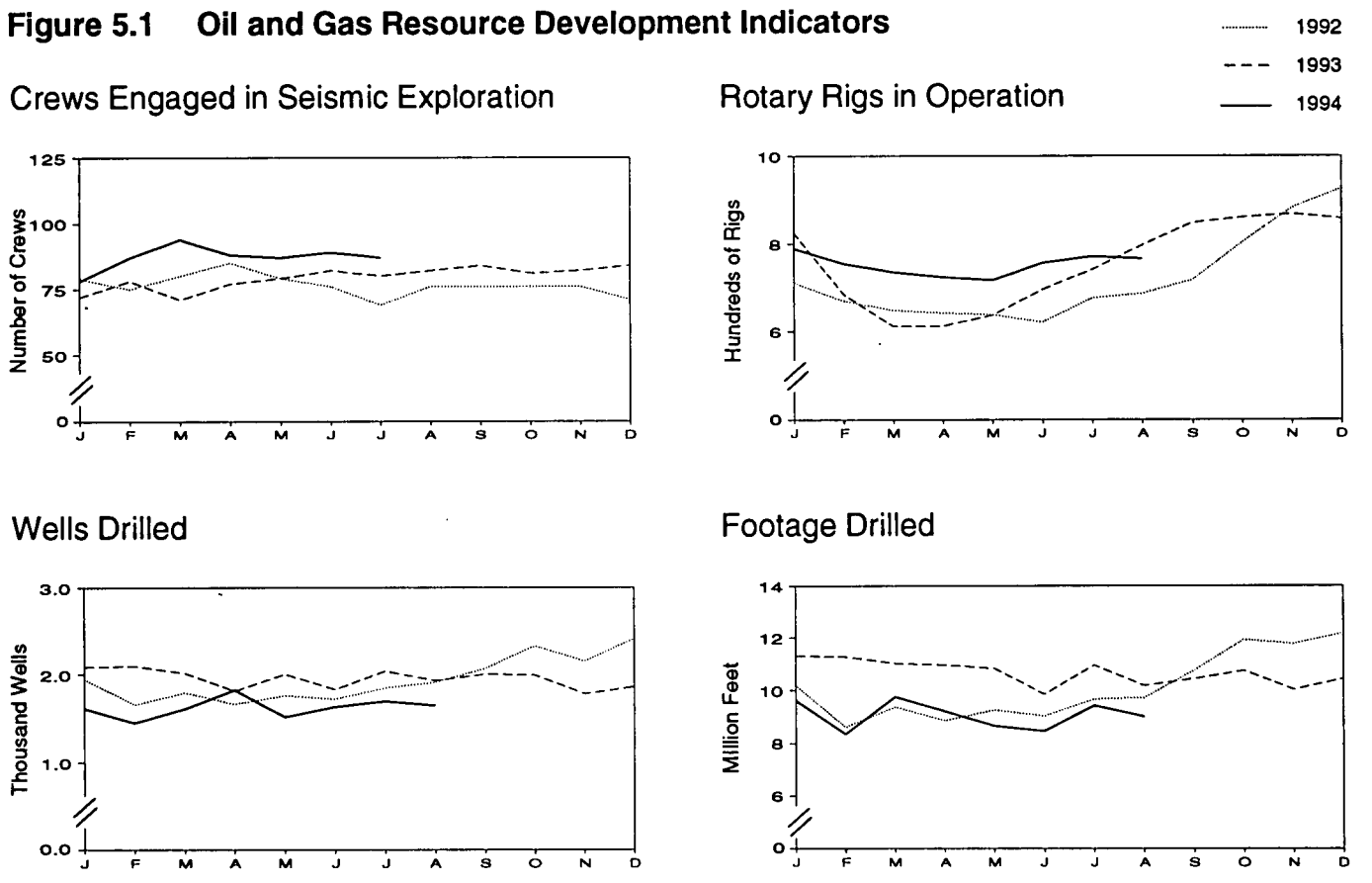
Seismic activity statistics are not available for this month. The Society of Exploration Geophysicists, source of these data, is reorganizing its survey effort. Next month's report will present data for both August and September 1994.

The August 1994 rotary rig count of 766 was 1 percent lower than the count in the previous month and 4 percent lower than the count in August 1993. Of the total number of rigs in operation, 671 were onshore and 95 were offshore. The number of onshore rigs was down 5 percent from the number in August 1993, and the number of offshore rigs was up 9 percent.

Total footage drilled in August 1994 was 9.0 million feet, down 4 percent from footage drilled in July 1994 and down 12 percent from that drilled in August 1993.

The estimated number of exploratory and development oil and gas wells drilled during August 1994 was 1,199, 2 percent higher than the number drilled in July 1994 but 11 percent lower than the number drilled in August 1993. The estimated number of oil wells drilled was 492 and the estimated number of gas wells was 707, 31 percent lower and 13 percent higher, respectively, than their August 1993 levels. The estimated number of dry holes drilled in August 1994 was 451, down 14 percent from the number drilled in July 1994 and 23 percent lower than the number drilled in August 1993.

Figure 5.1 Oil and Gas Resource Development Indicators



Sources: Tables 5.1 and 5.2.

Table 5.1 Oil and Gas Drilling Activity Measurements

	Crews Engaged in Seismic Exploration			Rotary Rigs in Operation[a]					Total Footage Drilled[c]	Active Well Servicing Units[d]
				By Site		By Type				
	Offshore	Onshore	Total	Offshore	Onshore	Oil	Gas	Total[b]		
	Monthly Average			Weekly Average					Thousand Feet	Number
1973 Average	23	227	250	84	1,110	NA	NA	1,194	139,427	NA
1974 Average	31	274	305	94	1,378	NA	NA	1,472	153,791	NA
1975 Average	30	254	284	106	1,554	NA	NA	1,660	181,046	NA
1976 Average	25	237	262	129	1,529	NA	NA	1,658	187,291	2,601
1977 Average	27	281	308	167	1,834	NA	NA	2,001	215,696	2,828
1978 Average	25	327	352	185	2,074	NA	NA	2,259	238,388	2,988
1979 Average	30	370	400	207	1,970	NA	NA	2,177	243,686	3,399
1980 Average	37	493	530	231	2,678	NA	NA	2,909	312,303	4,089
1981 Average	44	637	681	256	3,714	NA	NA	3,970	408,842	4,850
1982 Average	57	531	588	243	2,862	NA	NA	3,105	378,437	4,248
1983 Average	47	426	473	199	2,033	NA	NA	2,232	318,585	3,732
1984 Average	49	445	494	213	2,215	NA	NA	2,428	370,730	4,663
1985 Average	45	333	378	206	1,774	NA	NA	1,980	312,569	4,716
1986 Average	24	176	200	99	865	NA	NA	964	177,486	3,036
1987 Average	24	153	177	95	841	NA	NA	936	161,226	3,060
1988 Average	29	153	182	123	813	554	354	936	153,340	3,341
1989 Average	23	109	132	105	764	453	401	869	133,383	3,391
1990 Average	23	102	125	108	902	532	464	1,010	149,378	3,658
1991 Average	19	85	104	81	779	482	351	860	141,848	3,331
1992 January	18	61	79	56	654	400	294	710	10,196	2,912
February	13	62	75	51	618	378	277	669	8,610	2,704
March	13	67	80	54	594	381	250	648	9,381	2,592
April	13	72	85	55	587	370	251	642	8,860	2,727
May	13	66	79	47	591	358	260	638	9,261	2,264
June	12	64	76	44	577	343	260	621	9,034	2,369
July	9	60	69	48	628	349	310	676	9,675	2,492
August	9	67	76	51	635	334	331	686	R9,728	2,630
September	10	66	76	45	672	345	356	717	10,748	2,825
October	10	66	76	53	750	392	399	803	11,925	3,076
November	15	61	76	60	822	418	451	882	11,764	2,977
December	13	58	71	59	867	397	509	926	12,167	3,218
Average	12	64	76	52	669	373	331	721	R121,349	2,732
1993 January	17	55	72	72	752	335	454	824	11,302	2,807
February	15	63	78	69	615	311	334	684	11,272	2,899
March	16	55	71	62	549	315	268	611	11,018	2,829
April	14	63	77	69	543	320	270	612	10,965	2,703
May	15	64	79	73	564	323	294	637	10,829	2,848
June	17	65	82	83	612	350	327	695	9,856	3,087
July	15	65	80	85	656	368	360	741	10,950	3,178
August	16	66	82	87	710	397	390	797	R10,177	3,423
September	18	66	84	89	759	418	421	848	10,437	3,341
October	15	66	81	93	767	441	411	860	10,746	3,519
November	17	65	82	99	769	453	408	868	10,026	3,604
December	18	66	84	103	754	425	426	857	10,435	3,662
Average	16	63	79	82	672	373	364	754	R128,013	3,158
1994 January	18	60	78	99	690	356	425	789	9,630	3,386
February	18	69	87	95	659	337	405	754	R8,344	3,063
March	19	75	94	99	636	323	403	735	9,769	2,977
April	20	68	88	106	617	314	398	723	9,217	2,649
May	22	65	87	104	612	320	382	716	8,650	2,798
June	20	69	89	113	643	331	408	756	8,452	2,785
July	23	64	87	107	664	341	415	771	9,429	R2,992
August	NA	NA	NA	95	671	320	433	766	9,006	E2,970
8-Month Average	NA	NA	NA	102	649	330	409	751	72,497	E3,076
1993 8-Month Average	16	62	78	75	624	340	336	699	86,369	2,972
1992 8-Month Average	12	65	77	50	612	364	280	662	74,745	2,586

[a] Monthly data are averages of 4- or 5-week reporting periods, not calendar months. Annual data are averages of 52- or 53-week reporting periods, not calendar years.

[b] Sum of oil, gas, and miscellaneous other rigs, which is not shown.

[c] Values shown are totals.

[d] See Glossary.

R=Revised data. NA=Not available. E=Estimate.

Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Crews Engaged in Seismic Exploration:** Society of Exploration Geophysicists, Tulsa, Oklahoma, *Monthly Seismic Crew Count.* • **Rotary Rigs in Operation:** Baker Hughes, Inc., Houston, Texas, *Rotary Rigs Running--by State.* • **Total Footage Drilled:** Energy Information Administration computations, which are based on well reports submitted to the American Petroleum Institute by the Petroleum Information Corporation, Denver, Colorado. • **Active Well Servicing Units:** American Association of Oilwell Servicing Contractors, Dallas, Texas, *Well Servicing.*

Table 5.2 Oil and Gas Wells Drilled

(Number of Wells)

	Exploratory				Development				Total			
	Oil	Gas	Dry	Total	Oil	Gas	Dry	Total	Oil	Gas	Dry	Total
1973 Total	**654**	**1,079**	**6,038**	**7,771**	**9,597**	**5,896**	**4,428**	**19,921**	**10,251**	**6,975**	**10,466**	**27,692**
1974 Total	**870**	**1,205**	**6,894**	**8,969**	**12,794**	**5,965**	**5,311**	**24,070**	**13,664**	**7,170**	**12,205**	**33,039**
1975 Total	**991**	**1,263**	**7,207**	**9,461**	**15,988**	**6,907**	**6,529**	**29,424**	**16,979**	**8,170**	**13,736**	**38,885**
1976 Total	**1,100**	**1,362**	**6,854**	**9,316**	**16,597**	**8,076**	**6,951**	**31,624**	**17,697**	**9,438**	**13,805**	**40,940**
1977 Total	**1,183**	**1,562**	**7,402**	**10,147**	**17,517**	**10,557**	**7,634**	**35,708**	**18,700**	**12,119**	**15,036**	**45,855**
1978 Total	**1,191**	**1,792**	**8,054**	**11,037**	**17,874**	**12,613**	**8,537**	**39,024**	**19,065**	**14,405**	**16,591**	**50,061**
1979 Total	**1,335**	**1,920**	**7,478**	**10,733**	**19,368**	**13,250**	**8,560**	**41,178**	**20,703**	**15,170**	**16,038**	**51,911**
1980 Total	**1,781**	**2,094**	**9,035**	**12,910**	**30,497**	**15,129**	**11,302**	**56,928**	**32,278**	**17,223**	**20,337**	**69,838**
1981 Total	**2,667**	**2,533**	**12,297**	**17,497**	**40,176**	**17,374**	**14,987**	**72,537**	**42,843**	**19,907**	**27,284**	**90,034**
1982 Total	**2,470**	**2,168**	**11,346**	**15,984**	**36,672**	**16,776**	**15,036**	**68,484**	**39,142**	**18,944**	**26,382**	**84,468**
1983 Total	**2,113**	**1,660**	**10,271**	**14,044**	**35,086**	**12,896**	**14,065**	**62,047**	**37,199**	**14,556**	**24,336**	**76,091**
1984 Total	**2,335**	**1,599**	**11,482**	**15,416**	**40,250**	**15,413**	**14,315**	**69,978**	**42,585**	**17,012**	**25,797**	**85,394**
1985 Total	**1,879**	**1,282**	**9,445**	**12,606**	**33,142**	**12,970**	**11,763**	**57,875**	**35,021**	**14,252**	**21,208**	**70,481**
1986 Total	**988**	**733**	**5,511**	**7,232**	**17,713**	**7,402**	**7,255**	**32,370**	**18,701**	**8,135**	**12,766**	**39,602**
1987 Total	**859**	**673**	**5,179**	**6,711**	**15,327**	**7,084**	**6,302**	**28,713**	**16,186**	**7,757**	**11,481**	**35,424**
1988 Total	**792**	**663**	**4,766**	**6,221**	**12,530**	**7,575**	**5,476**	**25,581**	**13,322**	**8,238**	**10,242**	**31,802**
1989 Total	**580**	**654**	**4,001**	**5,235**	**9,759**	**8,571**	**4,490**	**22,820**	**10,339**	**9,225**	**8,491**	**28,055**
1990 Total	**617**	**586**	**3,782**	**4,985**	**11,533**	**9,854**	**4,832**	**26,219**	**12,150**	**10,440**	**8,614**	**31,204**
1991 Total	**545**	**464**	**3,303**	**4,312**	**11,363**	**8,702**	**R4,544**	**R24,609**	**11,908**	**9,166**	**R7,847**	**R28,921**
1992 January	46	33	218	297	741	587	321	1,649	787	620	539	1,946
February	34	30	167	231	590	564	277	1,431	624	594	444	1,662
March	38	31	205	274	721	481	319	1,521	759	512	524	1,795
April	32	22	233	287	665	420	297	1,382	697	442	530	1,669
May	35	23	225	283	636	469	374	1,479	671	492	599	1,762
June	41	32	209	282	626	484	331	1,441	667	516	540	1,723
July	43	30	256	329	664	543	312	1,519	707	573	568	1,848
August	42	33	241	316	R637	R600	357	R1,594	R679	R633	598	R1,910
September	38	22	222	282	783	660	339	1,782	821	682	561	2,064
October	30	34	205	269	748	949	358	2,055	778	983	563	2,324
November	38	35	165	238	690	888	331	1,909	728	923	496	2,147
December	29	33	225	287	757	973	391	2,121	786	1,006	616	2,408
Total	**446**	**358**	**2,571**	**3,375**	**R8,258**	**R7,618**	**4,007**	**R19,883**	**R8,704**	**R7,976**	**6,578**	**R23,258**
1993 January	41	35	162	238	627	929	290	1,846	668	964	452	2,084
February	32	R41	171	R244	586	R920	346	R1,852	618	961	517	2,096
March	23	25	186	234	627	R903	252	R1,782	650	R928	438	R2,016
April	41	26	205	272	562	624	355	1,541	603	650	560	1,813
May	40	33	176	249	595	R697	462	R1,754	635	R730	638	R2,003
June	35	31	193	259	625	561	384	1,570	660	592	577	1,829
July	34	26	256	316	676	546	498	1,720	710	572	754	2,036
August	20	36	226	282	R696	R592	359	R1,647	R716	R628	585	R1,929
September	28	29	221	278	675	634	414	1,723	703	663	635	2,001
October	32	36	186	254	720	693	324	1,737	752	729	510	1,991
November	28	36	194	258	659	546	316	1,521	687	582	510	1,779
December	25	29	194	248	666	617	326	1,609	691	646	520	1,857
Total	**379**	**R383**	**2,370**	**R3,132**	**R7,714**	**R8,262**	**4,326**	**R20,302**	**R8,093**	**R8,645**	**6,696**	**R23,434**
1994 January	51	41	167	259	595	526	236	1,357	646	567	403	1,616
February	26	42	121	189	547	513	R201	R1,261	573	555	R322	R1,450
March	28	64	164	256	509	550	298	1,357	537	614	462	1,613
April	54	58	144	256	623	588	359	1,570	677	646	503	1,826
May	33	38	R171	R242	R391	553	R331	R1,275	R424	591	502	R1,517
June	37	42	175	254	516	568	297	1,381	553	610	472	1,635
July	40	46	195	281	503	584	329	1,416	543	630	524	1,697
August	34	43	185	262	458	664	266	1,388	492	707	451	1,650
8-Month Total	**303**	**374**	**1,322**	**1,999**	**4,142**	**4,546**	**2,317**	**11,005**	**4,445**	**4,920**	**3,639**	**13,004**
1993 8-Month Total	**266**	**253**	**1,575**	**2,094**	**4,994**	**5,772**	**2,946**	**13,712**	**5,260**	**6,025**	**4,521**	**15,806**
1992 8-Month Total	**311**	**234**	**1,754**	**2,299**	**5,280**	**4,148**	**2,588**	**12,016**	**5,591**	**4,382**	**4,342**	**14,315**

R=Revised data.

Notes: • Service wells, stratigraphic tests, and core tests are excluded. • Due to the method of estimation, data shown on this page are frequently revised. See end of section. • Geographic coverage is the 50 States and the District of Columbia.

Sources: Energy Information Administration computations, which are based on well reports submitted to the American Petroleum Institute by the Petroleum Information Corporation, Denver, Colorado.

Oil and Gas Resource Development Notes

Three well types are considered in the *Monthly Energy Review (MER)* drilling statistics: "completed for oil," "completed for gas," and "dry hole." Wells that productively encounter both crude oil and natural gas are categorized as "completed for oil." Both development wells and exploratory wells (new field wildcats, new pool tests, and extension tests) are included in the statistics. All other classes of wells drilled in connection with the search for producible hydrocarbons are excluded.

Prior to the March 1985 *MER*, drilling statistics consisted of completion data for the above types and classes of wells as reported to the American Petroleum Institute (API) during a given month. Due to time lags between the date of well completion and the date of completion reporting to the API, as-reported well completions proved to be an inaccurate indicator of drilling activity. During 1982, for example, as-reported well completions rose, while the number of actual completions fell. Consequently, the drilling statistics published since the March 1985 *MER* are Energy Information Administration-generated (EIA) estimates produced by statistically imputing well counts and footage based on the partial data available from the API.

Estimates for a given month are first published in the *MER* for that month. Revisions of the "oil," "gas," and "dry" components are made in the 6th, 12th, and 24th subsequent months, as newly reported data allow refinement of the estimates. Unscheduled revisions may also occur when the latest estimate differs by more than 15 percent during the first 5 months, more than 10 percent during the next 6 months, or more than 2 percent thereafter through 5 years. After 5 years, the reported API data are published in lieu of EIA-generated estimates. Additional information about the EIA estimation methodology may be found in "Estimating Well Completions," the feature article published in the March 1985 *MER*.

Section 6. Coal

Coal production in July 1994 totaled 77 million short tons, 8 percent[6] higher than coal production in July 1993.

Electric utility coal consumption in June 1994 totaled 73 million short tons, 7 percent higher than the consumption level in June 1993. During the first 6 months of 1994, coal consumption at electric utilities was 404 million short tons, 4 percent higher than the 388 million short tons consumed during the comparable period in 1993.

Electric utility coal stocks were 118 million short tons at the end of June 1994, down from 146 million short tons at the end of June 1993.

Coal exports in June 1994 totaled 8 million short tons, 11 percent lower than exports in June 1993. Coal exports for the first 6 months of 1994 totaled 33 million short tons, 15 percent lower that the 39 million short tons of coal exported during the first 6 months of 1993.

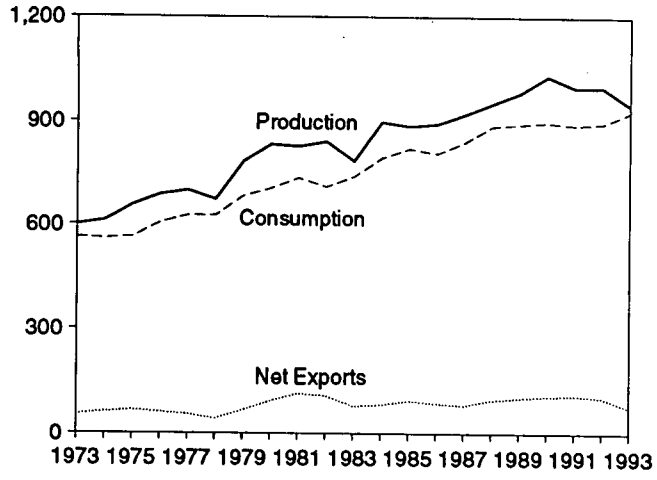
Coal imports in June 1994 totaled 571 thousand short tons, 11 percent higher than imports in June 1993. Coal imports during the first 6 months of 1994 totaled 3 million short tons, 49 percent higher than coal imports during the comparable period in 1993.

[6]Percentage changes are based on unrounded data.

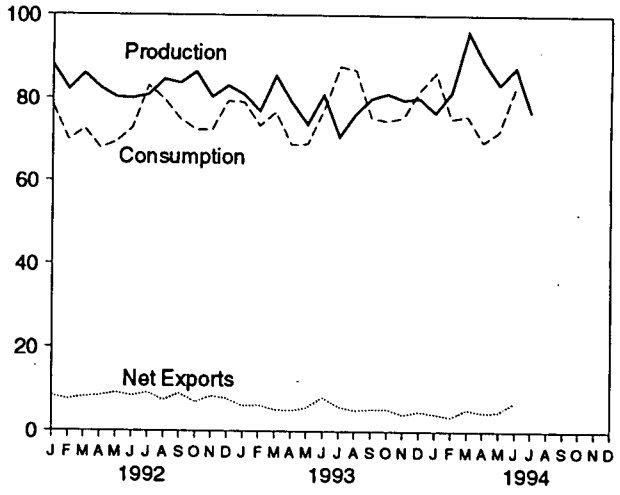
Figure 6.1 Coal

(Million Short Tons)

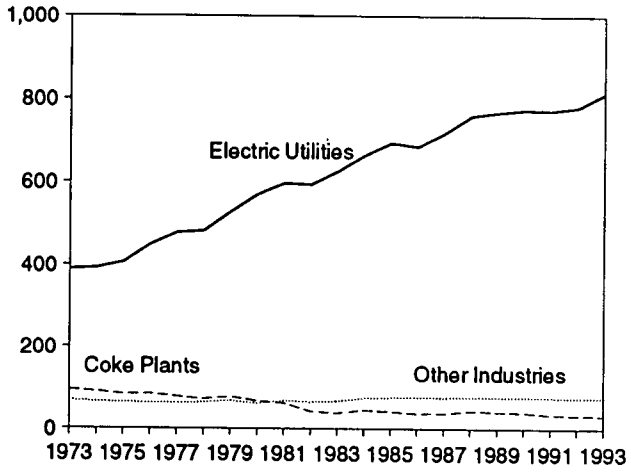
Overview, 1973-1993



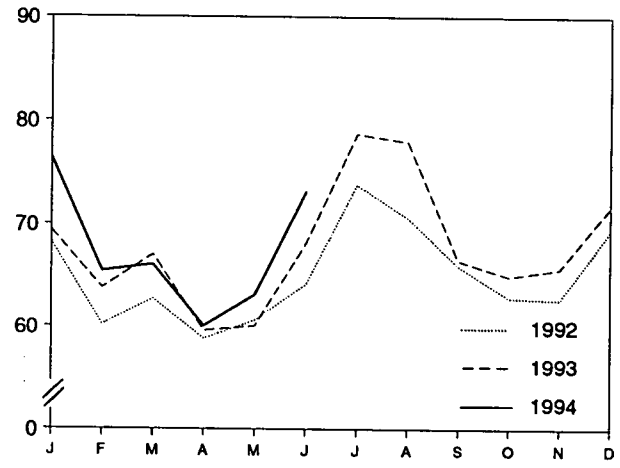
Overview, Monthly



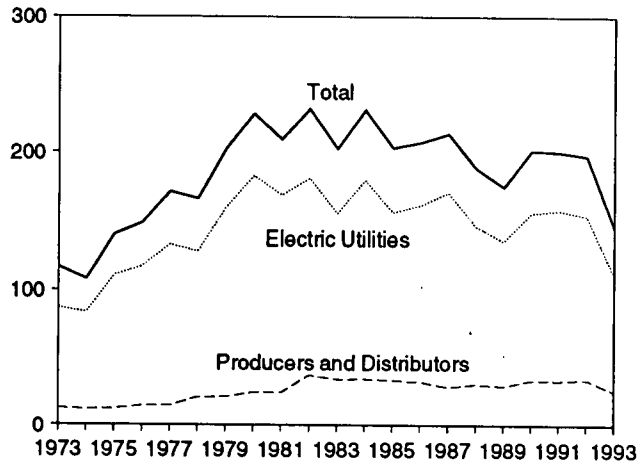
Consumption by Sector, 1973-1993



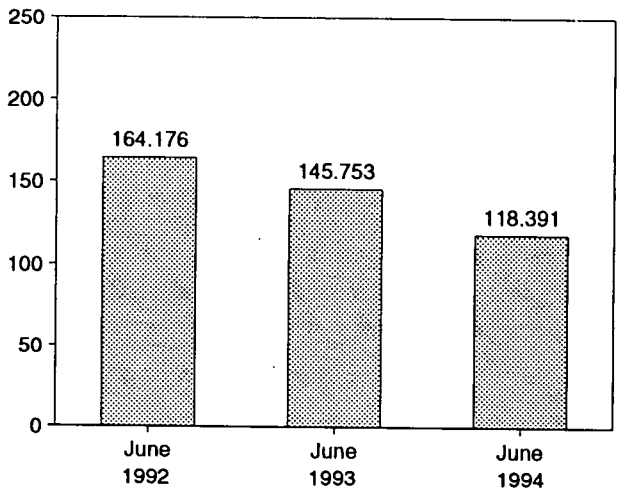
Consumption by Electric Utilities, Monthly



Stocks, End of Year, 1973-1993



Stocks at Electric Utilities, End of Month



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 6.1, 6.2, and 6.3.

Table 6.1 Coal Overview

(Thousand Short Tons)

	Production	Consumption	Imports[a]	Exports	Stocks[b]
1973 Total	**598,568**	**562,584**	**127**	**53,587**	**116,865**
1974 Total	**610,023**	**558,402**	**2,080**	**60,661**	**107,957**
1975 Total	**654,641**	**562,640**	**940**	**66,309**	**140,158**
1976 Total	**684,913**	**603,790**	**1,203**	**60,021**	**148,659**
1977 Total	**697,205**	**625,291**	**1,647**	**54,312**	**171,323**
1978 Total	**670,164**	**625,225**	**2,953**	**40,714**	**166,246**
1979 Total	**781,134**	**680,524**	**2,059**	**66,042**	**202,472**
1980 Total	**829,700**	**702,730**	**1,194**	**91,742**	**228,407**
1981 Total	**823,775**	**732,627**	**1,043**	**112,541**	**209,423**
1982 Total	**838,112**	**706,911**	**742**	**106,277**	**232,038**
1983 Total	**782,091**	**736,672**	**1,271**	**77,772**	**202,584**
1984 Total	**895,921**	**791,296**	**1,286**	**81,483**	**231,300**
1985 Total	**883,638**	**818,049**	**1,952**	**92,680**	**203,367**
1986 Total	**890,315**	**804,231**	**2,212**	**85,518**	**207,319**
1987 Total	**918,762**	**836,941**	**1,747**	**79,607**	**213,780**
1988 Total	**950,265**	**883,642**	**2,134**	**95,023**	**188,831**
1989 Total	**980,729**	**889,699**	**2,851**	**100,815**	**175,087**
1990 Total	**1,029,076**	**895,480**	**2,699**	**105,804**	**201,629**
1991 Total	**995,984**	**887,621**	**3,390**	**108,969**	**200,682**
1992 January	87,948	78,162	272	8,590	200,325
February	82,139	69,837	213	7,759	204,716
March	85,869	72,595	193	8,383	208,485
April	82,449	67,802	239	8,616	211,429
May	80,250	69,430	339	9,483	214,714
June	80,036	72,804	466	8,911	213,783
July	80,862	83,074	362	9,572	202,271
August	84,537	79,736	197	7,605	198,710
September	83,657	74,888	323	9,304	197,076
October	86,364	72,405	471	7,443	200,971
November	80,335	72,329	377	8,718	201,683
December	83,100	79,359	351	8,134	197,685
Total	**997,545**	**892,421**	**3,803**	**102,516**	**197,685**
1993 January	80,982	79,116	344	6,506	195,037
February	76,919	73,372	454	6,715	192,442
March	85,516	76,677	415	5,648	191,072
April	79,074	68,719	281	5,268	194,213
May	73,728	68,998	298	6,060	195,654
June	80,948	77,102	514	8,619	189,669
July	70,798	87,695	643	6,573	168,179
August	76,277	86,870	747	5,830	152,790
September	80,056	75,306	753	6,120	149,092
October	81,232	74,635	1,054	6,485	150,745
November	79,720	75,471	970	5,019	151,116
December	80,176	81,981	836	5,677	145,742
Total	**945,424**	**925,944**	**7,309**	**74,519**	**145,742**
1994 January	76,617	86,347	540	4,731	134,929
February	81,624	75,135	753	4,252	136,571
March	96,042	75,860	557	5,894	146,253
April	88,823	E 69,500	456	4,976	E 150,125
May	83,504	E 72,194	550	5,326	E 156,825
June	87,564	E 82,829	571	7,637	E 155,369
July	76,700	NA	NA	NA	NA
7-Month Total	**590,874**	**NA**	**NA**	**NA**	**NA**
1993 7-Month Total	**547,964**	**531,681**	**2,948**	**45,389**	**168,179**
1992 7-Month Total	**579,553**	**513,705**	**2,084**	**61,313**	**202,271**

[a] Includes Puerto Rico.

[b] Stocks held by electric utilities, coke plants, general industry, and coal producers and distributors at end of period. Excludes stocks held at retail dealers for consumption by the residential and commercial sector.

NA=Not available. E=Estimate.

Notes: • Data through 1993 are final. Subsequent data are preliminary. • For methodology used to calculate production, consumption, and stocks, see Notes 1, 2, and 3 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Production: 1973-September 1977**—U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977 forward**—Energy Information Administration, *Weekly Coal Production*. • **Consumption:** Table 6.2. • **Imports and Exports:** U.S. Department of Commerce, Bureau of the Census, Monthly Reports IM-145 (Imports) and EM-545 (Exports). • **Stocks:** Table 6.3.

Table 6.2 Coal Consumption by End-Use Sector

(Thousand Short Tons)

	Residential and Commercial	Industrial		Electric Utilities	Total
		Coke Plants	Other Industrial Including Transportation		
1973 Total	**11,117**	**94,101**	**68,154**	**389,212**	**562,584**
1974 Total	**11,417**	**90,191**	**64,983**	**391,811**	**558,402**
1975 Total	**9,410**	**83,598**	**63,670**	**405,962**	**562,640**
1976 Total	**8,916**	**84,704**	**61,799**	**448,371**	**603,790**
1977 Total	**8,954**	**77,739**	**61,472**	**477,126**	**625,291**
1978 Total	**9,511**	**71,394**	**63,085**	**481,235**	**625,225**
1979 Total	**8,388**	**77,368**	**67,717**	**527,051**	**680,524**
1980 Total	**6,452**	**66,657**	**60,347**	**569,274**	**702,730**
1981 Total	**7,421**	**61,014**	**67,395**	**596,797**	**732,627**
1982 Total	**8,240**	**40,908**	**64,097**	**593,666**	**706,911**
1983 Total	**8,448**	**37,033**	**65,980**	**625,211**	**736,672**
1984 Total	**9,130**	**44,022**	**73,745**	**664,399**	**791,296**
1985 Total	**7,779**	**41,056**	**75,372**	**693,841**	**818,049**
1986 Total	**7,667**	**35,924**	**75,583**	**685,056**	**804,231**
1987 Total	**6,914**	**36,957**	**75,175**	**717,894**	**836,941**
1988 Total	**7,130**	**41,888**	**76,252**	**758,372**	**883,642**
1989 Total	**6,167**	**40,508**	**76,134**	**766,888**	**889,699**
1990 Total	**6,724**	**38,877**	**76,330**	**773,549**	**895,480**
1991 Total	**6,094**	**33,854**	**75,405**	**772,268**	**887,621**
1992 January	735	2,783	6,379	68,264	78,162
February	582	2,656	6,416	60,183	69,837
March	526	2,901	6,464	62,705	72,595
April	532	2,723	5,754	58,794	67,802
May	321	2,757	5,762	60,591	69,430
June	296	2,617	5,769	64,122	72,804
July	474	2,802	5,983	73,815	83,074
August	393	2,773	5,933	70,637	79,736
September	368	2,625	5,927	65,967	74,888
October	367	2,586	6,645	62,806	72,405
November	642	2,562	6,513	62,612	72,329
December	916	2,581	6,497	69,365	79,359
Total	**6,153**	**32,366**	**74,042**	**779,860**	**892,421**
1993 January	662	2,674	6,380	69,400	79,116
February	641	2,468	6,451	63,812	73,372
March	514	2,640	6,450	67,073	76,677
April	613	2,578	5,931	59,596	68,719
May	323	2,719	5,925	60,032	68,998
June	418	2,588	5,978	68,118	77,102
July	424	2,678	5,876	78,717	87,695
August	382	2,664	5,892	77,932	86,870
September	288	2,618	5,907	66,493	75,306
October	386	2,660	6,647	64,941	74,635
November	649	2,447	6,697	65,677	75,471
December	921	2,587	6,757	71,717	81,981
Total	**6,221**	**31,323**	**74,892**	**813,508**	**925,944**
1994 January	860	2,506	6,619	76,362	86,347
February	674	2,375	6,631	65,455	75,135
March	496	2,540	6,725	66,098	75,860
April	E 725	E 2,539	E 6,196	60,040	E 69,500
May	E 382	E 2,640	E 6,088	63,084	E 72,194
June	E 1,259	E 2,525	E 5,915	73,130	E 82,829
6-Month Total	E **4,397**	E **15,125**	E **38,175**	**404,169**	E **461,866**
1993 6-Month Total	**3,171**	**15,668**	**37,115**	**388,031**	**443,986**
1992 6-Month Total	**2,992**	**16,437**	**36,544**	**374,658**	**430,630**

E=Estimate.

Notes: • For sector-specific reporting and estimating information, see Note 2 at end of section. • Data through 1993 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Residential and Commercial: 1973-1976**—U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook*. **January-September 1977**—DOI, BOM, Form 6-1400, "Monthly Coal Report, Retail Dealers-Upper Lake Docks." **October 1977-1979**—Energy Information Administration (EIA), Form EIA-2, "Monthly Coal Report, Retail Dealers-Upper Lake Docks." **1980 forward**—EIA, Form EIA-6, "Coal Distribution Report," quarterly. • **Coke Plants: 1973-September 1977**—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977-1980**—EIA, Form EIA-5/5A, "Coke and Coal Chemicals-Monthly/Annual." **1981-1984**—EIA, Form EIA-5/5A, "Coke Plant Report-Quarterly/Annual Supplement." **1985 forward**—EIA, Form EIA-5, "Coke Plant Report-Quarterly." • **Other Industrial: 1973-September 1977**—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977-1979**—EIA, Form EIA-3, "Monthly Coal Consumption Report-Manufacturing Plants." **1980 forward**—EIA, Form EIA-3, "Quarterly Coal Consumption Report-Manufacturing Plants," and Form EIA-6, "Coal Distribution Report," quarterly. • **Electric Utilities: 1973-September 1977**—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977 forward**—EIA, Form EIA-759 (formerly Form FPC-4), "Monthly Power Plant Report."

Table 6.3 Coal Stocks, End of Period

(Thousand Short Tons)

	Consumer				Producers and Distributors	Total[a]
	Coke Plants	Other Industrial	Electric Utilities	Total[a]		
1973 Year	**6,998**	**10,370**	**86,967**	**104,335**	**12,530**	**116,865**
1974 Year	**6,209**	**6,605**	**83,509**	**96,323**	**11,634**	**107,957**
1975 Year	**8,797**	**8,529**	**110,724**	**128,050**	**12,108**	**140,158**
1976 Year	**9,902**	**7,100**	**117,436**	**134,438**	**14,221**	**148,659**
1977 Year	**12,816**	**11,063**	**133,219**	**157,098**	**14,225**	**171,323**
1978 Year	**8,278**	**9,048**	**128,225**	**145,551**	**20,695**	**166,246**
1979 Year	**10,155**	**11,777**	**159,714**	**181,646**	**20,826**	**202,472**
1980 Year	**9,067**	**11,951**	**183,010**	**204,028**	**24,379**	**228,407**
1981 Year	**6,475**	**9,906**	**168,893**	**185,274**	**24,149**	**209,423**
1982 Year	**4,642**	**9,479**	**181,132**	**195,254**	**36,784**	**232,038**
1983 Year	**4,346**	**8,710**	**155,598**	**168,654**	**33,931**	**202,584**
1984 Year	**6,166**	**11,317**	**179,727**	**197,211**	**34,090**	**231,300**
1985 Year	**3,420**	**10,438**	**156,376**	**170,234**	**33,133**	**203,367**
1986 Year	**2,992**	**10,429**	**161,806**	**175,226**	**32,093**	**207,319**
1987 Year	**3,884**	**10,777**	**170,797**	**185,459**	**28,321**	**213,780**
1988 Year	**3,137**	**8,768**	**146,507**	**158,413**	**30,418**	**188,831**
1989 Year	**2,864**	**7,363**	**135,860**	**146,087**	**29,000**	**175,087**
1990 Year	**3,329**	**8,716**	**156,166**	**168,210**	**33,418**	**201,629**
1991 Year	**2,773**	**7,061**	**157,876**	**167,711**	**32,971**	**200,682**
1992 January	2,807	6,616	155,637	165,060	35,265	200,325
February	2,841	6,171	158,145	167,157	37,559	204,716
March	2,875	5,725	160,032	168,632	39,853	208,485
April	2,842	5,923	162,591	171,356	40,073	211,429
May	2,809	6,100	165,512	174,421	40,293	214,714
June	2,776	6,317	164,176	173,270	40,513	213,783
July	2,589	6,538	154,403	163,530	38,741	202,271
August	2,402	6,758	152,580	161,740	36,970	198,710
September	2,215	6,979	152,685	161,878	35,198	197,076
October	2,342	6,974	156,859	166,175	34,796	200,971
November	2,470	6,969	157,849	167,288	34,395	201,683
December	**2,597**	**6,965**	**154,130**	**163,692**	**33,993**	**197,685**
1993 January	2,668	6,587	150,302	159,557	35,480	195,037
February	2,739	6,209	146,528	155,476	36,967	192,442
March	2,809	5,831	143,978	152,619	38,453	191,072
April	2,879	5,911	148,178	156,968	37,245	194,213
May	2,949	5,990	150,678	159,618	36,036	195,654
June	3,020	6,070	145,753	154,842	34,827	189,669
July	2,858	6,227	126,815	135,900	32,279	168,179
August	2,697	6,383	113,978	123,058	29,731	152,790
September	2,536	6,540	112,833	121,909	27,183	149,092
October	2,491	6,599	115,105	124,195	26,550	150,745
November	2,446	6,657	116,095	125,199	25,917	151,116
December	**2,401**	**6,716**	**111,341**	**120,458**	**25,284**	**145,742**
1994 January	2,318	6,090	98,294	106,703	28,227	134,929
February	2,235	5,465	97,701	105,401	31,170	136,571
March	2,152	4,840	105,149	112,140	34,112	146,253
April	E 1,933	E 5,868	113,324	E 121,125	E 29,000	E 150,125
May	E 2,090	E 6,092	119,643	E 127,825	E 29,000	E 156,825
June	E 2,050	E 5,928	118,391	E 126,369	E 29,000	E 155,369

[a] Excludes stocks held at retail dealers for consumption by the residential and commercial sector.

E=Estimate.

Notes: • For sector-specific reporting and estimating information, see Note 3 at end of section. • Data through 1993 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Coke Plants: 1973-September 1977**—U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977-1980**—Energy Information Administration (EIA), Form EIA-5/5A, "Coke and Coal Chemicals-Monthly/Annual." **1981-1984**—EIA, Form EIA-5/5A, "Coke Plant Report-Quarterly/Annual Supplement." **1985 forward**—EIA, Form EIA-5, "Coke Plant Report-Quarterly." • **Other Industrial: 1973-September 1977**—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977-1979**—EIA, Form EIA-3, "Monthly Coal Consumption Report-Manufacturing Plants." **1980 forward**—EIA, Form EIA-3, "Quarterly Coal Consumption Report-Manufacturing Plants," and Form EIA-6, "Coal Distribution Report," quarterly. • **Electric Utilities: 1973-September 1977**—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*. **October 1977 forward**—EIA, Form EIA-759 (formerly Form FPC-4), "Monthly Power Plant Report." • **Producers and Distributors:** EIA, Form EIA-6, "Coal Distribution Report," quarterly.

Coal Notes

1. Production: Preliminary monthly estimates of national coal production are the sum of weekly estimates developed by the Energy Information Administration (EIA) and published in the *Weekly Coal Production* report. When a week extends into a new month, production is allocated on a daily basis and added to the appropriate month. Weekly estimates are based on Association of American Railroads data showing the number of railcars loaded with coal during the week by Class I and certain other railroads. This number is converted into tons of coal by EIA by using the average number of tons of coal per railcar loaded reported in the most recent "Quarterly Freight Commodity Statistics" from the Interstate Commerce Commission. If an average coal tonnage per railcar loaded is not available for a specific railroad, the national average is used. To derive the estimate of total weekly production, the total rail tonnage for the week is divided by the ratio of quarterly production shipped by rail and total quarterly production. Data for the corresponding quarter of previous years are used to derive this ratio. This method insures that the seasonal variations are preserved in the production estimates.

When preliminary quarterly data become available, the monthly and weekly estimates are adjusted to conform to the quarterly figure. The adjustment procedure uses State-level production data and is explained in EIA's *Quarterly Coal Report*. Initial estimates of annual production published in January of the following year are based on preliminary production data covering the first 9 months (three quarters) and weekly/monthly estimates for the fourth quarter. The fourth quarter estimates may or may not be revised when preliminary data become available in March of the following year, depending on the magnitude of the difference between the estimates and the preliminary data. In any event, all quarterly, monthly, and weekly production figures are adjusted to conform to the final annual production data published in the *Monthly Energy Review* in the fall of the following year.

2. Consumption: Coal consumption data are reported by major end-use sector. Estimated data for the most recent months (designated by an "E") are derived from forecasted values shown in the EIA *Short-Term Energy Outlook* (DOE/EIA-0202) table titled "Supply and Disposition of Coal: Mid World Oil Price Case." The monthly estimates are one-third of the quarterly values shown in the then current issue of the publication, regularly released in February, May, August, and November. The estimates are revised quarterly as collected data become available from the data sources. Sector-specific information follows.

- Residential and Commercial—Prior to 1980, monthly consumption estimates for the residential and commercial sector were derived by using reported data to modify baseline figures developed by the Bureau of Mines. From 1980-1987, monthly estimates were derived by proportioning reported quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported on Form EIA-2. During 1981 and 1982, the estimates were also modified to reflect air temperature degree-days. Quarterly consumption data were taken directly from reported data and were defined as distribution to the residential and commercial sector as reported by coal producers and distributors on Form EIA-6. Beginning in January 1988, monthly residential and commercial consumption estimates are derived from reported quarterly data by using monthly national average population weighted heating/cooling degree-days obtained from the National Oceanic and Atmospheric Administration. The monthly ratios are the monthly national sum of heating and cooling degree-days as a proportion of the quarterly national sum. Quarterly consumption data are taken directly from reported data.
- Coke Plants—Prior to 1980, monthly coke plant consumption data were taken directly from reported data. From 1980-1987, coke plant consumption estimates were derived by proportioning reported quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported. Beginning in January 1988, monthly coke plant consumption estimates are derived from the reported quarterly data by using monthly ratios of raw steel production data from the American Iron and Steel Institute. The ratios are the monthly raw steel production from open hearth and basic oxygen process furnaces as a proportion of the quarterly production from those kinds of furnaces.
- Other Industrial—Prior to 1978, monthly consumption data for the other industrial sector (i.e., all industrial users minus coke plants) were derived by using reported data to modify baseline consumption figures from the most recent Bureau of the Census Annual Survey of Manufactures or Census of Manufactures. For 1978 and 1979, monthly estimates were derived from data reported on Forms EIA-3 and EIA-6. From 1980-1987, monthly figures were estimated by proportioning quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported on Form EIA-3. Quarterly consumption data were derived by adding beginning stocks at manufacturing plants to current receipts and subtracting ending stocks at manufacturing plants. In this calculation, current receipts were the greater of either reported receipts from manufacturing plants (Form EIA-3) or reported shipments to the other industrial sector (Form EIA-6), thereby ensuring that agriculture, forestry, fishing, mining, and construction consumption data were included where appropriate. Starting in January 1988, monthly consumption for the other industrial sector is estimated from reported quarterly data by using

ratios derived from industrial production indices published by the Board of Governors of the Federal Reserve System. Indices for six major industry groups are used as the basis for calculating the ratios: foods, Standard Industrial Classification (SIC) 20; paper and products, SIC 26; chemicals and products, SIC 28; petroleum products, SIC 29; clay, glass, and stone products, SIC 32; and primary metals, SIC 33. The monthly ratios are computed as the monthly sum of the weighted indices as a proportion of the quarterly sum of the weighted indices by using the 1977 proportion as the weights.

- Electric Utilities—Monthly consumption data for electric utility plants are taken directly from reported data.

3. Stocks: Coal stocks data are reported by major end-use sector. Estimated data for the most recent months (designated by an "E") are derived from forecasted values shown in the EIA *Short-Term Energy Outlook* (DOE/EIA-0202) table titled "Supply and Disposition of Coal: Mid World Oil Price Case." The monthly estimates are one-third of the quarterly values shown in the then current issue of the publication, regularly released in February, May, August, and November. The estimates are revised quarterly as collected data become available from the data sources. Sector-specific information follows.

- Coke Plants—Prior to 1980, monthly stocks at coke plants were taken directly from reported data. From 1980 forward, coke plant stocks are estimated by using one-third of the current quarterly change to indicate the monthly change in stocks. Quarterly stocks are directly from data reported on Form EIA-5.
- Other Industrial—Prior to 1978, stocks for the other industrial sector were derived by using reported data to modify baseline figures from a one-time Bureau of Mines survey of consumers. For 1978-1982, monthly estimates were derived by judgmentally proportioning reported quarterly data based on representative seasonal patterns of supply and demand. From 1983 forward, other industrial coal stocks are estimated as indicated above for coke plants. Quarterly stocks are taken directly from data reported on Form EIA-3 and therefore include only manufacturing industries; data for agriculture, forestry, fishing, mining, and construction stocks are not available.
- Electric Utilities—Monthly stocks data at electric utility plants are taken directly from reported data.
- Producers and Distributors—Quarterly stocks at producers and distributors are taken directly from reported data. Monthly data are estimated by using one-third of the current quarterly change to indicate the monthly change in stocks.

4. Imports and Exports: All coal import and export figures are taken directly from data reported monthly by the Bureau of the Census.

5. Additional Information: EIA's *Quarterly Coal Report* provides additional information about coal data and estimation procedures.

Section 7. Electricity

During June 1994, electric utilities generated 264 billion kilowatthours of electricity, 6 percent[7] more than in June 1993. Coal-fired generation totaled 147 billion kilowatthours, 7 percent more than in June 1993. Nuclear generation totaled 52 billion kilowatthours, 2 percent below the level 1 year earlier. Natural gas-fired generation was 31 billion kilowatthours, 26 percent higher than the June 1993 level. Hydroelectric generation totaled 23 billion kilowatthours, 12 percent below the June 1993 level. Petroleum-fired generation totaled 10 billion kilowatthours, 27 percent above the level 1 year earlier.

During the first half of 1994, electric utilities generated 1,424 billion kilowatthours of electricity, 3 percent[7] more than the first half of 1993. Coal-fired generation totaled 811 billion kilowatthours, 4 percent more than the first half 1993 level. Nuclear generation totaled 298 billion kilowatthours, 2 percent below the level 1 year earlier. Hydroelectric generation totaled 132 billion kilowatthours, 11 percent below the first half 1993 level. Natural gas-fired generation was 121 billion kilowatthours, 13 percent higher than the first half 1993 level. Petroleum-fired generation totaled 57 billion kilowatthours, 38 percent above the level 1 year earlier.

Sales of electricity to all ultimate consumers in the United States in June 1994 were 252 billion kilowatthours, 6 percent more than sales during June 1993. Sales to industrial consumers totaled 86 billion kilowatthours in June 1994, 2 percent above the level a year ago. Sales to residential consumers during June 1994 were 84 billion kilowatthours, 10 percent above the level of sales during the previous year. Commercial sales were 73 billion kilowatthours, 8 percent higher than the level of commercial sales 1 year earlier. In June 1994, other sales totaled 8 billion kilowatthours, 1 percent higher than the June 1993 level.

During the first 6 months of 1993, sales of electricity to all ultimate consumers in the United States 1,425 billion kilowatthours, 4 percent higher than sales during the first six months of 1993. Sales to residential consumers during the first half of 1994 were 494 billion kilowatthours, 5 percent above the level of sales level 1 year earlier. Sales to industrial consumers during the first 6 months of 1994 were 490 billion kilowatthours, 2 percent more that the level during the first 6 months of 1993. Commercial sales were 394 billion kilowatthours, 5 percent above the amount sold to commercial consumers 1 year earlier. During the first half of 1994, other sales totaled 47 billion kilowatthours, less than 1 percent above the level of sales during the first half of 1993.

Electric utility consumption of coal during June 1994 was 73 million short tons, 7 percent above consumption in June 1993. Petroleum consumption (excluding petroleum coke) during June 1994 was 17 million barrels, 30 percent above the level of consumption in June 1993. During June 1994, electric utilities consumed 319 billion cubic feet of natural gas, 25 percent above the June 1993 consumption level.

During the first half of 1994 electric utility consumption of coal was 404 million short tons, 4 percent above consumption during the first half of 1993. Electric utility consumption of petroleum (excluding petroleum coke) was 94 million barrels, 40 percent above the first half 1993 level. During the first half of 1994, electric utilities consumed 1,246 billion cubic feet of natural gas, 12 percent above the first half 1993 consumption level.

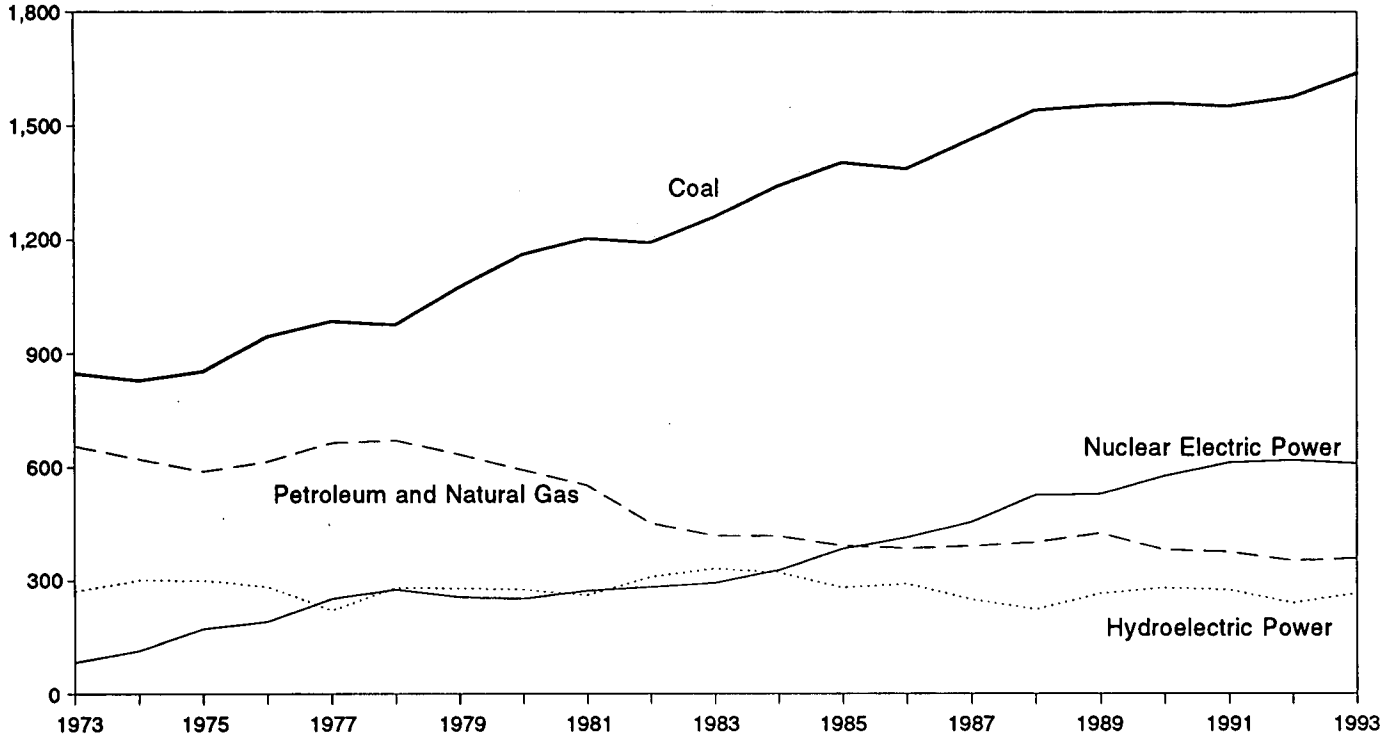
On June 30, 1994, electric utility stocks of all types of coal totaled 118 million short tons, 19 percent below the level on June 30, 1993. Stocks of petroleum (excluding petroleum coke) on June 30, 1994, totaled 60 million barrels, 6 percent below the level on June 30, 1993.

[7]Percentage changes are based on numbers shown in the following tables.

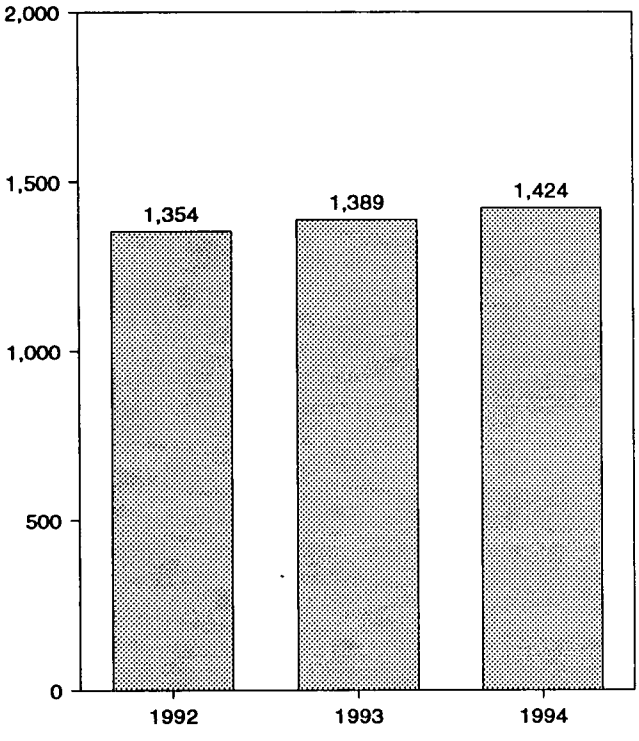
Figure 7.1 Electric Utility Net Generation of Electricity

(Billion Kilowatthours)

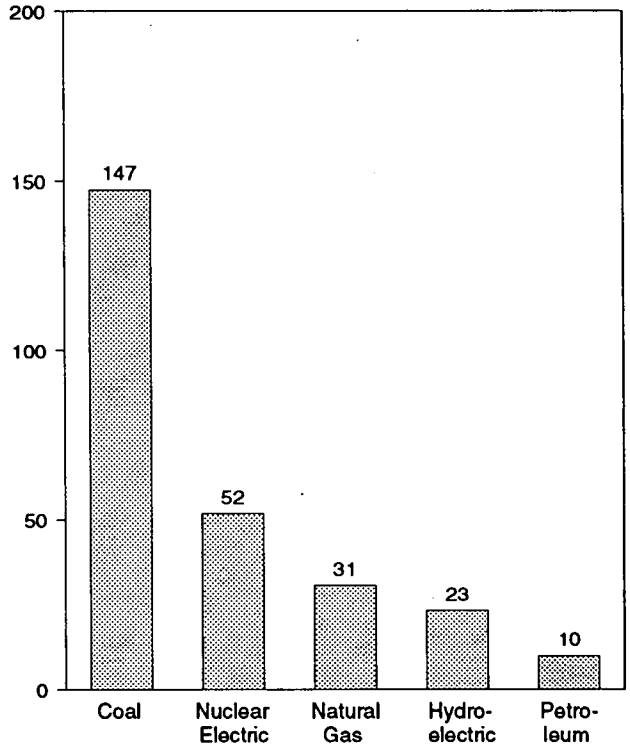
Net Generation by Source, 1973-1993



Net Generation, January-June



Net Generation by Source, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 7.1.

Table 7.1 Electric Utility Net Generation of Electricity

(Million Kilowatthours)

	Coal	Natural Gas[a]	Petroleum[b]	Nuclear Electric Power	Hydro-Electric Power	Geothermal Energy	Other[c]	Total
1973 Total	**647,651**	**340,858**	**314,343**	**83,479**	**272,083**	**1,966**	**328**	**1,860,710**
1974 Total	**828,433**	**320,065**	**300,931**	**113,976**	**301,032**	**2,453**	**251**	**1,867,140**
1975 Total	**852,786**	**299,778**	**289,095**	**172,505**	**300,047**	**3,246**	**191**	**1,917,649**
1976 Total	**944,391**	**294,624**	**319,988**	**191,104**	**283,707**	**3,616**	**266**	**2,037,696**
1977 Total	**985,219**	**305,505**	**358,179**	**250,883**	**220,475**	**3,582**	**481**	**2,124,323**
1978 Total	**975,742**	**305,391**	**365,060**	**276,403**	**280,419**	**2,978**	**338**	**2,206,331**
1979 Total	**1,075,037**	**329,485**	**303,525**	**255,155**	**279,783**	**3,889**	**498**	**2,247,372**
1980 Total	**1,161,562**	**346,240**	**245,994**	**251,116**	**276,021**	**5,073**	**433**	**2,286,439**
1981 Total	**1,203,203**	**345,777**	**206,421**	**272,674**	**260,684**	**5,686**	**368**	**2,294,812**
1982 Total	**1,192,004**	**305,260**	**146,797**	**282,773**	**309,213**	**4,843**	**321**	**2,241,211**
1983 Total	**1,259,424**	**274,098**	**144,499**	**293,677**	**332,130**	**6,075**	**381**	**2,310,285**
1984 Total	**1,341,681**	**297,394**	**119,808**	**327,634**	**321,150**	**7,741**	**898**	**2,416,304**
1985 Total	**1,402,128**	**291,946**	**100,202**	**383,691**	**281,149**	**9,325**	**1,399**	**2,469,841**
1986 Total	**1,385,831**	**248,508**	**136,585**	**414,038**	**290,844**	**10,308**	**1,195**	**2,487,310**
1987 Total	**1,463,781**	**272,621**	**118,493**	**455,270**	**249,695**	**10,775**	**1,491**	**2,572,127**
1988 Total	**1,540,653**	**252,801**	**148,900**	**526,973**	**222,940**	**10,300**	**1,684**	**2,704,250**
1989 Total	**1,553,661**	**266,598**	**158,318**	**529,355**	**265,063**	**9,342**	**1,968**	**2,784,304**
1990 Total	**1,559,606**	**264,089**	**117,017**	**576,862**	**279,926**	**8,581**	**2,070**	**2,808,151**
1991 Total	**1,551,167**	**264,172**	**111,463**	**612,565**	**275,519**	**8,087**	**2,050**	**2,825,023**
1992 January	137,327	16,178	10,202	57,849	21,502	711	202	243,970
February	121,732	16,165	8,296	52,804	17,966	626	172	217,761
March	127,678	19,906	8,809	45,835	21,566	713	158	224,665
April	119,909	21,913	6,505	42,268	19,454	645	143	210,837
May	123,768	22,689	5,156	45,627	22,285	683	147	220,355
June	129,607	24,997	7,508	51,185	22,698	675	170	236,842
July	149,028	31,950	8,540	56,049	19,711	685	184	266,148
August	141,900	28,778	6,923	58,656	18,062	690	195	255,203
September	133,239	26,099	6,841	50,919	16,838	642	183	234,760
October	127,940	20,420	6,908	48,784	16,375	677	185	221,289
November	125,535	18,031	6,838	50,726	19,294	675	165	221,263
December	138,234	16,744	6,390	58,075	23,808	682	192	244,126
Total	**1,575,895**	**263,872**	**88,916**	**618,776**	**239,559**	**8,104**	**2,096**	**2,797,219**
1993 January	138,354	15,807	7,239	59,076	24,453	651	202	245,782
February	130,069	15,768	6,939	51,319	19,722	633	167	224,617
March	136,404	18,783	8,569	46,606	23,587	659	193	234,801
April	120,325	16,684	5,205	43,199	25,160	654	148	211,374
May	120,878	15,845	5,267	50,367	29,323	582	135	222,396
June	137,485	24,393	7,809	52,620	26,600	586	139	249,633
July	158,400	31,705	11,341	56,502	23,556	643	144	282,292
August	156,197	34,263	11,975	56,209	19,667	653	167	279,132
September	134,001	24,978	9,759	49,989	17,073	630	173	236,603
October	130,926	22,912	7,659	44,434	16,899	625	174	223,629
November	132,288	20,535	7,479	46,862	17,898	618	174	225,855
December	143,824	17,242	10,299	53,108	21,125	637	178	246,412
Total	**1,639,151**	**258,915**	**99,539**	**610,291**	**265,063**	**7,571**	**1,994**	**2,882,525**
1994 January	152,752	16,847	14,600	56,184	19,843	631	177	261,035
February	131,138	14,526	9,655	49,857	19,146	574	154	225,051
March	133,529	18,212	7,960	48,538	22,157	578	170	231,144
April	119,688	20,302	7,674	43,188	23,218	592	150	214,813
May	126,448	20,682	6,991	48,512	24,321	581	147	227,681
June	147,434	30,750	9,880	51,751	23,351	522	154	263,843
6-Month Total	**810,988**	**121,319**	**56,762**	**298,030**	**132,038**	**3,479**	**951**	**1,423,567**
1993 6-Month Total	**783,515**	**107,280**	**41,027**	**303,187**	**148,844**	**3,764**	**983**	**1,388,602**
1992 6-Month Total	**760,020**	**121,849**	**46,476**	**295,568**	**125,471**	**4,053**	**993**	**1,354,430**

[a] Includes supplemental gaseous fuel.

[b] Includes fuel oil nos. 1, 2, 4, 5, and 6, crude oil, kerosene, and petroleum coke.

[c] "Other" is electricity produced from wood, waste, wind, photovoltaic, and solar thermal energy sources connected to electric utility distribution systems.

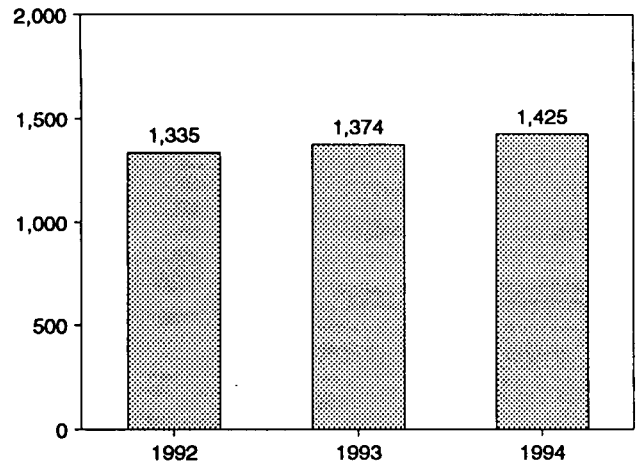
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-September 1977:** Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • **October 1977-1979:** Federal Energy Regulatory Commission (FERC), Form FPC-4, "Monthly Power Plant Report." • **1980:** Energy Information Administration (EIA), *Electric Power Monthly*, March 1991, Table 4, and (for geothermal energy and other) FERC, Form FPC-4, "Monthly Power Plant Report." • **1981:** EIA, *Electric Power Monthly*, March 1992, Table 4, and (for geothermal energy and other) FERC, Form FPC-4, "Monthly Power Plant Report." • **1982:** EIA, *Electric Power Monthly*, March 1993, Table 4, and (for geothermal energy and other) EIA, Form EIA-759, "Monthly Power Plant Report." • **1983-1992:** EIA, *Electric Power Monthly*, March 1994, Table 4, and (for geothermal energy and other) EIA, Form EIA-759, "Monthly Power Plant Report." • **1993 and 1994:** EIA, *Electric Power Monthly*, September 1994, Tables 4 and 5.

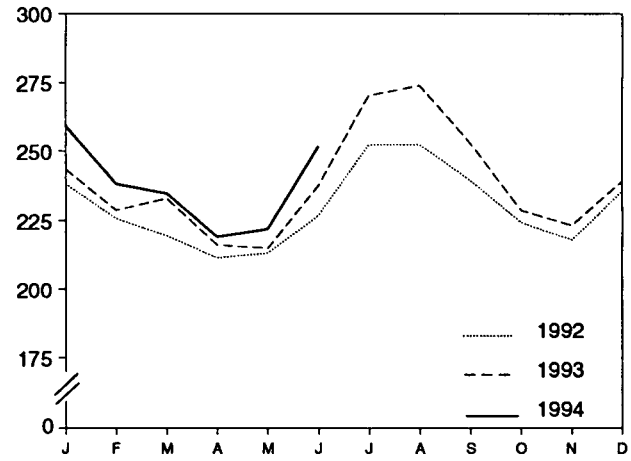
Figure 7.2 Electricity Sales

(Billion Kilowatthours)

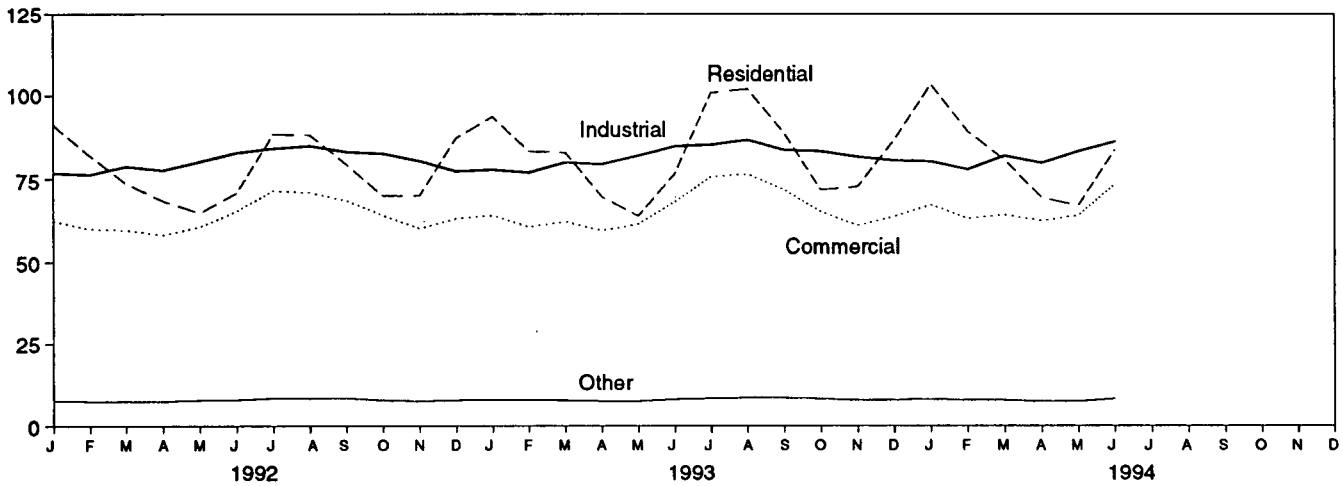
Total Sales, January-June



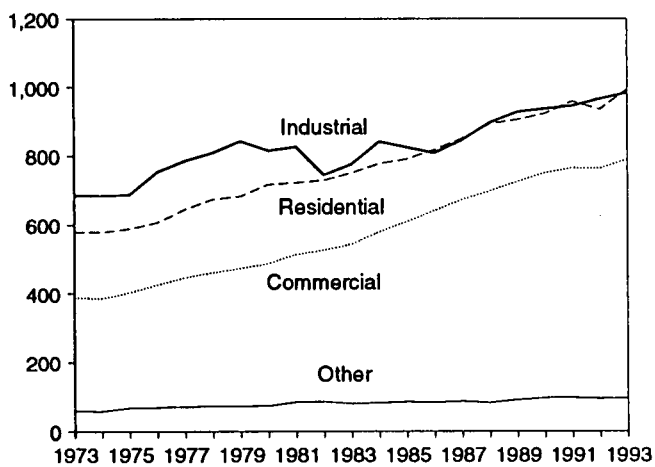
Total Sales, Monthly



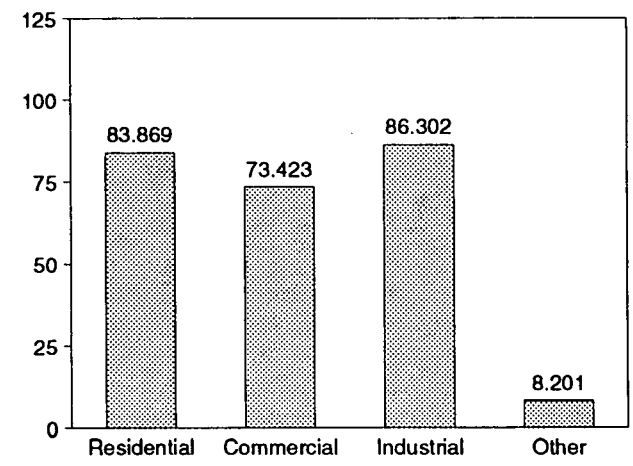
Sales by Sector, Monthly



Sales by Sector, 1973-1993



Sales by Sector, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 7.2, Monthly Series.

Table 7.2 Electricity Sales by End-Use Sector

(Million Kilowatthours)

	Residential		Commercial		Industrial		Other[a]		Total	
	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series
1973 Total	579,231	NA	388,266	NA	686,085	NA	59,326	NA	1,712,909	NA
1974 Total	578,184	NA	384,826	NA	684,875	NA	58,039	NA	1,705,924	NA
1975 Total	588,140	NA	403,049	NA	687,680	NA	68,222	NA	1,747,091	NA
1976 Total	606,452	NA	425,094	NA	754,069	NA	69,631	NA	1,855,246	NA
1977 Total	645,239	NA	446,514	NA	786,037	NA	70,571	NA	1,948,361	NA
1978 Total	674,466	NA	461,163	NA	809,078	NA	73,215	NA	2,017,922	NA
1979 Total	682,819	NA	473,307	NA	841,903	NA	73,070	NA	2,071,099	NA
1980 Total	717,495	NA	488,155	NA	815,067	NA	73,732	NA	2,094,449	NA
1981 Total	722,265	NA	514,338	NA	825,743	NA	84,756	NA	2,147,103	NA
1982 Total	729,520	NA	526,397	NA	744,949	NA	85,575	NA	2,086,441	NA
1983 Total	750,948	NA	543,788	NA	775,999	NA	80,219	NA	2,150,955	NA
1984 Total	777,654	780,092	578,281	582,621	840,588	837,836	81,849	85,248	2,278,372	2,285,796
1985 Total	790,977	793,934	608,968	605,989	824,523	836,772	85,075	87,279	2,309,543	2,323,974
1986 Total	817,663	819,088	641,469	630,520	808,292	830,531	83,409	88,615	2,350,835	2,368,753
1987 Total	849,613	850,410	673,707	660,433	845,266	858,233	86,854	88,196	2,455,440	2,457,272
1988 Total	892,125	892,866	697,711	699,100	895,751	896,498	82,362	89,598	2,567,949	2,578,062
1989 Total	903,979	905,525	725,229	725,861	926,376	925,659	91,066	89,765	2,646,651	2,646,809
1990 Total	921,473	924,019	750,835	751,027	936,428	945,522	95,936	91,988	2,704,672	2,712,555
1991 Total	957,801	955,417	765,476	765,664	944,684	946,583	96,513	94,339	2,764,474	2,762,003
1992 January	91,310	–	62,441	–	76,760	–	7,725	–	238,235	–
February	82,022	–	59,876	–	76,312	–	7,507	–	225,717	–
March	73,635	–	59,574	–	78,741	–	7,542	–	219,491	–
April	68,322	–	58,081	–	77,607	–	7,448	–	211,458	–
May	64,662	–	60,559	–	80,191	–	7,767	–	213,179	–
June	70,745	–	65,209	–	82,900	–	7,901	–	226,755	–
July	88,510	–	71,445	–	84,195	–	8,392	–	252,541	–
August	88,251	–	70,844	–	85,013	–	8,327	–	252,435	–
September	79,400	–	68,437	–	83,182	–	8,441	–	239,460	–
October	69,838	–	63,985	–	82,678	–	7,766	–	224,267	–
November	69,970	–	60,131	–	80,421	–	7,462	–	217,984	–
December	87,378	–	63,082	–	77,358	–	7,725	–	235,543	–
Total	934,044	935,939	763,664	761,271	965,356	972,714	94,003	93,442	2,757,067	2,763,365
1993 January	93,740	–	63,998	–	77,832	–	7,930	–	243,499	–
February	83,376	–	60,609	–	77,008	–	7,752	–	228,745	–
March	83,023	–	62,169	–	80,028	–	7,734	–	232,954	–
April	69,669	–	59,479	–	79,465	–	7,511	–	216,123	–
May	63,852	–	61,430	–	82,090	–	7,496	–	214,868	–
June	76,555	–	68,107	–	84,887	–	8,088	–	237,637	–
July	101,026	–	75,706	–	85,371	–	8,351	–	270,454	–
August	102,181	–	76,533	–	86,814	–	8,551	–	274,080	–
September	88,884	–	71,734	–	83,804	–	8,525	–	252,948	–
October	71,731	–	65,180	–	83,443	–	8,271	–	228,625	–
November	72,687	–	61,023	–	81,738	–	7,795	–	223,244	–
December	86,828	–	63,740	–	80,639	–	7,894	–	239,101	–
Total	993,552	NA	789,708	NA	983,118	NA	95,900	NA	2,862,279	NA
1994 January	103,553	–	67,248	–	80,322	–	8,087	–	259,210	–
February	89,391	–	63,121	–	77,932	–	7,772	–	238,217	–
March	80,799	–	64,186	–	82,067	–	7,762	–	234,814	–
April	69,389	–	62,441	–	79,857	–	7,395	–	219,082	–
May	67,025	–	64,068	–	83,389	–	7,432	–	221,913	–
June	83,869	–	73,423	–	86,302	–	8,201	–	251,796	–
6-Month Total	494,025	–	394,486	–	489,871	–	46,649	–	1,425,032	–
1993 6-Month Total	470,215	–	375,791	–	481,309	–	46,512	–	1,373,827	–
1992 6-Month Total	450,697	–	365,740	–	472,509	–	45,890	–	1,334,836	–

[a] "Other" is public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

[b] Annual totals are the sums of the monthly values.

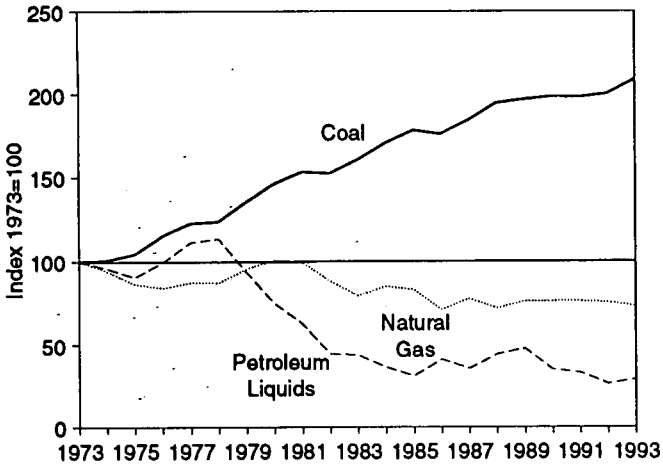
NA=Not available. – =Not applicable.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

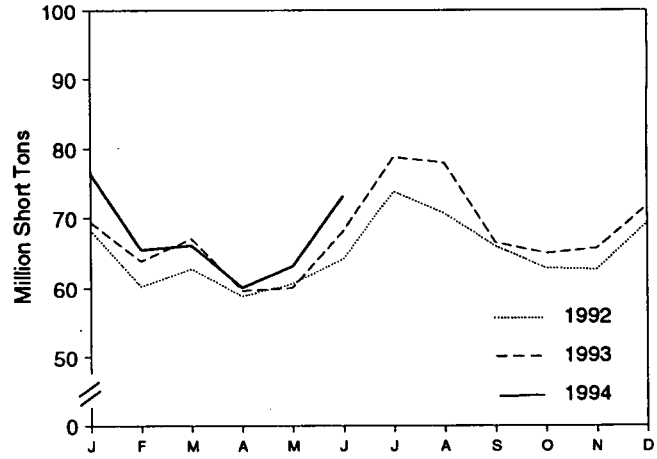
Sources: • **1973-September 1977:** Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income." **October 1977-1979:** Federal Energy Regulatory Commission, Form FERC-5, "Electric Operating Revenue and Income." • **1980:** Energy Information Administration (EIA), *Electric Power Monthly*, March 1991, Table 51. • **1981:** EIA, *Electric Power Monthly*, March 1992, Table 51. • **1982 and 1991 monthly data:** EIA, *Electric Power Monthly*, March 1993, Table 51. • **1983 forward (except 1991 monthly data):** EIA, *Electric Power Monthly*, September 1994, Table 52.

Figure 7.3 Electric Utility Consumption and Stocks of Fossil Fuels

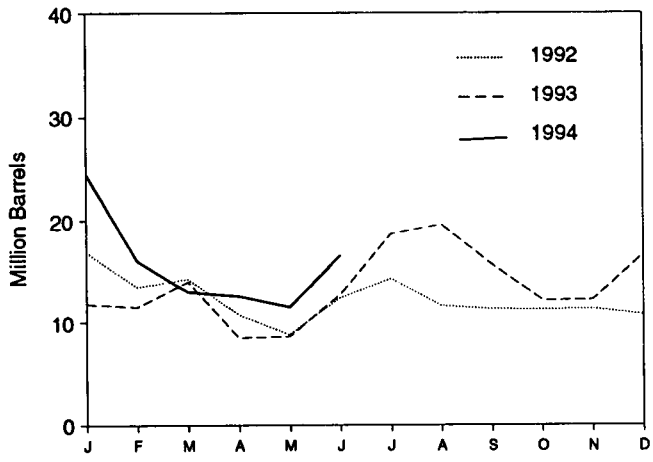
Fuels Consumed, 1973-1993



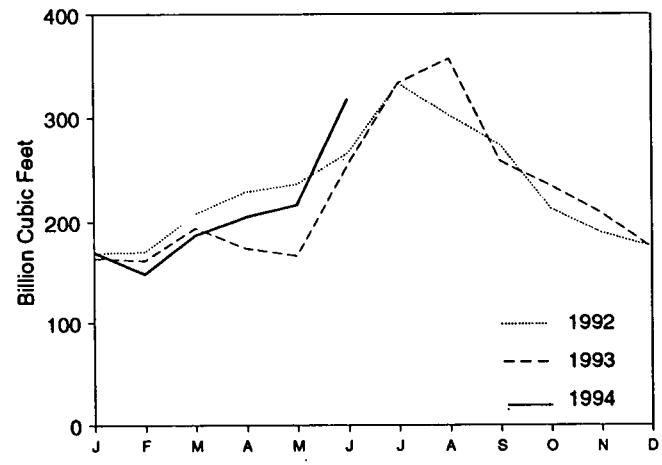
Coal Consumed, Monthly



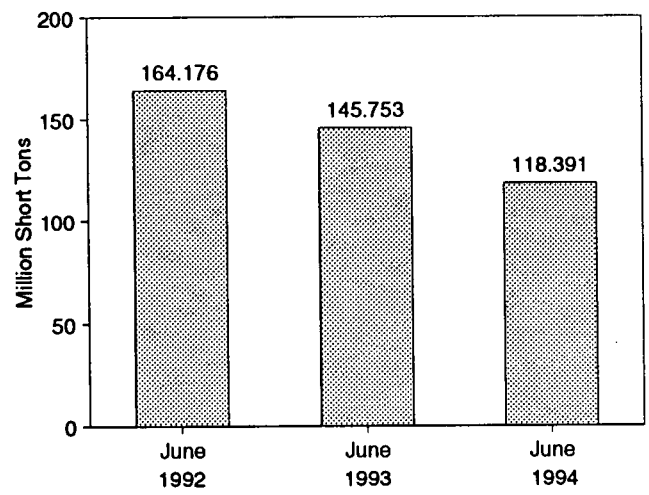
Petroleum Liquids Consumed, Monthly



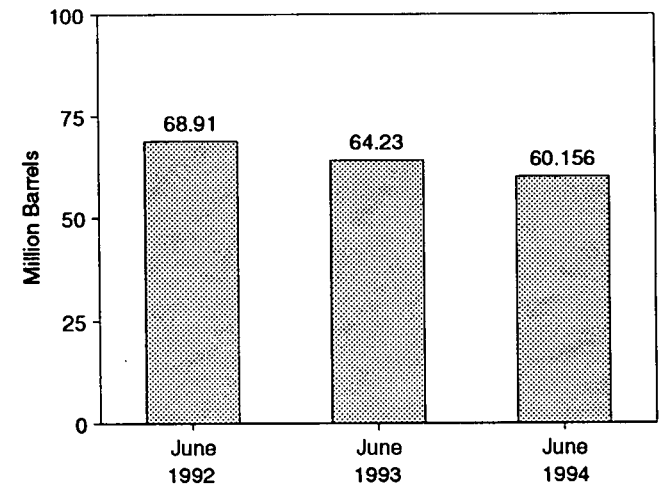
Natural Gas Consumed, Monthly



Coal Stocks, End of Month



Petroleum Liquids Stocks, End of Month



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 7.3 and 7.4.

Table 7.3 Electric Utility Consumption of Fossil Fuels To Generate Electricity

	Coal				Petroleum						
					By Type of Petroleum		By Prime Mover Type				
	Anthracite	Bituminous Coal	Lignite	Total	Heavy Oil[a]	Light Oil[b]	Steam Plants	GT/IC[c]	Total Liquids	Petroleum Coke	Natural Gas[d]
	Thousand Short Tons				Thousand Barrels					Thousand Short Tons	Million Cubic Feet
1973 Total	**1,443**	**376,975**	**10,794**	**389,212**	**NA**	**NA**	**513,190**	**47,058**	**560,248**	**507**	**3,660,172**
1974 Total	**1,498**	**378,643**	**11,670**	**391,811**	**NA**	**NA**	**483,146**	**53,128**	**536,274**	**625**	**3,443,428**
1975 Total	**1,480**	**388,523**	**15,960**	**405,962**	**NA**	**NA**	**467,221**	**38,907**	**506,128**	**70**	**3,157,669**
1976 Total	**1,350**	**425,205**	**21,817**	**448,371**	**NA**	**NA**	**514,077**	**41,843**	**555,920**	**68**	**3,080,868**
1977 Total	**1,425**	**451,051**	**24,650**	**477,126**	**NA**	**NA**	**574,869**	**48,837**	**623,705**	**98**	**3,191,200**
1978 Total	**1,064**	**448,763**	**31,407**	**481,235**	**NA**	**NA**	**588,319**	**47,520**	**635,839**	**398**	**3,188,363**
1979 Total	**1,046**	**488,129**	**37,876**	**527,051**	**NA**	**NA**	**492,606**	**30,691**	**523,297**	**268**	**3,490,523**
1980 Total	**951**	**526,680**	**41,642**	**569,274**	**391,163**	**29,051**	**401,863**	**18,351**	**420,214**	**179**	**3,681,595**
1981 Total	**1,221**	**550,784**	**44,792**	**596,797**	**329,798**	**21,313**	**339,680**	**11,431**	**351,111**	**139**	**3,640,154**
1982 Total	**1,075**	**543,346**	**49,245**	**593,666**	**234,434**	**15,337**	**243,537**	**6,234**	**249,771**	**149**	**3,225,518**
1983 Total	**1,036**	**570,108**	**54,067**	**625,211**	**228,984**	**16,512**	**237,845**	**7,652**	**245,497**	**261**	**2,910,767**
1984 Total	**1,070**	**606,339**	**56,990**	**664,399**	**189,289**	**15,190**	**197,050**	**7,429**	**204,479**	**252**	**3,111,342**
1985 Total	**1,033**	**631,885**	**60,923**	**693,841**	**158,779**	**14,635**	**166,842**	**6,572**	**173,414**	**231**	**3,044,083**
1986 Total	**829**	**616,134**	**68,093**	**685,056**	**216,156**	**14,326**	**222,500**	**7,983**	**230,482**	**313**	**2,602,370**
1987 Total	**972**	**647,824**	**69,098**	**717,894**	**184,011**	**15,367**	**190,818**	**8,560**	**199,378**	**348**	**2,844,051**
1988 Total	**1,063**	**681,048**	**76,260**	**758,372**	**229,327**	**18,769**	**235,817**	**12,279**	**248,096**	**409**	**2,635,613**
1989 Total	**1,049**	**688,504**	**77,335**	**766,888**	**241,960**	**25,491**	**250,315**	**17,136**	**267,451**	**517**	**2,787,012**
1990 Total	**1,031**	**694,317**	**78,201**	**773,549**	**181,231**	**14,823**	**187,531**	**8,523**	**196,054**	**819**	**2,787,332**
1991 Total	**994**	**691,275**	**79,999**	**772,268**	**171,157**	**13,729**	**177,286**	**7,600**	**184,886**	**722**	**2,789,014**
1992 January	80	60,881	7,304	68,264	15,811	1,103	16,332	582	16,915	71	169,125
February	80	53,687	6,415	60,183	12,730	806	13,093	444	13,536	76	170,293
March	93	56,243	6,368	62,705	13,492	843	13,932	404	14,336	83	207,656
April	73	53,314	5,407	58,794	9,929	811	10,335	404	10,740	66	229,012
May	69	54,664	5,858	60,591	7,910	843	8,385	367	8,752	50	236,316
June	84	57,179	6,859	64,122	11,372	1,077	11,881	568	12,449	66	265,882
July	90	66,318	7,407	73,815	12,939	1,428	13,392	974	14,367	72	333,567
August	84	62,937	7,616	70,637	10,607	1,011	11,067	551	11,619	116	302,544
September	83	58,899	6,985	65,967	10,456	849	10,820	485	11,305	98	273,670
October	85	56,366	6,356	62,806	10,454	792	10,867	379	11,246	103	212,640
November	74	56,186	6,352	62,612	10,330	1,004	10,803	531	11,333	93	189,296
December	93	61,951	7,321	69,365	9,749	989	10,256	482	10,737	105	175,608
Total	**986**	**698,626**	**80,248**	**779,860**	**135,779**	**11,556**	**141,163**	**6,172**	**147,335**	**999**	**2,765,608**
1993 January	79	61,703	7,617	69,400	10,804	1,013	11,265	552	11,817	92	164,374
February	88	57,293	6,431	63,812	10,569	935	11,002	503	11,504	81	161,928
March	101	60,969	6,002	67,073	12,784	1,277	13,313	748	14,061	87	193,811
April	84	53,755	5,757	59,596	7,629	819	8,094	354	8,448	79	173,834
May	81	53,380	6,570	60,032	7,722	868	8,198	392	8,590	86	166,840
June	80	61,090	6,948	68,118	11,756	1,033	12,249	540	12,789	98	254,823
July	73	71,134	7,511	78,717	16,896	1,817	17,406	1,306	18,713	125	334,101
August	67	70,241	7,624	77,932	18,044	1,566	18,509	1,101	19,610	112	357,027
September	60	60,143	6,289	66,493	14,730	1,031	15,111	650	15,761	129	258,325
October	64	59,125	5,752	64,941	11,318	897	11,771	444	12,216	112	234,544
November	81	59,385	6,211	65,677	11,339	886	11,781	444	12,225	101	208,335
December	92	64,516	7,109	71,717	15,694	1,027	16,206	514	16,720	120	174,498
Total	**951**	**732,736**	**79,821**	**813,508**	**149,287**	**13,168**	**154,905**	**7,549**	**162,454**	**1,220**	**2,682,440**
1994 January	82	69,022	7,257	76,362	20,743	3,710	21,602	2,851	24,453	112	169,995
February	98	58,843	6,514	65,455	14,697	1,397	15,242	851	16,094	88	149,173
March	100	59,696	6,303	66,098	12,026	1,014	12,532	509	13,040	93	186,828
April	88	54,246	5,706	60,040	11,585	1,041	12,043	583	12,626	71	204,795
May	89	56,482	6,513	63,084	10,346	1,164	10,839	670	11,510	59	216,264
June	87	66,162	6,881	73,130	14,775	1,854	15,369	1,261	16,629	71	318,589
6-Month Total	**544**	**364,451**	**39,174**	**404,169**	**84,172**	**10,179**	**87,627**	**6,724**	**94,352**	**493**	**1,245,644**
1993 6-Month Total	**513**	**348,191**	**39,326**	**388,031**	**61,265**	**5,944**	**64,120**	**3,090**	**67,210**	**522**	**1,115,609**
1992 6-Month Total	**478**	**335,969**	**38,211**	**374,658**	**71,244**	**5,483**	**73,958**	**2,770**	**76,728**	**412**	**1,278,283**

[a] Heavy oil includes fuel oil nos. 4, 5, and 6, and residual fuel oils.
[b] Light oil includes fuel oil nos. 1 and 2, kerosene, and jet fuel.
[c] GT/IC = Gas turbine and internal combustion plants.
[d] Includes supplemental gaseous fuels.
NA=Not available.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Prime Mover Type Data: 1973-September 1977**—Federal Power Commission (FPC), Form FPC-4, "Monthly Power Plant Report." **October 1977-1981**—Federal Energy Regulatory Commission (FERC), Form FPC-4, "Monthly Power Plant Report." **1982 forward**—Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report." • **All Other Data: 1973-September 1977**—FPC, Form FPC-4, "Monthly Power Plant Report." **October 1977-1979**—FERC, Form FPC-4, "Monthly Power Plant Report." **1980**—EIA, *Electric Power Monthly*, March 1991, Table 17. **1981**—EIA, *Electric Power Monthly*, March 1992, Table 17. **1982 and 1991 monthly data**—EIA, *Electric Power Monthly*, March 1993, Table 17. **1983 forward (except 1991 monthly data)**—EIA, *Electric Power Monthly*, September 1994, Table 18.

Table 7.4 Electric Utility Stocks of Coal and Petroleum, End of Period

	Coal				Petroleum					
					By Type of Petroleum		By Prime Mover Type			
	Anthracite	Bituminous Coal	Lignite	Total	Heavy Oil[a]	Light Oil[b]	Steam Plants	GT/IC[c]	Total Liquids	Petroleum Coke
	Thousand Short Tons				Thousand Barrels					Thousand Short Tons
1973 Total	1,066	84,941	961	86,967	NA	NA	79,121	10,095	89,216	312
1974 Total	930	81,712	867	83,509	NA	NA	97,718	15,199	112,917	35
1975 Total	982	107,927	1,815	110,724	NA	NA	108,825	16,432	125,257	31
1976 Total	1,000	114,130	2,306	117,436	NA	NA	106,993	14,703	121,696	32
1977 Total	2,321	128,210	2,688	133,219	NA	NA	124,750	19,281	144,031	44
1978 Total	2,178	123,020	3,027	128,225	NA	NA	102,402	16,386	118,788	198
1979 Total	3,274	152,981	3,459	159,714	NA	NA	111,121	20,301	131,422	183
1980 Total	4,741	174,154	4,115	183,010	105,351	30,023	117,227	18,147	135,374	52
1981 Total	5,537	158,258	5,098	168,893	102,042	26,094	112,380	15,756	128,136	42
1982 Total	6,080	170,480	4,573	181,132	95,515	23,369	105,287	13,597	118,884	41
1983 Total	6,507	145,250	3,841	155,598	70,573	18,801	78,285	11,090	89,375	55
1984 Total	6,710	167,118	5,899	179,727	68,503	19,116	76,836	10,784	87,619	50
1985 Total	7,189	142,144	7,043	156,376	57,304	16,386	64,704	8,985	73,689	49
1986 Total	7,099	148,665	6,042	161,806	56,841	16,269	64,258	8,853	73,111	40
1987 Total	6,940	156,670	7,187	170,797	55,069	15,759	61,705	9,123	70,827	51
1988 Total	6,561	133,434	6,512	146,507	54,187	15,099	60,311	8,974	69,285	86
1989 Total	6,403	122,967	6,490	135,860	47,446	13,824	53,309	7,962	61,270	105
1990 Total	6,499	142,650	7,016	156,166	67,030	16,471	73,306	10,195	83,501	94
1991 Total	6,513	145,367	5,996	157,876	58,636	16,357	65,032	9,961	74,993	70
1992 January	6,488	143,466	5,683	155,637	53,136	15,712	59,340	9,509	68,849	75
February	6,455	146,338	5,352	158,145	54,750	15,655	61,085	9,321	70,406	62
March	6,398	147,978	5,656	160,032	54,513	15,589	60,840	9,262	70,103	56
April	6,379	149,824	6,387	162,591	52,815	15,371	59,044	9,143	68,186	47
May	6,370	152,275	6,867	165,512	55,144	15,214	61,145	9,214	70,358	63
June	6,355	151,224	6,596	164,176	53,794	15,117	59,648	9,263	68,910	67
July	6,341	141,613	6,449	154,403	53,445	14,995	59,273	9,167	68,440	56
August	6,343	140,166	6,071	152,580	54,434	15,456	60,644	9,246	69,890	46
September	6,329	140,409	5,946	152,685	52,731	15,251	58,646	9,336	67,982	51
October	6,304	144,068	6,487	156,859	52,919	15,351	58,869	9,400	68,269	55
November	6,273	145,406	6,169	157,849	53,632	15,302	59,535	9,398	68,934	59
December	6,215	142,156	5,759	154,130	56,135	15,714	62,374	9,475	71,849	67
1993 January	6,166	138,615	5,521	150,302	53,781	15,840	60,193	9,428	69,620	65
February	6,107	135,063	5,357	146,528	50,005	15,131	56,303	8,833	65,136	60
March	6,036	132,183	5,758	143,978	45,313	14,914	51,528	8,698	60,227	66
April	5,802	136,199	6,177	148,178	47,356	14,856	53,475	8,736	62,211	77
May	5,773	138,668	6,238	150,678	50,422	14,669	56,495	8,596	65,091	82
June	5,766	133,977	6,009	145,753	49,294	14,936	55,604	8,626	64,230	92
July	5,755	115,383	5,677	126,815	47,401	14,618	53,639	8,380	62,019	90
August	5,745	102,582	5,651	113,978	43,943	14,842	50,223	8,562	58,785	99
September	5,735	100,951	6,147	112,833	45,913	14,774	52,071	8,617	60,687	62
October	5,718	102,700	6,687	115,105	46,298	14,822	52,385	8,735	61,120	69
November	5,693	103,447	6,955	116,095	46,603	14,878	52,812	8,668	61,481	84
December	5,639	98,560	7,142	111,341	46,769	15,674	53,360	9,083	62,443	89
1994 January	5,576	86,043	6,676	98,294	42,781	15,127	49,922	7,986	57,908	83
February	5,496	85,486	6,720	97,701	44,764	15,290	51,211	8,843	60,054	73
March	5,420	92,296	7,433	105,149	45,750	15,056	51,983	8,824	60,806	89
April	5,360	100,161	7,803	113,324	44,221	15,037	50,628	8,630	59,258	103
May	5,309	106,816	7,518	119,643	46,104	15,172	52,623	8,653	61,277	78
June	5,275	105,668	7,449	118,391	44,719	15,437	51,357	8,799	60,156	63

[a] Heavy oil includes fuel oil nos. 4, 5, and 6, and residual fuel oils.
[b] Light oil includes fuel oil nos. 1 and 2, kerosene, and jet fuel.
[c] GT/IC = Gas turbine and internal combustion plants.
NA=Not available.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Prime Mover Type Data: 1973-September 1977**—Federal Power Commission (FPC), Form FPC-4, "Monthly Power Plant Report." **October 1977-1981**—Federal Energy Regulatory Commission (FERC), Form FPC-4, "Monthly Power Plant Report." **1982 forward**—Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report." • **All Other Data: 1973-September 1977**—FPC, Form FPC-4, "Monthly Power Plant Report." **October 1977-1979**—FERC, Form FPC-4, "Monthly Power Plant Report." **1980**—EIA, *Electric Power Monthly*, March 1991, Table 29. **1981**—EIA, *Electric Power Monthly*, March 1992, Table 29. **1982 and 1991 monthly data**—EIA, *Electric Power Monthly*, March 1993, Table 29. **1983 forward (except 1991 monthly data)**—EIA, *Electric Power Monthly*, September 1994, Table 29.

Section 8. Nuclear Energy

In June 1994, U.S. nuclear generating units produced a total of 52 net terawatthours (billion kilowatthours) of electricity, 2 percent[1] less than in June 1993. Nuclear units generated at an average capacity factor of 72.5 percent, 1 percentage point lower than in June 1993. Nuclear power supplied 19.6 percent of the total electric utility-generated electricity in June 1994, compared with 21.1 percent in June 1993.

Nuclear generation, the share of electricity, and the average capacity factor were lower in the first 6 months of 1994 compared with the first 6 months of 1993. Specifically, nuclear generation for the first 6 months of 1994 was 2 percent lower, compared with the first 6 months of 1993. The average nuclear share of electricity for the first 6 months of 1994 was 20.9 percent compared with 21.8 percent for the same period in 1993. During the same period, the average capacity factor for the U.S. nuclear units was 69.3 percent in 1994 and 70.9 percent in 1993.

No low- or full power licenses for nuclear power plants were issued by the Nuclear Regulatory Commission during June 1994.

On June 30, 1994, there were 109 operable nuclear generating units in the United States, with a collective net summer capability of 99.1 million kilowatts of electricity. Of the 109 operable units, 19 units generated at less than 25 percent of capacity because of maintenance, refueling, or repair outage, and 13 of the 19 units generated no electricity during the month.

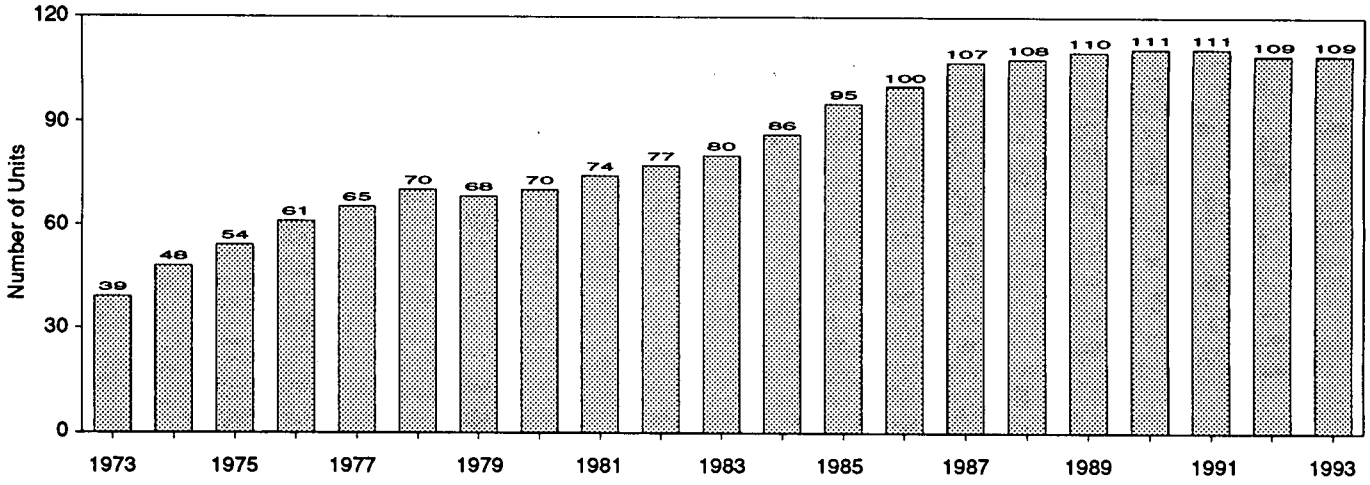
Two operable units, Browns Ferry 1 and 3, have been shut down since March 1985. Each unit had a capacity of 1,065 megawatts electric.

As of June 30, 1994, there were 115 domestic nuclear generating units in all stages of construction and operation (construction of the Perry-2 nuclear unit, in North Perry, Ohio, was canceled as of January 4, 1994). The aggregate net design capacity of operable units was 101.1 million kilowatts, and the design capacity of units under construction was 7.3 million kilowatts, for a total design capacity of 108.4 million kilowatts.

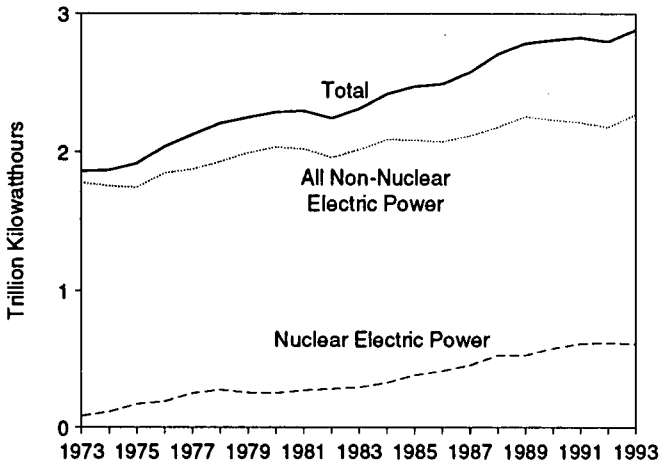
[1]Percent changes are based on numbers shown in the following tables.

Figure 8.1 Nuclear Power Plant Operations

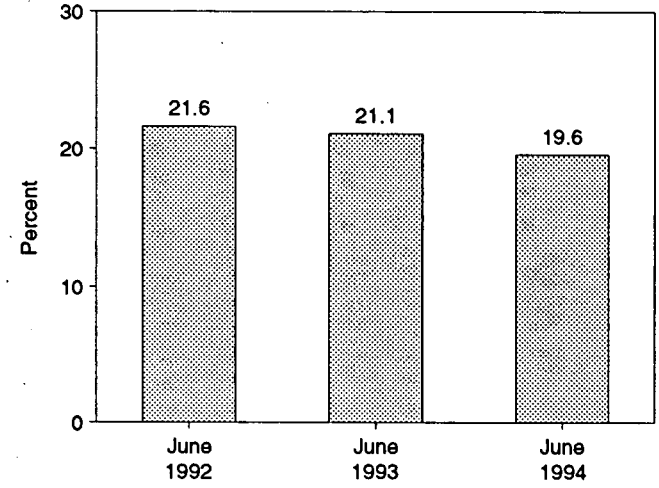
Operable Units, End of Year, 1973-1993



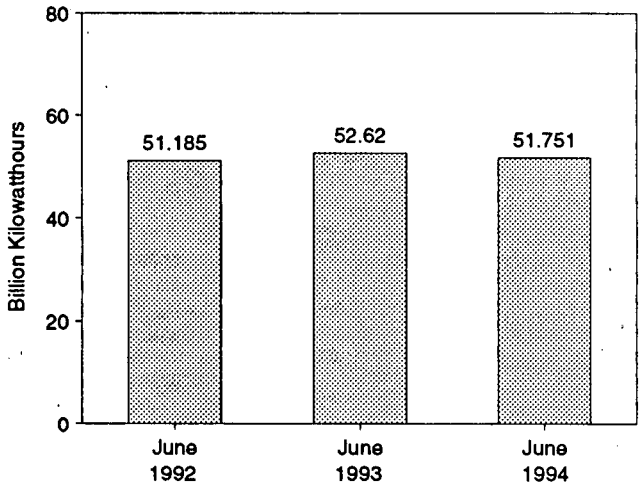
Net Generation of Electricity, 1973-1993



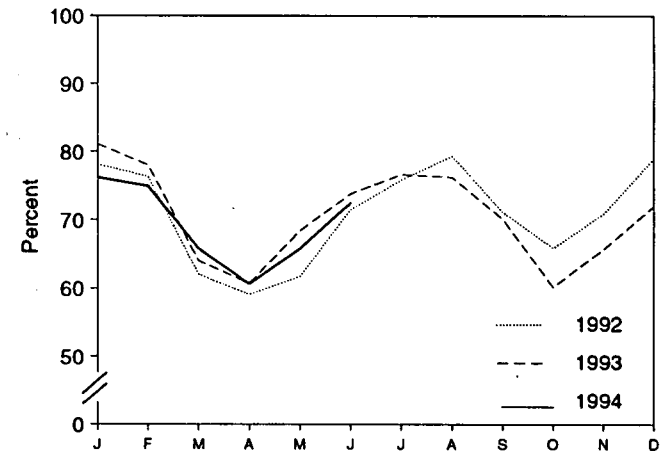
Nuclear Portion of Domestic Electricity Net Generation



Nuclear Electricity Net Generation



Capacity Factor, Monthly



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 7.1 and 8.1.

Table 8.1 Nuclear Power Plant Operations

	Operable Units[a,b]	Nuclear Electricity Net Generation	Nuclear Portion of Domestic Electricity Net Generation	Net Summer Capability of Operable Units[a,c]	Capacity Factor[d]
	Number	Million Kilowatthours	Percent	Million Kilowatts	Percent
1973 Year	**39**	**83,479**	**4.5**	**22.683**	**53.5**
1974 Year	**48**	**113,976**	**6.1**	**31.867**	**47.8**
1975 Year	**54**	**172,505**	**9.0**	**37.267**	**55.9**
1976 Year	**61**	**191,104**	**9.4**	**43.822**	**54.7**
1977 Year	**65**	**250,883**	**11.8**	**46.303**	**63.3**
1978 Year	**70**	**276,403**	**12.5**	**50.824**	**64.5**
1979 Year	**68**	**255,155**	**11.4**	**49.747**	**58.4**
1980 Year	**70**	**251,116**	**11.0**	**51.810**	**56.3**
1981 Year	**74**	**272,674**	**11.9**	**56.042**	**58.2**
1982 Year	**77**	**282,773**	**12.6**	**60.035**	**56.6**
1983 Year	**80**	**293,677**	**12.7**	**63.009**	**54.4**
1984 Year	**86**	**327,634**	**13.6**	**69.652**	**56.3**
1985 Year	**95**	**383,691**	**15.5**	**79.397**	**58.0**
1986 Year	**100**	**414,038**	**16.6**	**85.241**	**56.9**
1987 Year	**107**	**455,270**	**17.7**	**93.583**	**57.4**
1988 Year	**108**	**526,973**	**19.5**	**94.695**	**63.5**
1989 Year	**110**	**529,355**	**19.0**	**98.161**	**62.2**
1990 Year	**111**	**576,862**	**20.5**	**99.624**	**66.0**
1991 Year	**111**	**612,565**	**21.7**	**99.589**	**70.2**
1992 January	111	57,849	23.7	99.589	78.1
February	110	52,804	24.2	99.421	76.3
March	110	45,835	20.4	99.421	62.0
April	110	42,268	20.0	99.421	59.1
May	110	45,627	20.7	99.421	61.7
June	110	51,185	21.6	99.421	71.5
July	110	56,049	21.1	99.421	75.8
August	110	58,656	23.0	99.421	79.3
September	110	50,919	21.7	99.421	71.1
October	110	48,784	22.0	99.421	65.9
November	110	50,726	22.9	99.421	70.9
December	109	58,075	23.8	98.985	78.9
Year	**109**	**618,776**	**22.1**	**98.985**	**70.9**
1993 January	108	59,076	24.0	97.881	81.1
February	108	51,319	22.8	97.881	78.0
March	108	46,606	19.8	97.881	64.0
April	109	43,199	20.4	99.031	60.7
May	109	50,367	22.6	99.031	68.4
June	109	52,620	21.1	99.031	73.8
July	109	56,502	20.0	99.031	76.6
August	109	56,209	20.1	99.031	76.2
September	109	49,989	21.1	99.031	70.1
October	109	44,434	19.9	99.094	60.2
November	109	46,862	20.7	99.094	65.7
December	109	53,108	21.6	99.094	72.0
Year	**109**	**610,291**	**21.2**	**99.094**	**70.5**
1994 January	109	56,184	21.5	99.094	76.2
February	109	49,857	22.2	99.094	74.9
March	109	48,538	21.0	99.094	65.8
April	109	43,188	20.1	99.094	60.6
May	109	48,512	21.3	99.094	65.8
June	109	51,751	19.6	99.094	72.5
6-Month Total	**109**	**298,030**	**20.9**	**99.094**	**69.3**
1993 6-Month Total	**109**	**303,187**	**21.8**	**99.031**	**70.9**
1992 6-Month Total	**110**	**295,568**	**21.8**	**99.421**	**68.1**

[a] At end of period.
[b] See Note 1 at end of section.
[c] For the definition of "Net Summer Capability," see Note 3 at end of section.
[d] For an explanation of the method of calculating the capacity factor, see Note 4 at end of section.

Notes: • Nuclear electricity net generation totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Operable Units: 1973-1982**—U.S. Department of Energy (DOE), Office of Nuclear Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones." **1983 forward**—Nuclear Regulatory Commission (NRC), "Licensed Operating Reactors" (NUREG-0020). • **Nuclear Electricity Net Generation:** Table 7.1. • **Nuclear Portion of Domestic Electricity Net Generation:** Calculated from data in Table 7.1. • **Net Summer Capability of Operable Units: 1973-1982**—Compiled from various sources, primarily DOE, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones." **1983 forward**—Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generation Report," and monthly updates as appropriate. • **Capacity Factor:** EIA, Office of Coal, Nuclear, Electric and Alternate Fuels.

Table 8.2 Nuclear Generating Units, End of Period

	Licensed for Operation		Construction Permits					Total Design Capacity[c]
	Operable[a]	In Startup[b]	Granted	Pending	On Order	Announced	Total	
	Number of Units							Million Kilowatts
1973 Year	39	2	57	52	49	9	208	198
1974 Year	48	5	62	75	30	6	226	223
1975 Year	54	2	69	69	14	5	213	212
1976 Year	61	1	71	63	16	2	214	211
1977 Year	65	2	78	49	13	2	209	203
1978 Year	70	0	88	32	5	0	195	191
1979 Year	68	0	90	24	3	0	185	180
1980 Year	70	1	82	12	3	0	168	162
1981 Year	74	0	76	11	2	0	163	157
1982 Year	77	2	60	3	2	0	144	134
1983 Year	80	3	53	0	2	0	138	129
1984 Year	86	6	38	0	2	0	132	123
1985 Year	95	3	30	0	2	0	130	121
1986 Year	100	7	19	0	2	0	128	119
1987 Year	107	4	14	0	2	0	127	119
1988 Year	108	3	12	0	0	0	123	115
1989 Year	110	1	10	0	0	0	121	113
1990 Year	111	0	8	0	0	0	119	111
1991 Year	111	0	8	0	0	0	119	111
1992 January	111	0	8	0	0	0	119	111
February	110	0	8	0	0	0	118	111
March	110	0	8	0	0	0	118	111
April	110	0	8	0	0	0	118	111
May	110	0	8	0	0	0	118	111
June	110	0	8	0	0	0	118	111
July	110	0	8	0	0	0	118	111
August	110	0	8	0	0	0	118	111
September	110	0	8	0	0	0	118	111
October	110	0	8	0	0	0	118	111
November	110	0	8	0	0	0	118	111
December	109	0	8	0	0	0	117	111
1993 January	108	0	8	0	0	0	116	110
February	108	1	7	0	0	0	116	110
March	108	1	7	0	0	0	116	110
April	109	0	7	0	0	0	116	110
May	109	0	7	0	0	0	116	110
June	109	0	7	0	0	0	116	110
July	109	0	7	0	0	0	116	110
August	109	0	7	0	0	0	116	110
September	109	0	7	0	0	0	116	110
October	109	0	7	0	0	0	116	110
November	109	0	7	0	0	0	116	110
December	109	0	7	0	0	0	116	110
1994 January	109	0	6	0	0	0	115	108
February	109	0	6	0	0	0	115	108
March	109	0	6	0	0	0	115	108
April	109	0	6	0	0	0	115	108
May	109	0	6	0	0	0	115	108
June	109	0	6	0	0	0	115	108

[a] See Note 1 at end of section.
[b] See Note 2 at end of section.
[c] Net design electrical rating (DER) is used because many of the units were canceled prior to being assigned a net summer capability. See Note 3 at end of section.

Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Licensed for Operation: 1973-1982**—U.S. Department of Energy (DOE), Office of Nuclear Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones." **1983 forward**—Nuclear Regulatory Commission (NRC), "Licensed Operating Reactors" (NUREG-0020). • **Construction Permits, On Order, and Announced: 1973-1982**—Compiled from various sources, primarily DOE, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones"; Energy Information Administration (EIA), Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF), "Nuclear Steam-Electric Units That Have Been in Operation as of 1957-1989"; EIA, CNEAF, "Nuclear Plant Cancellations: Causes, Costs, and Consequences"; and Utility Data Institute, Inc., "U.S. Nuclear Plant Statistics, 1987." **1983 forward**—NRC, "Summary Information Report" (NUREG-0871); NRC, "Licensed Operating Reactors" (NUREG-0020); and various journals. • **Total Design Capacity: 1973-1982**—Compiled from various sources, primarily DOE, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones"; EIA, CNEAF, "Nuclear Steam-Electric Units That Have Been in Operation as of 1957-1987"; EIA, CNEAF, "Monthly Report for Electric Utilities-Power Generation"; EIA, CNEAF, "Nuclear Plant Cancellations: Causes, Costs, and Consequences"; and Utility Data Institute, Inc., "U.S. Nuclear Plant Statistics, 1987." **1983 forward**—NRC, "Summary Information Report" (NUREG-0871); NRC, "Licensed Operating Reactors" (NUREG-0020); and EIA, Form EIA-860, "Annual Electric Generator Report."

Nuclear Energy Notes

1. Operable Units: Nuclear generating units that have been issued a full-power license by the Nuclear Regulatory Commission (NRC).

Exceptions: The Shippingport (60 megawatts (MW)) and the Hanford-N (840 MW) nuclear units were included in the operable units until 1982 and 1988, respectively. The Shippingport unit was excluded from the operable category during March 1974-August 1977 due to a major core modification outage. Hanford-N, an unlicensed unit used for defense materiel production, was included in the operable category because power was produced as by-product and sold commercially. Three Mile Island 2 (880 MW) experienced a major accident in 1979 and, although that unit still retains its operating license and site cleanup continues, there is no plan to restart it. Therefore, it has not been included in the operable category since March 1979. Although Shoreham received a full-power license in April 1989, the unit is not currently scheduled to operate and, therefore, has not been included in the operable category. Rancho Seco (873 MW) was shut down by the Sacramento Municipal Utility District (SMUD) in June 1989 following a referendum on its continued operation. Because there are currently no plans to operate it as a nuclear unit, it is no longer included as an operable unit but is identified as a unit shut down for an extended period. As soon as SMUD and the NRC formalize the plant's official retirement, it will be noted as such in this report. The Department of Energy-operated Experimental Breeder Reactor 2 unit is not a commercial reactor and is therefore not included in the operable category.

In addition, nine units have been retired and therefore removed from the operable category. Those units are: Peach Bottom 1 (40 MW) and Indian Point 1 (265 MW), both retired in 1974; Humboldt Bay (65 MW), officially retired in 1976; Dresden 1 (200 MW), retired in August 1979; LaCrosse (51 MW), retired in May 1987; Fort Saint Vrain (217 MW), retired in August 1989; Yankee Rowe 1 (185 MW), retired in February 1992; San Onofre 1 (436 MW), retired in December 1992; and Trojan (1,104 MW), retired in January 1993.

2. In Startup: The period of time between a nuclear generating unit's initial fuel loading date and the issuance of its full-power license. During that period, the unit is undergoing low-power testing and the maximum level of operation is 5 percent of the unit's design thermal rating.

3. Capacity: Nuclear generating units may have more than one type of net capacity rating, including the following:

(a) Net Summer Capability—The steady hourly output that generating equipment is expected to supply to system load, exclusive of auxiliary power, as demonstrated by test at the time of summer peak demand. Auxiliary power of a typical nuclear power plant is about 5 percent of gross generation.

(b) Net Design Capacity or Net Design Electrical Rating (DER)—The nominal net electrical output of a unit, specified by the utility and used for plant design.

4. Monthly Capacity Factors: The monthly capacity factors are computed as the actual monthly generation divided by the maximum possible generation for that month. The maximum possible generation is the number of hours in the month multiplied by the net summer capability at the end of the month. That fraction is then multiplied by 100 to obtain a percentage. Annual capacity factors are averages of the monthly values for that year.

Section 9. Energy Prices

Crude Oil. The average price of domestic crude oil purchased at the wellhead was $14.94 per barrel in June 1994, slightly below the level in June 1993. The refiner acquisition cost of imported crude oil in June 1994 was $17.03 per barrel, 1 percent above the June 1993 level. The average cost of domestic crude oil in June 1994 was $17.34, 2 percent less than the June 1993 average.

Motor Gasoline. The national city average retail price of unleaded regular gasoline at all types of stations was $1.14 per gallon in July 1994, 2 percent higher than the price in July 1993. The price of unleaded premium gasoline averaged $1.33 per gallon in July 1994, 2 percent higher than the price in July 1993.

Residual Fuel Oil. The average price, excluding taxes, of residual fuel oil sold to end users in June 1994 was 36 cents per gallon, 10 percent higher than the previous month's price and 3 percent above the June 1993 average. The average resale price, excluding taxes, of residual fuel oil in June 1994 was 33 cents per gallon, 12 percent higher than the May 1994 average and 11 percent higher than the price 1 year earlier.

Aviation Fuel. The average price, excluding taxes, of aviation gasoline sold to end users in June 1994 was 96 cents per gallon, 4 percent higher than the previous month's price but 7 percent lower than the June 1993 price. The average price, excluding taxes, of kerosene-type jet fuel sold to end users in June 1994 was 52 cents per gallon, 2 percent higher than the previous month's average price but 12 percent lower than the June 1993 average price.

No. 2 Distillate Fuel Oil. The June 1994 national average price, excluding taxes, of heating oil sold to residential customers was 85 cents per gallon, 1 percent lower than the May 1994 price and 4 percent lower than the June 1993 price. The average price of No. 2 fuel oil sold to all end users was 54 cents per gallon in June 1994, 1 percent above the May 1994 price but 7 percent lower than the June 1993 price.

Electricity. The average price of electricity sold to all ultimate consumers in the United States in June 1994 was 7.2 cents per kilowatthour, slightly above the June 1993 mean price. The price of electricity sold to residential consumers in June 1994 averaged 8.8 cents per kilowatthour, the same as the June 1993 price. The price of electricity sold to commercial consumers averaged 8.0 cents per kilowatthour in June 1994, the same as the June 1993 price. The price of electricity sold to other consumers was 7.0 cents per kilowatthour, 1 percent below the June 1993 price. The price of electricity sold to industrial users in June 1994 averaged 4.9 cents per kilowatthour, 2 percent below the price 1 year earlier.

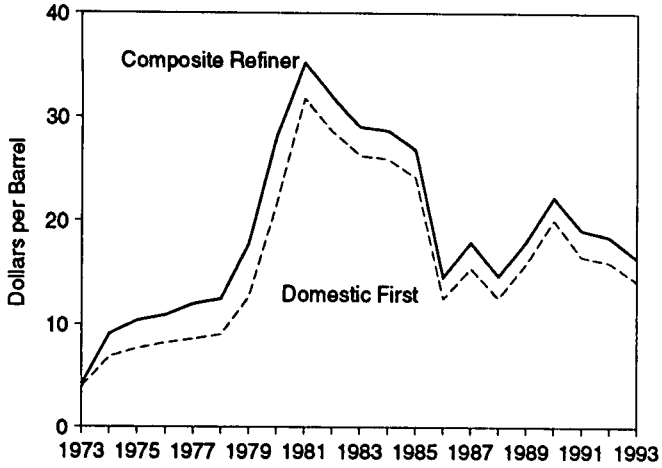
Beginning with January 1986, there were new series of national average price estimates based on a statistically derived sample of both publicly and privately owned electric utilities. Previously, average price estimates were derived from selected privately owned electric utilities and were not national averages.

Natural Gas. The estimated average wellhead price of natural gas for June 1994 was $1.81 per thousand cubic feet, 4 percent below the June 1993 price.

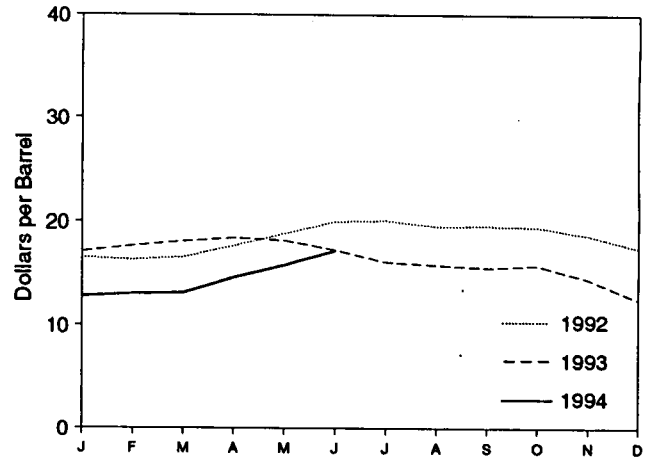
The average price of natural gas delivered to electric utility plants was $2.46 per thousand cubic feet in May 1994 (latest date for which data are available), 15 percent below the May 1993 price. The average price of natural gas used by residential consumers in June 1994 was $7.59 per thousand cubic feet, 3 percent above the June 1993 price. The average price of natural gas used by commercial consumers in June 1994 was $5.13 per thousand cubic feet, 3 percent lower than the June 1993 price. The average price of natural gas used by industrial consumers in June 1994 was $2.90 per thousand cubic feet, 2 percent below the June 1993 price.

Figure 9.1 Petroleum Prices

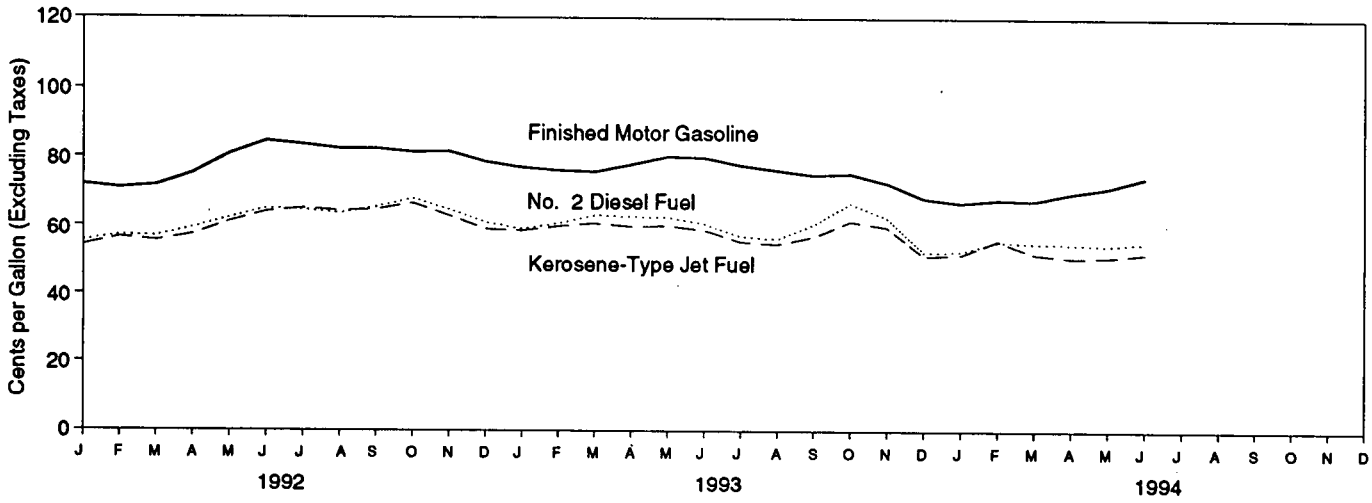
Crude Oil Prices, 1973-1993



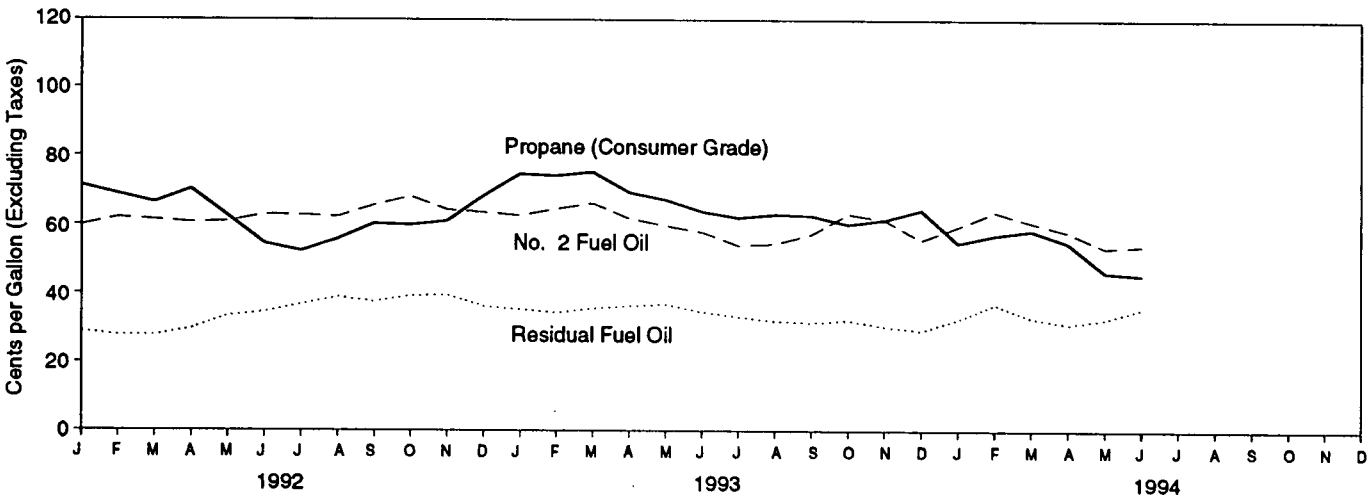
Composite Refiner Acquisition Cost, Monthly



Refiner Prices to End Users: Motor Gasoline, Diesel Fuel, and Jet Fuel, Monthly



Refiner Prices to End Users: No. 2 Fuel Oil, Propane, and Residual Fuel, Monthly



Sources: Tables 9.1, 9.5, and 9.7.

Table 9.1 Crude Oil Price Summary

(Dollars per Barrel)

	Domestic First Purchase Price[b]	F.O.B. Cost of Imports[c]	Landed Cost of Imports[d]	Refiner Acquisition Cost[a]		
				Domestic	Imported	Composite
1973 Average	**3.89**	**[e] 5.21**	**[e] 6.41**	**[E] 4.17**	**[E] 4.08**	**[E] 4.15**
1974 Average	**6.87**	**10.91**	**12.32**	**7.18**	**12.52**	**9.07**
1975 Average	**7.67**	**11.18**	**12.70**	**8.39**	**13.93**	**10.38**
1976 Average	**8.19**	**12.15**	**13.32**	**8.84**	**13.48**	**10.89**
1977 Average	**8.57**	**13.24**	**14.36**	**9.55**	**14.53**	**11.96**
1978 Average	**9.00**	**13.29**	**14.35**	**10.61**	**14.57**	**12.46**
1979 Average	**12.64**	**20.07**	**21.45**	**14.27**	**21.67**	**17.72**
1980 Average	**21.59**	**32.37**	**33.67**	**24.23**	**33.89**	**28.07**
1981 Average	**31.77**	**35.15**	**36.47**	**34.33**	**37.05**	**35.24**
1982 Average	**28.52**	**32.02**	**33.18**	**31.22**	**33.55**	**31.87**
1983 Average	**26.19**	**27.81**	**28.93**	**28.87**	**29.30**	**28.99**
1984 Average	**25.88**	**27.60**	**28.54**	**28.53**	**28.88**	**28.63**
1985 Average	**24.09**	**25.84**	**26.67**	**26.66**	**26.99**	**26.75**
1986 Average	**12.51**	**12.52**	**13.49**	**14.82**	**14.00**	**14.55**
1987 Average	**15.40**	**16.69**	**17.65**	**17.76**	**18.13**	**17.90**
1988 Average	**12.58**	**13.25**	**14.08**	**14.74**	**14.56**	**14.67**
1989 Average	**15.86**	**16.89**	**17.68**	**17.87**	**18.08**	**17.97**
1990 Average	**20.03**	**20.37**	**21.13**	**22.59**	**21.76**	**22.22**
1991 Average	**16.54**	**16.89**	**18.02**	**19.33**	**18.70**	**19.06**
1992 January	13.99	14.32	15.28	16.80	16.10	16.50
February	14.04	14.68	15.60	16.54	16.00	16.30
March	14.12	14.96	16.00	16.71	16.36	16.56
April	15.36	16.57	17.40	17.88	17.37	17.66
May	16.38	17.56	18.38	18.86	18.79	18.83
June	17.96	18.38	19.44	20.13	19.83	19.99
July	17.80	18.01	19.13	20.42	19.74	20.10
August	17.07	17.65	18.74	19.84	19.25	19.56
September	17.20	18.04	18.90	19.88	19.26	19.59
October	17.16	17.68	18.75	19.64	19.34	19.49
November	16.00	16.49	17.64	18.90	18.40	18.66
December	14.94	15.62	16.58	17.85	16.94	17.43
Average	**15.99**	**16.77**	**17.75**	**18.63**	**18.20**	**18.43**
1993 January	14.64	15.24	16.34	17.40	16.78	17.10
February	15.47	16.09	17.12	17.84	17.41	17.64
March	15.88	16.61	17.56	18.31	17.82	18.08
April	16.08	16.39	17.58	18.49	18.35	18.42
May	15.97	16.27	17.35	18.43	17.89	18.16
June	15.00	15.12	16.31	17.70	16.80	17.26
July	13.78	14.23	15.44	16.36	15.82	16.10
August	13.69	14.21	15.26	16.03	15.62	15.84
September	13.39	14.19	15.00	15.82	15.32	15.59
October	13.70	14.21	15.07	16.04	15.59	15.81
November	12.43	12.87	13.79	14.99	14.05	14.51
December	10.38	11.65	12.30	12.45	12.56	12.51
Average	**14.20**	**14.75**	**15.73**	**16.66**	**16.14**	**16.41**
1994 January	10.51	12.10	12.70	12.72	12.93	12.82
February	10.73	11.99	12.64	13.24	12.90	13.07
March	10.81	12.22	12.88	13.14	13.18	13.16
April	12.33	13.46	[R] 14.23	14.74	14.54	14.64
May	14.03	[R] 14.55	[R] 15.48	[R] 15.88	[R] 15.74	[R] 15.81
June	14.94	15.49	16.51	17.34	17.03	17.18

[a] See Note 4 at end of section.
[b] See Note 1 at end of section.
[c] See Note 2 at end of section.
[d] See Note 3 at end of section.
[e] Based on October, November, and December data only.
R=Revised data. E=Estimate.

Notes: • Values for Domestic First Purchase Price and Refiner Acquisition Cost for the current month and for F.O.B. and Landed Costs of Imports for the current 2 months are preliminary. • F.O.B. and landed costs through 1980 reflect the period of reporting; prices after 1980 reflect the period of loading. • Annual averages are the averages of the monthly prices, weighted by volume. • Geographic coverage is the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and all U.S. Territories and Possessions.

Sources: • **Domestic First Purchase Price: 1973-1976**—U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter. **1977**—Federal Energy Administration (FEA), based on Form FEA-P124, "Domestic Crude Oil Purchaser's Monthly Report." **1978 forward**—Energy Information Administration (EIA), *Petroleum Marketing Monthly*, September 1994, Table 1.

• **F.O.B. and Landed Cost of Imports: October 1973-September 1977**—FEA, Form FEA-F701-M-0, "Transfer Pricing Report." **October-December 1977**—EIA, Form FEA-F701-M-0, "Transfer Pricing Report." **1978 forward**—EIA, *Petroleum Marketing Monthly*, September 1994, Table 1.

• **Refiner Acquisition Cost: 1973**—EIA estimates. The domestic price was derived by adding estimated transportation costs to the reported domestic first purchase price. The imported price was derived by adding an estimated ocean transport cost to the average "Free Alongside Ship" value published by the U.S. Bureau of the Census. **1974-1976**—DOI, BOM, *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter. **1977—January-September**—FEA, based on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report." **October-December**—EIA, based on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report." **1978 forward**—EIA, *Petroleum Marketing Monthly*, September 1994, Table 1.

Table 9.2 F.O.B. Costs of Crude Oil Imports from Selected Countries

(Dollars per Barrel)

	Algeria	Indonesia	Iran[a]	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela	Other Countries	Arab OPEC[b]	Total OPEC[c]
1973 Average[d]	7.23	5.67	4.24	NA	7.81	3.25	NA	5.39	4.84	4.06	5.43
1974 Average	13.23	11.99	10.85	W	12.44	10.17	NA	10.71	10.02	10.96	11.33
1975 Average	11.93	12.55	10.81	11.44	11.82	10.87	NA	11.04	10.86	11.18	11.34
1976 Average	13.05	12.76	11.61	12.22	13.08	11.62	W	11.39	11.92	12.06	12.23
1977 Average	14.35	13.57	12.68	13.42	14.44	12.38	14.11	12.63	13.19	13.13	13.29
1978 Average	14.12	13.61	12.65	13.24	14.05	12.70	13.82	12.38	13.35	13.28	13.31
1979 Average	20.53	19.03	22.93	20.27	21.69	17.28	21.70	16.90	21.10	19.27	19.88
1980 Average	36.67	32.17	NA	31.06	35.93	28.17	34.36	24.81	34.34	31.57	32.21
1981 Average	39.08	35.62	(e)	33.01	38.31	32.60	36.06	28.95	36.69	34.79	35.17
1982 Average	34.20	35.11	30.97	28.08	35.13	33.73	33.42	23.74	31.96	33.84	33.48
1983 Average	30.09	29.92	28.39	25.20	29.81	27.53	29.91	21.48	27.96	28.28	28.46
1984 Average	28.34	29.13	27.42	26.39	29.51	27.67	28.87	24.23	27.79	27.79	27.79
1985 Average	26.89	27.12	W	25.33	28.04	22.04	27.64	23.64	26.12	24.34	25.67
1986 Average	13.62	13.19	W	11.84	14.35	11.36	13.84	10.92	13.32	11.59	12.21
1987 Average	16.79	17.40	W	16.36	18.47	15.12	18.28	15.08	17.11	15.80	16.43
1988 Average	W	13.81	(e)	12.18	15.16	12.16	14.80	12.96	13.45	12.57	13.43
1989 Average	W	17.01	(e)	15.96	18.31	16.29	17.89	16.09	17.12	16.72	17.06
1990 Average	W	21.29	(e)	19.26	22.46	20.36	23.43	19.55	19.88	18.84	20.40
1991 Average	W	18.69	15.58	15.37	20.29	14.62	20.81	14.91	17.79	15.59	16.99
1992 January	W	W	(e)	12.45	18.58	W	(e)	12.32	15.44	14.07	14.50
February	W	W	(e)	12.40	18.28	14.61	W	12.53	16.04	15.35	15.04
March	(e)	W	(e)	12.68	18.10	14.87	W	12.45	16.01	15.20	15.28
April	W	16.23	(e)	14.11	19.59	W	W	14.38	17.10	17.26	17.25
May	W	W	(e)	16.05	20.47	17.61	W	15.03	18.35	18.13	17.83
June	W	W	(e)	17.09	21.42	W	20.14	15.33	19.20	17.95	18.44
July	W	W	(e)	16.88	20.83	17.60	W	15.10	18.74	18.20	18.09
August	W	W	(e)	16.36	20.33	W	20.00	15.38	18.43	17.99	17.69
September	(e)	W	(e)	16.88	20.84	16.69	20.20	16.21	18.65	17.11	18.01
October	(e)	W	(e)	16.90	20.76	W	W	15.40	18.70	15.89	17.42
November	(e)	W	(e)	15.78	20.00	14.62	19.82	13.82	17.57	15.12	15.97
December	W	W	(e)	14.79	18.42	15.62	W	13.38	16.13	15.91	15.60
Average	W	17.06	(e)	15.26	19.98	15.85	19.61	14.39	17.65	16.50	16.87
1993 January	(e)	W	(e)	14.14	17.95	15.55	18.29	12.99	15.17	15.60	15.62
February	(e)	W	(e)	14.64	19.06	16.17	18.13	13.68	16.51	16.39	16.49
March	W	W	(e)	15.17	19.33	16.45	18.51	14.22	16.85	16.83	16.92
April	(e)	W	(e)	15.04	19.19	16.03	18.36	14.52	16.90	16.24	16.59
May	(e)	19.14	(e)	15.15	18.92	14.54	18.29	13.89	16.73	15.03	16.32
June	(e)	W	(e)	14.06	18.01	W	17.15	12.47	15.89	14.29	14.94
July	W	16.48	(e)	13.09	17.46	W	16.07	11.96	14.96	13.56	14.18
August	(e)	17.74	(e)	13.20	17.42	W	16.73	12.56	14.68	14.40	14.24
September	W	W	(e)	13.50	16.72	W	16.06	12.72	14.29	13.97	14.37
October	W	W	(e)	13.76	17.02	12.88	16.31	11.87	14.88	14.03	13.94
November	W	W	(e)	12.24	15.80	10.58	15.29	9.97	13.87	11.87	12.37
December	W	W	(e)	11.19	14.21	W	14.33	9.34	11.84	11.30	11.40
Average	W	17.16	(e)	13.74	17.78	14.27	16.62	12.46	15.20	14.62	14.84
1994 January	W	W	(e)	11.30	14.88	11.02	W	10.87	12.26	11.45	12.42
February	(e)	14.46	(a)	11.43	14.00	11.38	W	10.35	12.19	11.31	11.81
March	W	W	(a)	11.64	14.27	12.61	13.68	11.00	12.27	12.24	12.23
April	W	13.28	(a)	12.86	15.65	13.49	W	11.81	13.68	13.45	13.58
May	(e)	15.24	(a)	R13.64	R16.70	R14.43	R15.77	R12.79	R15.16	R14.38	R14.46
June	W	15.90	(a)	15.08	17.38	15.98	16.32	13.35	15.98	16.05	15.41

[a] Beginning with February 1994, data for Iran are no longer reported in the *Petroleum Marketing Monthly*.

[b] The Arab members of OPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates.

[c] Current members of OPEC are Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members. Prior to 1993, Ecuador was also a member. The cost of imports from the Neutral Zone between Kuwait and Saudi Arabia is included in the cost of imports from "Total OPEC."

[d] Based on October, November, and December data only.

[e] No data reported.

R=Revised data. NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • The Free on Board (F.O.B.) cost at the country of origin excludes all costs related to insurance and transportation. See Note 2 at end of section. • Values for the current 2 months are preliminary. • Prices through 1980 reflect the period of reporting; prices after 1980 reflect the period of loading. • Annual averages are averages of the monthly prices, including prices not published, weighted by volume. • Cargoes that are purchased on a "netback" basis, or under similar contractual arrangements whereby the actual purchase price is not established at the time the crude oil is acquired for importation into the United States, are not included in the published data until the actual prices have been determined and reported. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **October 1973-September 1977:** Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report." • **October 1977-December 1977:** Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report." • **1978 forward:** EIA, *Petroleum Marketing Monthly*, September 1994, Table 24.

Table 9.3 Landed Costs of Crude Oil Imports from Selected Countries

(Dollars per Barrel)

	Algeria	Canada	Indonesia	Iran[a]	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela	Other Countries	Arab OPEC[b]	Total OPEC[c]
1973 Average[d]	8.39	5.33	7.22	6.48	NA	9.08	5.37	NA	5.99	6.99	5.92	6.85
1974 Average	13.97	11.48	13.20	12.48	W	13.16	11.63	NA	11.25	12.93	12.39	12.49
1975 Average	12.86	12.84	13.83	12.51	12.61	12.70	12.50	NA	12.36	12.66	12.71	12.70
1976 Average	13.90	13.36	13.85	12.86	12.64	13.81	13.06	W	11.89	13.36	13.31	13.32
1977 Average	15.24	14.13	14.65	13.86	13.82	15.29	13.69	14.83	13.11	14.56	14.30	14.35
1978 Average	14.93	14.41	14.65	13.89	13.56	14.88	13.94	14.53	12.84	14.58	14.36	14.34
1979 Average	21.88	20.22	20.63	24.21	20.77	22.97	18.95	22.97	17.65	22.86	20.79	21.29
1980 Average	37.92	30.11	33.92	NA	31.77	37.15	29.80	35.68	25.92	36.15	32.97	33.56
1981 Average	40.46	32.32	37.31	(e)	33.70	39.66	34.20	37.29	29.91	38.54	36.22	36.60
1982 Average	35.35	27.15	36.70	32.46	28.63	36.16	34.99	34.25	24.93	34.03	35.15	34.81
1983 Average	31.26	25.63	31.57	29.81	25.78	30.85	29.27	30.87	22.94	29.68	29.87	29.84
1984 Average	29.06	26.56	30.87	28.70	26.85	30.36	29.20	29.45	25.19	29.21	29.10	29.06
1985 Average	27.51	25.71	28.67	25.79	25.63	28.96	24.72	28.36	24.43	27.33	25.90	26.66
1986 Average	14.82	13.43	14.63	12.38	12.17	15.29	12.84	14.63	11.52	14.25	13.14	13.46
1987 Average	17.87	17.04	18.49	18.28	16.69	19.32	16.81	18.78	15.76	18.30	17.32	17.64
1988 Average	W	13.50	15.15	W	12.58	15.88	13.37	15.82	13.66	14.45	13.60	14.18
1989 Average	19.13	16.81	18.35	(e)	16.35	19.19	17.34	18.74	16.78	18.08	17.41	17.78
1990 Average	W	20.48	22.50	(e)	19.64	23.33	21.82	22.65	20.31	20.52	20.64	21.23
1991 Average	W	17.16	20.20	17.54	15.89	21.39	17.22	21.37	15.92	19.73	17.45	18.08
1992 January	W	14.83	W	(e)	13.02	19.34	14.81	W	13.20	17.46	15.16	15.38
February	W	15.57	W	(e)	12.78	19.10	15.61	W	13.47	17.64	15.85	15.87
March	(e)	15.68	W	(e)	13.06	19.05	16.05	18.83	13.41	17.44	16.14	16.29
April	W	16.42	17.76	(e)	14.40	20.32	18.01	18.97	15.06	18.10	18.11	18.07
May	W	17.35	17.66	(e)	16.39	21.25	18.62	19.99	15.73	19.58	18.80	18.65
June	W	18.40	19.60	(e)	17.41	22.11	19.49	20.85	16.01	20.93	19.60	19.57
July	W	18.50	21.06	(e)	17.20	21.49	19.00	21.45	15.78	20.49	19.15	19.06
August	W	18.28	21.26	(e)	16.74	21.05	18.45	21.37	16.10	20.10	18.79	18.70
September	(e)	18.35	W	(e)	17.34	21.57	18.45	20.72	16.89	20.12	18.51	18.83
October	W	18.35	W	(e)	17.26	21.60	17.96	21.17	16.14	20.09	18.08	18.56
November	(e)	17.26	W	(e)	16.18	20.79	17.02	21.00	14.51	19.25	17.05	17.28
December	W	15.85	W	(e)	15.12	19.32	16.64	19.46	14.07	17.80	16.69	16.62
Average	W	17.04	18.76	(e)	15.60	20.78	17.48	20.63	15.13	19.25	17.63	17.81
1993 January	(e)	15.27	W	(e)	14.50	18.96	16.36	19.12	14.07	17.21	16.39	16.64
February	(e)	15.84	W	(e)	14.98	19.92	17.29	19.28	14.60	18.17	17.29	17.43
March	W	16.48	W	(e)	15.50	20.25	17.56	19.43	15.14	18.43	17.63	17.83
April	W	16.79	19.89	(e)	15.55	20.18	17.56	19.32	15.54	18.48	17.55	17.77
May	W	16.82	20.57	(e)	15.57	19.79	16.64	19.33	14.91	18.41	16.79	17.30
June	(e)	16.25	W	(e)	14.50	18.93	15.72	18.67	13.53	17.44	15.86	16.03
July	W	15.30	17.86	(e)	13.44	18.31	14.94	17.51	12.92	16.44	14.96	15.30
August	(e)	14.94	19.28	(e)	13.66	18.08	15.11	17.56	13.32	16.01	15.11	15.24
September	W	14.56	W	(e)	13.81	17.62	14.62	17.04	13.46	15.56	14.56	14.96
October	W	15.14	W	(e)	14.11	17.96	14.46	16.67	12.70	15.71	14.60	14.81
November	W	14.28	W	(e)	12.60	16.70	12.89	16.57	10.81	14.71	13.03	13.25
December	W	12.44	15.72	(e)	11.39	15.08	11.61	15.16	10.14	12.77	11.56	11.98
Average	17.34	15.27	18.47	(e)	14.10	18.72	15.42	17.91	13.39	16.45	15.31	15.69
1994 January	W	12.05	W	(e)	11.65	15.56	11.84	14.98	11.72	13.47	11.96	12.90
February	(e)	12.05	16.14	(a)	11.70	14.67	12.12	15.40	11.12	13.51	12.01	12.45
March	W	11.92	W	(a)	11.91	15.11	12.90	14.67	11.78	13.22	12.49	12.84
April	W	13.43	14.82	(a)	13.21	16.44	R 14.05	15.31	12.72	15.02	R 13.98	R 14.36
May	(e)	R 15.25	R 16.43	(a)	R 14.06	R 17.34	R 15.35	R 16.33	R 13.52	R 16.30	R 15.27	R 15.40
June	W	16.63	17.06	(a)	15.48	18.24	16.67	17.19	14.29	17.03	16.60	16.51

[a] Beginning with February 1994, data for Iran are no longer reported in the *Petroleum Marketing Monthly*.

[b] The Arab members of OPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates.

[c] Current members of OPEC are Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members. Prior to 1993, Ecuador was also a member. The cost of imports from the Neutral Zone between Kuwait and Saudi Arabia is included in the cost of imports from "Total OPEC."

[d] Based on October, November, and December data only.

[e] No data reported.

R=Revised data. NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • See Note 3 at end of section. • Values for the current 2 months are preliminary. • Prices through 1980 reflect the period of reporting; prices since then reflect the period of loading. • Annual averages are averages of the monthly prices, including prices not published, weighted by volume. • Cargoes that are purchased on a "netback" basis, or under similar contractual arrangements whereby the actual purchase price is not established at the time the crude oil is acquired for importation into the United States, are not included in the published data until the actual prices have been determined and reported. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **October 1973-September 1977:** Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report." • **October 1977-December 1977:** Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report." • **1978 forward:** EIA, *Petroleum Marketing Monthly*, September 1994, Table 25.

Table 9.4 Motor Gasoline Retail Prices, U.S. City Average

(Cents per Gallon, Including Taxes)

	Leaded Regular	Unleaded Regular	Unleaded Premium	All Types[a]
1973 Average	**38.8**	**NA**	**NA**	**NA**
1974 Average	**53.2**	**NA**	**NA**	**NA**
1975 Average	**56.7**	**NA**	**NA**	**NA**
1976 Average	**59.0**	**61.4**	**NA**	**NA**
1977 Average	**62.2**	**65.6**	**NA**	**NA**
1978 Average	**62.6**	**67.0**	**NA**	**65.2**
1979 Average	**85.7**	**90.3**	**NA**	**88.2**
1980 Average	**119.1**	**124.5**	**NA**	**122.1**
1981 Average[b]	**131.1**	**137.8**	**[c]147.0**	**135.3**
1982 Average	**122.2**	**129.6**	**141.5**	**128.1**
1983 Average	**115.7**	**124.1**	**138.3**	**122.5**
1984 Average	**112.9**	**121.2**	**136.6**	**119.8**
1985 Average	**111.5**	**120.2**	**134.0**	**119.6**
1986 Average	**85.7**	**92.7**	**108.5**	**93.1**
1987 Average	**89.7**	**94.8**	**109.3**	**95.7**
1988 Average	**89.9**	**94.6**	**110.7**	**96.3**
1989 Average	**99.8**	**102.1**	**119.7**	**106.0**
1990 Average	**114.9**	**116.4**	**134.9**	**121.7**
1991 Average	**NA**	**114.0**	**132.1**	**119.6**
1992 January	NA	107.3	126.7	113.5
February	NA	105.4	124.8	111.7
March	NA	105.8	125.0	112.2
April	NA	107.9	126.8	114.3
May	NA	113.6	131.7	119.7
June	NA	117.9	135.9	123.9
July	NA	117.5	136.3	123.8
August	NA	115.8	134.8	122.1
September	NA	115.8	134.6	122.2
October	NA	115.4	134.5	121.9
November	NA	115.9	135.1	122.3
December	NA	113.6	133.0	120.1
Average	**NA**	**112.7**	**131.6**	**119.0**
1993 January	NA	111.7	131.3	118.2
February	NA	110.8	130.1	117.2
March	NA	109.8	129.4	116.3
April	NA	111.2	130.4	117.5
May	NA	112.9	131.9	119.3
June	NA	113.0	132.1	119.4
July	NA	110.9	130.5	117.4
August	NA	109.7	129.4	116.3
September	NA	108.5	128.2	115.1
October	NA	112.7	132.3	119.3
November	NA	111.3	130.5	117.8
December	NA	107.0	126.8	113.6
Average	**NA**	**110.8**	**130.2**	**117.3**
1994 January	NA	104.3	124.0	110.9
February	NA	105.1	124.5	111.4
March	NA	104.5	124.3	110.9
April	NA	106.4	126.0	112.8
May	NA	108.0	127.4	114.3
June	NA	110.6	130.0	116.7
July	NA	113.6	132.7	119.9

[a] Also includes types of motor gasoline not shown separately.

[b] In September 1981, the Bureau of Labor Statistics changed the weights used in the calculation of average motor gasoline prices. From September 1981 forward, gasohol is included in the average for all types, and unleaded premium is weighted more heavily.

[c] September through December data only.

NA=Not available.

Notes: • See Note 5 at end of section. • Geographic coverage for 1973-1977 is 56 urban areas. Geographic coverage for 1978 forward is 85 urban areas.

Sources: • **Monthly Data:** U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Prices: Energy.* • **Annual Data: 1973**—*Platt's Oil Price Handbook* and *Oilmanac,* 1974, 51st Edition. **1974 forward**—calculated by the Energy Information Administration as the simple averages of monthly data.

Table 9.5 Refiner Prices of Residual Fuel Oil

(Cents per Gallon, Excluding Taxes)

	Residual Fuel Oil Sulfur Content Less Than or Equal to 1 Percent		Residual Fuel Oil Sulfur Content Greater Than 1 Percent		Average	
	Sales for Resale	Sales to End Users	Sales for Resale	Sales to End Users	Sales for Resale	Sales to End Users
1978 Average	**29.3**	**31.4**	**24.5**	**27.5**	**26.3**	**29.8**
1979 Average	**45.0**	**46.8**	**36.6**	**38.9**	**39.9**	**43.6**
1980 Average	**60.8**	**67.5**	**47.9**	**52.3**	**52.8**	**60.7**
1981 Average	**74.8**	**82.9**	**62.2**	**67.3**	**66.3**	**75.6**
1982 Average	**69.5**	**74.7**	**57.2**	**61.1**	**61.2**	**67.6**
1983 Average	**64.3**	**69.5**	**59.1**	**61.1**	**60.9**	**65.1**
1984 Average	**68.5**	**72.0**	**63.9**	**65.9**	**65.4**	**68.7**
1985 Average	**61.0**	**64.4**	**56.0**	**58.2**	**57.7**	**61.0**
1986 Average	**32.8**	**37.2**	**28.9**	**31.7**	**30.5**	**34.3**
1987 Average	**41.2**	**44.7**	**36.2**	**39.6**	**38.5**	**42.3**
1988 Average	**33.3**	**37.2**	**27.1**	**30.0**	**30.0**	**33.4**
1989 Average	**40.7**	**43.6**	**33.1**	**34.4**	**36.0**	**38.5**
1990 Average	**47.2**	**50.5**	**37.2**	**40.0**	**41.3**	**44.4**
1991 Average	**36.4**	**40.2**	**29.2**	**30.6**	**31.4**	**34.0**
1992 January	30.3	35.7	21.1	24.7	24.4	28.8
February	32.7	36.2	20.9	23.6	25.6	27.7
March	30.8	34.8	21.1	24.4	24.6	27.7
April	31.6	35.3	25.2	27.5	27.4	29.6
May	33.1	37.2	29.1	32.0	30.2	33.4
June	35.9	38.8	30.7	33.1	32.5	34.5
July	38.0	41.4	33.3	34.9	34.7	36.7
August	37.7	42.1	33.2	37.0	34.7	38.8
September	37.9	42.0	32.9	35.3	34.8	37.5
October	41.4	44.7	35.5	37.3	37.4	39.2
November	39.2	42.8	33.8	37.6	35.9	39.4
December	35.9	40.2	28.1	33.4	30.6	36.2
Average	**35.4**	**38.9**	**28.4**	**31.3**	**30.7**	**33.8**
1993 January	36.6	40.8	27.2	32.4	31.2	35.3
February	35.5	40.8	27.1	30.8	31.1	34.4
March	39.0	42.6	27.5	31.6	32.9	35.6
April	38.4	43.6	29.2	32.2	33.6	36.3
May	34.7	41.9	27.8	34.1	31.0	36.8
June	33.7	40.6	26.4	31.5	30.0	34.7
July	32.7	41.9	24.6	28.5	27.4	33.2
August	31.5	37.2	23.7	28.7	26.9	31.9
September	31.9	37.7	24.0	28.6	26.8	31.5
October	32.0	38.7	25.7	29.6	28.4	32.2
November	31.0	38.7	22.2	27.5	25.7	30.4
December	27.6	35.6	20.3	25.8	23.8	29.2
Average	**33.8**	**40.3**	**25.4**	**30.3**	**29.1**	**33.7**
1994 January	33.8	39.7	23.2	27.7	28.7	32.5
February	39.3	44.8	25.8	31.3	34.2	36.9
March	30.0	39.9	24.3	29.5	27.5	32.9
April	29.4	35.2	25.8	29.5	27.6	31.1
May	31.7	35.9	R27.4	R31.1	29.6	R32.6
June	35.3	38.4	31.2	34.3	33.2	35.7

R=Revised data.

Notes: • Sales for resale are those made to purchasers other than ultimate consumers. Sales to end users are those made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and commercial consumers. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Source: EIA, *Petroleum Marketing Monthly*, September 1994, Table 19.

Table 9.6 Refiner Prices of Petroleum Products for Resale

(Cents per Gallon, Excluding Taxes)

	Finished Motor Gasoline[a]	Finished Aviation Gasoline	Kerosene-Type Jet Fuel	Kerosene	No. 2 Fuel Oil	No. 2 Diesel Fuel	Propane (Consumer Grade)
1978 Average	**43.4**	**53.7**	**38.6**	**40.4**	**36.9**	**36.5**	**23.7**
1979 Average	**63.7**	**72.1**	**66.0**	**62.4**	**56.9**	**57.4**	**29.1**
1980 Average	**94.1**	**112.8**	**86.8**	**86.4**	**80.3**	**80.1**	**41.5**
1981 Average	**106.4**	**125.0**	**101.2**	**106.6**	**97.6**	**97.2**	**46.6**
1982 Average	**97.3**	**122.8**	**95.3**	**101.8**	**91.4**	**91.4**	**42.7**
1983 Average	**88.2**	**117.8**	**85.4**	**89.2**	**81.5**	**80.8**	**48.4**
1984 Average	**83.2**	**116.5**	**83.0**	**91.6**	**82.1**	**80.3**	**45.0**
1985 Average	**83.5**	**113.0**	**79.4**	**87.4**	**77.6**	**77.2**	**39.8**
1986 Average	**53.1**	**91.2**	**49.5**	**60.6**	**48.6**	**45.2**	**29.0**
1987 Average	**58.9**	**85.9**	**53.8**	**59.2**	**52.7**	**53.4**	**25.2**
1988 Average	**57.7**	**85.0**	**49.5**	**54.9**	**47.3**	**47.3**	**24.0**
1989 Average	**65.4**	**95.0**	**58.3**	**66.9**	**56.5**	**56.7**	**24.7**
1990 Average	**78.6**	**106.3**	**77.3**	**83.9**	**69.7**	**69.4**	**38.6**
1991 Average	**69.9**	**100.1**	**65.0**	**72.2**	**62.2**	**61.5**	**34.9**
1992 January	60.0	94.9	53.9	59.9	51.9	51.4	30.9
February	61.7	93.1	55.2	62.0	54.0	54.1	30.2
March	62.7	92.5	54.6	59.1	53.7	54.0	29.5
April	66.6	96.4	56.9	61.6	56.5	57.0	29.0
May	71.5	100.5	60.8	62.1	58.8	60.1	29.4
June	74.2	101.5	63.3	63.7	61.7	62.7	31.6
July	71.0	102.0	64.8	65.7	61.3	61.8	31.5
August	70.6	102.6	63.9	64.2	60.1	60.4	32.9
September	71.0	102.3	64.3	68.8	62.7	63.3	35.4
October	70.4	100.5	66.0	70.1	64.6	65.5	36.6
November	68.1	99.7	61.5	64.5	58.8	60.4	36.2
December	63.8	97.6	58.9	62.8	55.7	56.4	36.3
Average	**67.7**	**99.1**	**60.4**	**63.2**	**57.9**	**59.0**	**32.8**
1993 January	63.8	96.9	57.7	61.4	54.4	54.9	40.2
February	63.8	96.5	60.5	63.7	56.9	57.4	36.7
March	65.2	97.4	60.3	65.4	59.0	60.0	38.2
April	67.7	97.7	59.9	60.8	57.5	59.9	36.2
May	69.2	99.4	60.1	58.3	56.9	59.6	34.0
June	66.2	99.1	58.4	56.9	54.9	57.2	33.8
July	62.7	97.9	55.1	53.6	51.0	53.1	33.3
August	62.9	96.9	55.2	55.6	51.0	53.2	33.3
September	61.5	96.3	56.8	58.8	54.8	58.8	34.1
October	61.5	95.0	57.8	65.5	58.1	65.9	34.6
November	56.8	92.7	58.7	62.4	53.1	59.0	33.6
December	50.2	87.4	51.0	53.6	45.1	46.8	30.9
Average	**62.5**	**96.5**	**57.5**	**60.4**	**54.5**	**57.1**	**35.0**
1994 January	52.1	87.1	52.6	65.7	50.8	49.1	32.3
February	54.6	87.8	56.0	73.5	54.1	52.8	34.0
March	54.9	87.4	52.4	59.8	49.7	52.9	31.8
April	57.8	89.5	50.8	55.0	48.9	52.3	30.5
May	59.2	91.2	50.6	53.2	[R]48.9	51.7	30.4
June	62.6	93.2	51.5	53.8	50.0	52.3	29.9

[a] See Note 5 at end of section.

R=Revised data.

Notes: • Sales for resale are those made to purchasers other than ultimate consumers. Sales to end users are shown in Table 9.7; they are sales made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and residential and commercial consumers. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Source: EIA, *Petroleum Marketing Monthly*, September 1994, Table 4.

Table 9.7 Refiner Prices of Petroleum Products to End Users

(Cents per Gallon, Excluding Taxes)

	Finished Motor Gasoline[a]	Finished Aviation Gasoline	Kerosene-Type Jet Fuel	Kerosene	No. 2 Fuel Oil	No. 2 Diesel Fuel	Propane (Consumer Grade)
1978 Average	**48.4**	**51.6**	**38.7**	**42.1**	**40.0**	**37.7**	**33.5**
1979 Average	**71.3**	**68.9**	**54.7**	**58.5**	**51.6**	**58.5**	**35.7**
1980 Average	**103.5**	**108.4**	**86.8**	**90.2**	**78.8**	**81.8**	**48.2**
1981 Average	**114.7**	**130.3**	**102.4**	**112.3**	**91.4**	**99.5**	**56.5**
1982 Average	**106.0**	**131.2**	**96.3**	**108.9**	**90.5**	**94.2**	**59.2**
1983 Average	**95.4**	**125.5**	**87.8**	**96.1**	**91.6**	**82.6**	**70.9**
1984 Average	**90.7**	**123.4**	**84.2**	**103.6**	**91.6**	**82.3**	**73.7**
1985 Average	**91.2**	**120.1**	**79.6**	**103.0**	**84.9**	**78.9**	**71.7**
1986 Average	**62.4**	**101.1**	**52.9**	**79.0**	**56.0**	**47.8**	**74.5**
1987 Average	**66.9**	**90.7**	**54.3**	**77.0**	**58.1**	**55.1**	**70.1**
1988 Average	**67.3**	**89.1**	**51.3**	**73.8**	**54.4**	**50.0**	**71.4**
1989 Average	**75.6**	**99.5**	**59.2**	**70.9**	**58.7**	**58.5**	**61.5**
1990 Average	**88.3**	**112.0**	**76.6**	**92.3**	**73.4**	**72.5**	**74.5**
1991 Average	**79.7**	**104.7**	**65.2**	**83.8**	**66.5**	**64.8**	**73.0**
1992 January	71.9	98.5	54.2	83.3	59.7	55.5	71.3
February	70.8	98.5	56.5	78.3	62.0	57.1	NA
March	71.6	98.0	55.5	80.2	61.4	56.8	66.4
April	75.2	99.1	57.3	78.3	60.6	59.2	70.3
May	80.8	102.4	61.0	73.3	60.9	62.1	62.5
June	84.5	106.4	63.9	68.7	62.9	64.9	54.5
July	83.5	106.8	64.9	70.5	62.8	64.5	52.3
August	82.3	105.7	64.2	69.0	62.3	63.4	55.8
September	82.3	104.9	64.6	70.5	65.6	65.3	60.3
October	81.3	104.3	66.4	87.2	68.2	67.8	59.9
November	81.5	103.4	62.7	83.3	64.3	64.5	61.1
December	78.5	101.3	58.9	84.0	63.6	60.8	68.4
Average	**78.4**	**102.7**	**61.0**	**78.6**	**62.7**	**61.8**	**66.3**
1993 January	76.9	100.3	58.5	82.4	62.7	59.0	74.8
February	76.1	99.9	59.8	81.3	64.6	60.6	74.3
March	75.7	99.4	60.6	83.2	66.2	62.9	75.4
April	77.8	100.7	59.7	77.0	61.9	62.5	69.4
May	80.1	102.2	59.9	68.8	59.8	62.3	67.3
June	79.8	102.5	58.7	65.3	57.9	60.5	63.9
July	77.6	99.7	55.3	61.4	54.1	56.9	62.2
August	76.2	98.8	54.6	61.9	54.6	56.2	63.1
September	74.9	98.2	56.9	66.5	57.3	60.4	62.8
October	75.3	98.0	61.3	77.5	63.3	66.5	60.3
November	72.5	95.7	59.6	79.4	61.6	62.3	61.6
December	68.0	91.2	51.2	72.3	55.7	52.3	64.4
Average	**75.9**	**99.0**	**57.9**	**75.5**	**60.2**	**60.2**	**67.4**
1994 January	66.7	88.6	51.6	79.5	59.6	52.6	54.9
February	67.6	88.4	55.7	84.1	63.9	55.4	57.1
March	67.3	89.0	51.8	78.2	60.8	54.9	58.5
April	69.5	91.3	50.7	69.7	58.0	54.7	54.9
May	71.1	92.3	50.9	55.2	53.5	54.3	46.3
June	74.1	95.6	51.9	54.5	54.1	55.0	45.5

[a] See Note 5 at end of section.

NA=Not available.

Notes: • Sales to end users are those made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and residential and commercial consumers. Sales for resale are shown in Table 9.6; they are sales made to purchasers other than ultimate consumers. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Source: EIA, *Petroleum Marketing Monthly*, September 1994, Table 2.

Table 9.8a No. 2 Distillate Prices to Residences: Northeastern States

(Cents per Gallon, Excluding Taxes)

	Maine	New Hampshire	Vermont	Massachusetts	Rhode Island	Connecticut	New York	New Jersey	Pennsylvania
1978 Average	**48.6**	**50.3**	**50.8**	**48.8**	**50.7**	**50.1**	**50.1**	**49.6**	**48.8**
1979 Average	**68.8**	**72.5**	**72.5**	**70.9**	**72.8**	**72.0**	**71.2**	**71.0**	**69.8**
1980 Average	**96.3**	**100.4**	**101.5**	**97.8**	**101.1**	**98.3**	**98.2**	**97.9**	**96.4**
1981 Average	**120.4**	**123.7**	**125.4**	**121.3**	**123.8**	**121.7**	**123.2**	**121.5**	**118.1**
1982 Average	**115.5**	**117.4**	**120.1**	**117.6**	**120.1**	**118.3**	**120.5**	**117.4**	**113.7**
1983 Average	**102.8**	**104.1**	**112.9**	**109.1**	**110.5**	**109.1**	**112.1**	**107.9**	**105.8**
1984 Average	**103.9**	**108.4**	**111.9**	**111.6**	**111.4**	**112.1**	**115.5**	**111.0**	**107.9**
1985 Average	**99.7**	**102.4**	**107.7**	**107.0**	**106.7**	**108.0**	**111.3**	**105.9**	**102.3**
1986 Average	**74.4**	**75.9**	**86.6**	**82.1**	**82.8**	**89.0**	**91.1**	**90.2**	**81.4**
1987 Average	**74.7**	**76.5**	**81.1**	**80.6**	**82.5**	**83.4**	**85.2**	**84.3**	**76.9**
1988 Average	**77.7**	**78.2**	**82.6**	**82.1**	**83.6**	**85.3**	**86.3**	**84.8**	**77.8**
1989 Average	**89.4**	**89.3**	**90.5**	**92.6**	**93.9**	**92.9**	**95.8**	**91.8**	**85.1**
1990 Average	**98.9**	**102.8**	**107.0**	**108.4**	**108.6**	**109.8**	**112.5**	**108.7**	**102.6**
1991 Average	**96.0**	**91.6**	**101.9**	**103.0**	**99.9**	**106.2**	**111.3**	**104.0**	**99.7**
1992 January	87.7	88.1	92.4	93.2	90.7	96.4	103.4	95.6	91.4
February	88.2	86.5	92.8	92.5	91.7	95.5	103.8	95.1	91.5
March	86.4	83.3	92.2	91.5	90.9	94.0	102.1	93.5	90.1
April	85.5	81.8	91.7	91.4	90.4	93.3	101.1	92.9	89.4
May	85.5	81.7	91.5	91.0	90.9	93.1	101.1	89.2	88.6
June	87.1	82.9	90.7	91.3	89.7	91.8	101.7	90.4	86.5
July	87.7	82.3	89.1	90.4	89.9	93.1	100.7	90.3	83.0
August	87.8	81.8	89.4	89.6	89.4	90.5	99.0	88.1	81.7
September	86.8	83.0	91.6	90.7	89.8	91.8	99.7	90.8	84.4
October	89.3	87.6	92.0	93.5	92.7	94.9	102.7	94.0	87.5
November	88.3	87.6	92.6	93.8	92.5	95.8	104.7	94.6	89.6
December	85.7	87.7	92.9	93.5	91.5	95.2	104.3	95.4	89.3
Average	**87.1**	**85.6**	**92.1**	**92.5**	**91.2**	**94.7**	**102.8**	**93.9**	**88.9**
1993 January	85.2	87.1	93.4	94.0	91.7	94.9	104.3	96.5	89.0
February	85.4	87.0	93.3	94.4	91.8	96.2	104.2	96.7	89.1
March	86.5	86.6	93.7	94.8	92.4	96.7	104.2	96.2	89.8
April	83.0	85.0	91.2	91.3	90.3	93.6	100.1	95.1	89.0
May	81.5	83.8	91.2	90.9	90.6	91.7	99.3	91.6	86.6
June	80.8	82.5	89.7	88.6	87.6	88.6	97.8	88.0	84.0
July	78.2	78.0	85.5	83.9	85.2	86.5	95.2	87.9	78.8
August	77.3	76.1	85.6	83.4	82.7	84.0	92.9	85.7	77.0
September	78.3	75.2	86.6	83.8	84.1	84.3	93.5	85.9	80.4
October	83.9	76.9	86.7	86.0	85.9	88.5	95.7	89.7	83.2
November	80.9	77.2	86.1	86.0	88.4	88.9	95.7	89.5	84.0
December	79.9	77.9	86.1	84.2	86.8	88.4	93.8	87.6	84.1
Average	**82.7**	**83.1**	**90.3**	**89.8**	**89.5**	**92.0**	**99.9**	**92.5**	**86.2**
1994 January	83.7	80.4	88.3	88.5	87.5	90.2	97.3	91.7	87.7
February	90.4	86.6	91.6	91.0	91.7	93.8	100.9	96.0	92.6
March	85.9	83.2	90.8	88.5	90.0	92.1	99.6	94.6	90.4
April	80.8	78.0	88.2	86.3	85.6	89.4	95.5	90.4	86.2
May	77.4	R74.9	86.5	R84.9	R84.4	85.4	R96.3	R85.2	R83.7
June	76.4	72.8	84.5	83.1	83.1	86.4	96.8	83.7	80.3

R=Revised data.

Notes: • States are grouped in Tables 9.8a, 9.8b, and 9.8c by geographic region of the country. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section.

Source: EIA, *Petroleum Marketing Monthly*, September 1994, Table 18.

Table 9.8b No. 2 Distillate Prices to Residences: Selected South Atlantic and Midwestern States

(Cents per Gallon, Excluding Taxes)

	Delaware	District of Columbia	Maryland	Virginia	West Virginia	Ohio	Michigan	Indiana	Illinois	Wisconsin	Minnesota
1978 Average	**47.8**	**50.7**	**49.2**	**49.1**	**46.2**	**47.4**	**47.9**	**48.5**	**46.5**	**44.7**	**47.8**
1979 Average	**68.2**	**74.2**	**70.1**	**70.4**	**65.1**	**68.6**	**70.9**	**72.7**	**68.8**	**67.3**	**72.4**
1980 Average	**95.4**	**102.6**	**97.9**	**98.5**	**92.2**	**91.9**	**97.8**	**99.6**	**95.8**	**91.5**	**99.9**
1981 Average	**117.3**	**127.4**	**121.4**	**120.5**	**115.0**	**113.2**	**118.3**	**118.5**	**114.9**	**109.1**	**118.4**
1982 Average	**111.3**	**124.5**	**117.1**	**117.7**	**109.3**	**110.2**	**113.9**	**114.3**	**110.9**	**107.8**	**115.1**
1983 Average	**106.0**	**117.0**	**110.3**	**108.7**	**101.0**	**101.3**	**106.4**	**100.7**	**100.4**	**101.2**	**103.1**
1984 Average	**109.6**	**118.7**	**113.5**	**110.5**	**102.1**	**102.1**	**105.0**	**103.1**	**100.1**	**101.0**	**104.1**
1985 Average	**104.6**	**114.3**	**108.8**	**106.3**	**98.0**	**99.7**	**102.1**	**99.1**	**97.5**	**98.3**	**101.9**
1986 Average	**85.0**	**93.1**	**91.4**	**86.6**	**74.6**	**77.7**	**81.0**	**74.8**	**NA**	**75.6**	**79.2**
1987 Average	**79.3**	**91.8**	**86.6**	**79.5**	**76.4**	**74.7**	**77.5**	**75.4**	**79.8**	**75.1**	**74.6**
1988 Average	**80.1**	**91.6**	**87.0**	**80.5**	**74.2**	**74.7**	**77.5**	**75.4**	**77.6**	**73.9**	**73.5**
1989 Average	**88.2**	**98.6**	**93.8**	**87.0**	**83.0**	**81.6**	**85.3**	**83.2**	**80.9**	**81.1**	**82.4**
1990 Average	**105.8**	**107.8**	**111.9**	**110.6**	**99.1**	**98.1**	**100.9**	**99.3**	**96.1**	**94.2**	**101.4**
1991 Average	**99.7**	**112.2**	**108.4**	**101.1**	**93.4**	**91.0**	**94.2**	**91.8**	**92.7**	**89.5**	**91.1**
1992 January	94.4	107.3	101.6	94.3	85.5	82.0	86.6	77.8	85.2	80.1	79.4
February	92.7	107.3	100.9	93.7	86.9	83.0	86.5	78.7	85.6	79.8	79.6
March	92.4	105.3	100.3	93.7	86.6	82.5	86.6	79.5	88.1	79.2	79.7
April	91.5	104.8	99.0	92.6	85.6	82.9	86.7	80.2	88.4	80.4	81.8
May	90.2	102.3	97.2	91.7	84.2	83.5	86.4	81.2	89.0	81.5	83.9
June	91.4	102.7	97.6	89.6	86.5	85.3	86.1	79.6	90.8	81.9	82.9
July	90.6	102.0	95.7	90.2	82.3	81.7	85.0	82.4	87.9	81.1	84.5
August	89.5	101.9	95.2	88.4	81.4	82.3	85.7	83.1	86.4	80.6	84.1
September	90.3	101.2	95.7	89.4	85.4	84.7	88.2	84.8	88.9	83.6	85.0
October	93.7	104.0	98.8	91.9	88.3	86.4	90.0	85.8	90.8	84.1	87.1
November	92.8	105.7	100.4	92.1	88.0	84.6	88.2	82.7	90.4	83.7	86.0
December	90.9	105.4	100.4	93.3	89.0	84.5	87.9	81.8	88.2	84.3	83.1
Average	**92.3**	**105.7**	**99.9**	**92.8**	**86.4**	**83.6**	**87.1**	**81.1**	**87.6**	**81.8**	**82.3**
1993 January	90.8	105.2	100.5	92.4	88.3	84.2	88.3	81.8	87.2	82.1	82.9
February	90.8	106.8	101.3	93.5	88.6	85.5	87.6	82.3	88.2	83.3	83.0
March	92.4	108.5	101.6	94.2	89.9	86.6	90.1	83.1	90.0	84.0	83.9
April	91.6	107.1	99.2	90.3	86.9	86.9	90.8	84.9	NA	84.7	83.3
May	89.4	104.3	96.2	88.6	84.8	86.0	89.8	83.6	84.8	84.9	84.1
June	90.9	100.4	95.2	86.0	86.7	85.7	87.4	82.1	81.2	84.2	83.4
July	90.2	100.2	92.3	84.7	81.2	79.3	83.4	79.0	79.4	84.1	82.0
August	83.5	96.1	91.3	84.0	79.1	78.6	82.1	76.6	77.2	78.7	80.0
September	85.0	95.0	92.6	84.9	79.2	81.4	85.5	80.3	80.9	82.8	83.1
October	87.4	102.2	94.1	84.9	83.3	85.5	89.2	82.7	86.6	81.8	86.4
November	88.4	101.0	95.4	84.8	83.4	83.6	86.3	81.3	82.5	82.1	84.5
December	89.4	101.1	94.7	84.0	83.8	80.1	82.5	78.1	77.8	79.4	80.3
Average	**90.1**	**104.7**	**98.1**	**89.3**	**85.0**	**83.7**	**87.2**	**81.3**	**84.1**	**82.4**	**83.1**
1994 January	92.1	102.6	98.4	88.6	86.3	81.3	85.6	79.1	77.6	79.4	80.8
February	91.5	105.5	99.2	88.6	86.4	84.0	88.0	81.9	81.6	81.8	80.8
March	91.1	102.0	96.6	86.6	85.1	81.8	87.8	80.7	77.4	82.5	80.2
April	89.1	93.7	92.3	83.1	78.1	81.3	87.7	81.4	74.7	81.5	80.1
May	86.4	83.6	R86.6	R82.5	74.8	79.8	86.9	80.5	74.4	R80.6	R79.8
June	83.3	79.6	87.4	79.9	73.6	76.7	86.5	81.5	76.0	79.8	79.6

R=Revised data. NA=Not available.

Notes: • States are grouped in Tables 9.8a, 9.8b, and 9.8c by geographic region of the country. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section.

Source: EIA, *Petroleum Marketing Monthly*, September 1994, Table 18.

Table 9.8c No. 2 Distillate Prices to Residences: Selected Western States and U.S. Average

(Cents per Gallon, Excluding Taxes)

	Idaho	Washington	Oregon	Alaska	U.S. Average
1978 Average	**43.6**	**48.6**	**45.8**	**53.2**	**49.0**
1979 Average	**62.1**	**69.7**	**68.0**	**68.2**	**70.4**
1980 Average	**91.6**	**100.8**	**97.3**	**97.8**	**97.4**
1981 Average	**110.4**	**116.5**	**111.4**	**118.0**	**119.4**
1982 Average	**110.4**	**117.6**	**111.6**	**117.4**	**116.0**
1983 Average	**101.8**	**109.0**	**103.6**	**108.8**	**107.8**
1984 Average	**98.5**	**102.6**	**99.3**	**106.9**	**109.1**
1985 Average	**97.2**	**101.1**	**97.1**	**108.3**	**105.3**
1986 Average	**73.8**	**77.5**	**70.4**	**94.9**	**83.6**
1987 Average	**68.8**	**79.5**	**72.5**	**86.5**	**80.3**
1988 Average	**68.8**	**78.5**	**70.9**	**86.9**	**81.3**
1989 Average	**77.8**	**87.4**	**80.2**	**96.4**	**90.0**
1990 Average	**97.4**	**102.9**	**97.0**	**110.1**	**106.3**
1991 Average	**95.1**	**101.6**	**93.3**	**105.0**	**101.9**
1992 January	86.1	92.0	85.3	92.7	94.2
February	79.2	90.9	83.5	91.1	94.2
March	82.2	91.8	82.6	93.0	93.2
April	84.2	92.0	85.5	92.1	92.5
May	86.1	94.3	88.9	93.6	92.3
June	84.6	90.6	89.2	93.9	92.0
July	86.1	88.0	87.3	93.0	90.4
August	79.4	84.0	84.0	96.8	88.6
September	86.0	90.3	87.6	93.4	90.1
October	89.6	94.5	91.7	96.8	93.7
November	91.7	98.7	92.8	97.7	94.8
December	86.8	99.7	91.5	95.8	94.5
Average	**85.7**	**94.3**	**87.8**	**94.0**	**93.4**
1993 January	84.8	100.6	91.7	95.1	94.3
February	84.2	101.4	89.9	95.1	94.6
March	87.8	99.7	90.7	94.2	95.4
April	84.1	101.5	92.1	94.7	92.5
May	82.9	100.3	91.3	96.6	91.0
June	82.8	95.1	90.2	97.1	88.9
July	80.0	91.3	86.1	95.3	85.6
August	77.0	89.3	83.5	95.5	84.1
September	85.3	97.1	92.0	94.8	85.4
October	90.7	104.8	99.3	97.0	88.6
November	95.3	104.0	98.0	93.3	88.4
December	82.0	96.7	88.2	90.7	86.7
Average	**85.8**	**100.2**	**91.9**	**94.7**	**91.1**
1994 January	73.3	92.8	86.0	88.8	89.6
February	73.8	96.2	87.9	88.5	92.8
March	77.2	96.9	88.4	89.3	91.4
April	76.1	97.3	88.1	88.6	87.9
May	76.8	95.1	R87.1	90.0	R85.9
June	75.5	92.2	85.3	89.1	84.9

R=Revised data.

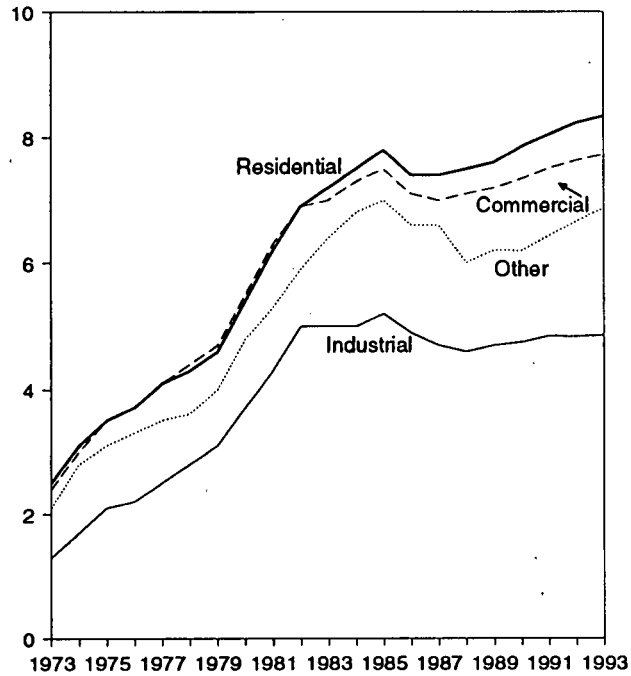
Notes: • States are grouped in Tables 9.8a, 9.8b, and 9.8c by geographic region of the country. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section.

Source: EIA, *Petroleum Marketing Monthly*, September 1994, Table 18.

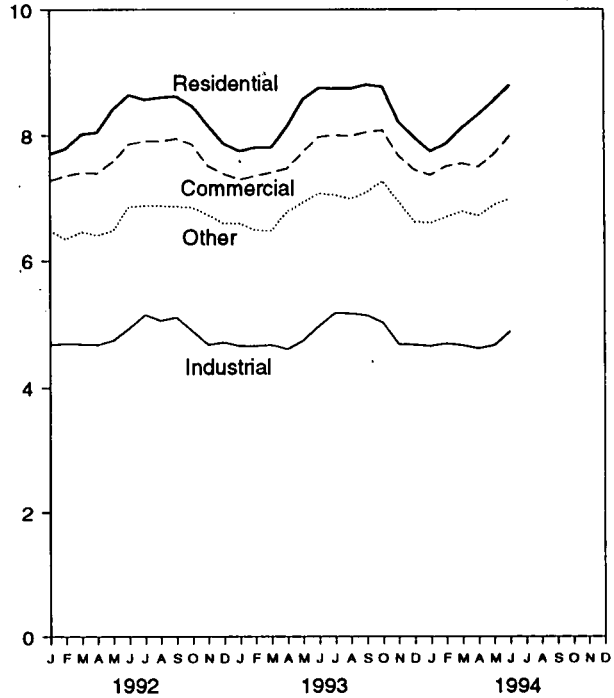
Figure 9.2 Electricity Retail Prices

(Cents per Kilowatthour)

Prices by Sector, 1973-1993



Prices by Sector, Monthly

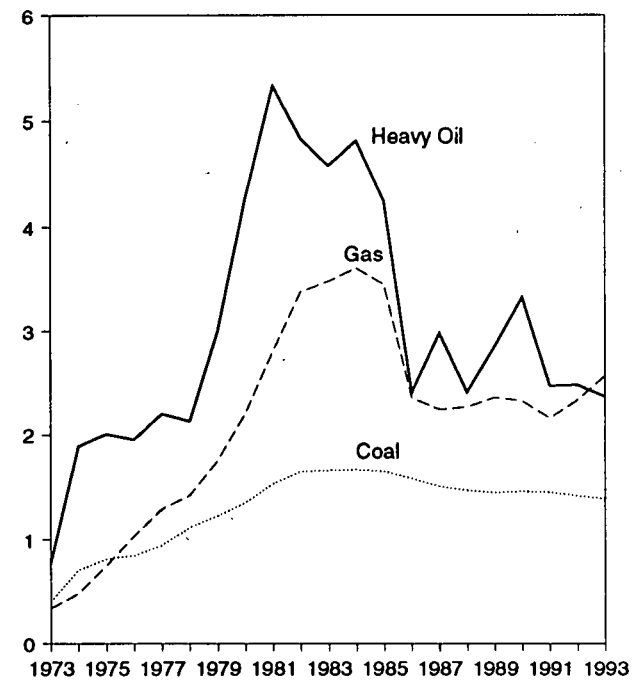


Source: Table 9.9, Monthly Series.

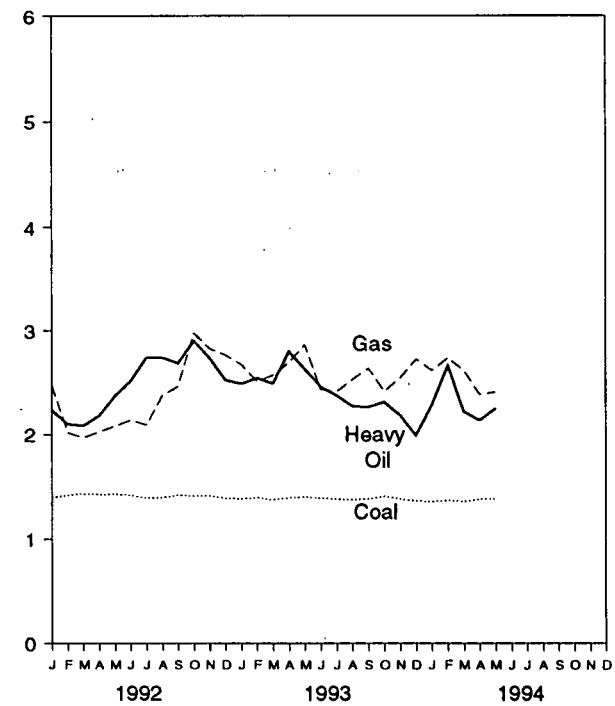
Figure 9.3 Cost of Fossil-Fuel Receipts at Steam-Electric Plants

(Dollars per Million Btu)

Fossil Fuels Costs, 1973-1993



Fossil Fuel Costs, Monthly



Source: Table 9.10.

Table 9.9 Electricity Retail Prices

(Cents per Kilowatthour)

	Residential		Commercial		Industrial		Other[a]		Total[b]	
	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series
1973 Average	**2.5**	**NA**	**2.4**	**NA**	**1.3**	**NA**	**2.1**	**NA**	**2.0**	**NA**
1974 Average	**3.1**	**NA**	**3.0**	**NA**	**1.7**	**NA**	**2.8**	**NA**	**2.5**	**NA**
1975 Average	**3.5**	**NA**	**3.5**	**NA**	**2.1**	**NA**	**3.1**	**NA**	**2.9**	**NA**
1976 Average	**3.7**	**NA**	**3.7**	**NA**	**2.2**	**NA**	**3.3**	**NA**	**3.1**	**NA**
1977 Average	**4.1**	**NA**	**4.1**	**NA**	**2.5**	**NA**	**3.5**	**NA**	**3.4**	**NA**
1978 Average	**4.3**	**NA**	**4.4**	**NA**	**2.8**	**NA**	**3.6**	**NA**	**3.7**	**NA**
1979 Average	**4.6**	**NA**	**4.7**	**NA**	**3.1**	**NA**	**4.0**	**NA**	**4.0**	**NA**
1980 Average	**5.4**	**NA**	**5.5**	**NA**	**3.7**	**NA**	**4.8**	**NA**	**4.7**	**NA**
1981 Average	**6.2**	**NA**	**6.3**	**NA**	**4.3**	**NA**	**5.3**	**NA**	**5.5**	**NA**
1982 Average	**6.9**	**NA**	**6.9**	**NA**	**5.0**	**NA**	**5.9**	**NA**	**6.1**	**NA**
1983 Average	**7.2**	**NA**	**7.0**	**NA**	**5.0**	**NA**	**6.4**	**NA**	**6.3**	**NA**
1984 Average	**7.5**	**7.15**	**7.3**	**7.13**	**5.0**	**4.83**	**6.8**	**5.90**	**6.5**	**6.25**
1985 Average	**7.8**	**7.39**	**7.5**	**7.27**	**5.2**	**4.97**	**7.0**	**6.09**	**6.7**	**6.44**
1986 Average	**7.4**	**7.42**	**7.1**	**7.20**	**4.9**	**4.93**	**6.6**	**6.11**	**6.4**	**6.44**
1987 Average	**7.4**	**7.45**	**7.0**	**7.08**	**4.7**	**4.77**	**6.6**	**6.21**	**6.3**	**6.37**
1988 Average	**7.5**	**7.48**	**7.1**	**7.04**	**4.6**	**4.70**	**6.0**	**6.20**	**6.3**	**6.35**
1989 Average	**7.6**	**7.65**	**7.2**	**7.20**	**4.7**	**4.72**	**6.2**	**6.25**	**6.4**	**6.45**
1990 Average	**7.85**	**7.83**	**7.34**	**7.34**	**4.75**	**4.74**	**6.19**	**6.40**	**6.57**	**6.57**
1991 Average	**8.05**	**8.04**	**7.51**	**7.53**	**4.85**	**4.83**	**6.43**	**6.51**	**6.75**	**6.75**
1992 January	7.71	–	7.28	–	4.68	–	6.48	–	6.58	–
February	7.79	–	7.36	–	4.70	–	6.34	–	6.58	–
March	8.02	–	7.41	–	4.69	–	6.46	–	6.61	–
April	8.05	–	7.40	–	4.68	–	6.40	–	6.58	–
May	8.41	–	7.58	–	4.75	–	6.48	–	6.73	–
June	8.64	–	7.86	–	4.94	–	6.87	–	7.00	–
July	8.57	–	7.91	–	5.15	–	6.88	–	7.19	–
August	8.60	–	7.91	–	5.06	–	6.88	–	7.16	–
September	8.62	–	7.95	–	5.11	–	6.87	–	7.15	–
October	8.47	–	7.86	–	4.90	–	6.86	–	6.92	–
November	8.16	–	7.51	–	4.68	–	6.73	–	6.65	–
December	7.87	–	7.39	–	4.72	–	6.59	–	6.66	–
Average	**8.23**	**8.21**	**7.63**	**7.66**	**4.84**	**4.83**	**6.66**	**6.74**	**6.83**	**6.82**
1993 January	7.75	–	7.30	–	4.66	–	6.60	–	6.61	–
February	7.81	–	7.36	–	4.66	–	6.49	–	6.59	–
March	7.81	–	7.41	–	4.68	–	6.48	–	6.58	–
April	8.14	–	7.47	–	4.61	–	6.79	–	6.61	–
May	8.57	–	7.74	–	4.75	–	6.93	–	6.81	–
June	8.75	–	7.98	–	4.98	–	7.08	–	7.13	–
July	8.74	–	8.00	–	5.18	–	7.05	–	7.36	–
August	8.74	–	7.99	–	5.17	–	6.99	–	7.35	–
September	8.80	–	8.05	–	5.14	–	7.10	–	7.32	–
October	8.77	–	8.08	–	5.03	–	7.27	–	7.15	–
November	8.22	–	7.68	–	4.69	–	6.95	–	6.74	–
December	7.97	–	7.45	–	4.68	–	6.62	–	6.68	–
Average	**8.34**	**NA**	**7.73**	**NA**	**4.86**	**NA**	**6.87**	**NA**	**6.93**	**NA**
1994 January	7.75	–	7.37	–	4.66	–	6.60	–	6.66	–
February	7.87	–	7.50	–	4.70	–	6.70	–	6.69	–
March	8.12	–	7.55	–	4.67	–	6.79	–	6.72	–
April	8.32	–	7.49	–	4.62	–	6.72	–	6.68	–
May	8.55	–	7.70	–	4.67	–	6.89	–	6.79	–
June	8.79	–	7.99	–	4.89	–	6.99	–	7.16	–
6-Month Average	**8.20**	**–**	**7.61**	**–**	**4.70**	**–**	**6.78**	**–**	**6.79**	**–**
1993 6-Month Average	**8.10**	**–**	**7.55**	**–**	**4.73**	**–**	**6.73**	**–**	**6.72**	**–**
1992 6-Month Average	**8.07**	**–**	**7.48**	**–**	**4.74**	**–**	**6.51**	**–**	**6.68**	**–**

[a] "Other" is public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

[b] Average price for total sales to ultimate consumers.

[c] Annual values are the sum of the monthly revenue divided by the sum of the monthly sales. Data through 1979 cover privately owned electric utilities in Classes A and B. Data for 1980-1985 cover selected privately owned electric utilities in Class A whose electric operating revenue was $100 million or more during the previous year. See Note 7 at end of section.

NA=Not available. – =Not applicable.

Notes: • Prices are calculated by dividing revenue by sales. Revenue may not correspond to sales for a particular month because of electric utility billing and accounting procedures. That lack of correspondence could result in uncharacteristic increases or decreases in the monthly prices. See Note 7 at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **Monthly Series: 1973-September 1977**—Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income." **October 1977-February 1980**—Federal Energy Regulatory Commission (FERC), Form FERC-5, "Electric Operating Revenue and Income." **March 1980-December 1980**—FERC, Form FERC-5, "Electric Utility Company Monthly Statement." **1981**—Energy Information Administration (EIA), *Electric Power Monthly*, March 1992, Table 59. **1982 and 1991 monthly data**—EIA, *Electric Power Monthly*, March 1993, Table 59. **1983 forward (except 1991 monthly data)**—EIA, *Electric Power Monthly*, September 1994, Table 60. • **Annual Series:** EIA, *Electric Power Monthly*, September 1994, Table 60.

Monthly series prices beginning with 1990 and all annual series prices are now published at two decimal places.

Table 9.10 Quantity and Cost of Fossil-Fuel Receipts at Steam-Electric Utility Plants

	Coal		Petroleum				Gas[a]		All Fossil Fuels[b]
			Heavy Oil[b]		Total[b,c]				
	Quantity (thousand short tons)	Cost (cents per million Btu)	Quantity (thousand barrels)	Cost (cents per million Btu)	Quantity (thousand barrels)	Cost (cents per million Btu)	Quantity (million cubic feet)	Cost (cents per million Btu)	Cost (cents per million Btu)
1973 Year	**374,842**	**40.5**	**512,650**	**78.5**	**535,859**	**80.0**	**3,382,677**	**33.8**	**47.6**
1974 Year	**384,868**	**70.9**	**479,166**	**189.0**	**515,217**	**191.0**	**3,225,203**	**48.2**	**91.4**
1975 Year	**431,527**	**81.4**	**457,582**	**200.5**	**510,352**	**202.3**	**3,034,808**	**75.2**	**104.4**
1976 Year	**454,858**	**84.8**	**495,363**	**195.2**	**549,973**	**199.0**	**2,962,811**	**103.4**	**111.9**
1977 Year	**490,415**	**94.7**	**563,685**	**219.8**	**635,556**	**224.9**	**3,106,403**	**129.1**	**129.7**
1978 Year	**476,169**	**111.6**	**546,197**	**212.5**	**616,040**	**219.1**	**3,140,654**	**142.2**	**141.1**
1979 Year	**556,558**	**122.4**	**479,705**	**298.8**	**515,695**	**307.2**	**3,368,976**	**174.9**	**163.9**
1980 Year	**593,995**	**135.1**	**394,159**	**426.7**	**419,140**	**435.1**	**3,588,814**	**219.9**	**192.8**
1981 Year	**579,374**	**153.2**	**327,477**	**533.4**	**345,544**	**542.5**	**3,573,558**	**280.5**	**225.6**
1982 Year	**601,427**	**164.7**	**228,200**	**483.2**	**239,111**	**492.2**	**3,161,348**	**337.6**	**224.9**
1983 Year	**592,728**	**165.6**	**211,705**	**457.8**	**219,652**	**462.8**	**2,732,248**	**347.4**	**220.6**
1984 Year	**684,111**	**166.4**	**193,832**	**481.2**	**202,372**	**486.3**	**2,878,808**	**360.3**	**219.1**
1985 Year	**666,743**	**164.8**	**156,410**	**424.4**	**164,947**	**431.7**	**2,808,921**	**344.4**	**209.4**
1986 Year	**686,964**	**157.9**	**220,585**	**240.1**	**228,522**	**243.7**	**2,387,622**	**235.1**	**175.0**
1987 Year	**721,298**	**150.6**	**187,300**	**297.6**	**194,578**	**301.1**	**2,605,191**	**224.0**	**170.6**
1988 Year	**727,775**	**146.6**	**230,234**	**240.5**	**236,924**	**243.9**	**2,362,721**	**226.3**	**164.3**
1989 Year	**753,217**	**144.5**	**237,668**	**284.6**	**246,422**	**289.3**	**2,472,506**	**235.5**	**167.5**
1990 Year	**786,627**	**145.5**	**202,281**	**331.9**	**209,350**	**338.4**	**2,490,979**	**232.1**	**168.9**
1991 Year	**769,923**	**144.7**	**163,106**	**246.5**	**169,625**	**254.8**	**2,630,818**	**215.3**	**160.3**
1992 January	64,678	139.6	12,039	223.2	12,539	230.0	159,815	247.1	155.2
February	61,603	142.1	13,634	209.8	14,107	216.1	160,328	201.7	152.7
March	63,857	143.4	12,779	208.2	13,186	214.1	198,040	196.8	153.7
April	60,661	142.7	10,144	217.8	10,555	225.7	218,468	202.6	154.8
May	63,407	142.9	10,079	237.1	10,498	245.1	227,857	207.8	156.4
June	63,704	141.9	10,888	251.4	11,352	260.0	254,025	213.6	158.3
July	64,400	139.3	12,706	274.1	13,217	281.2	315,543	208.9	159.2
August	70,241	139.6	12,152	274.1	12,664	281.2	287,373	237.3	161.6
September	66,503	142.0	8,883	268.5	9,319	277.6	259,771	246.3	163.0
October	66,907	141.3	10,772	290.5	11,221	297.7	205,039	297.9	167.5
November	64,005	141.5	11,161	273.5	11,636	280.5	182,505	282.6	164.5
December	65,998	138.6	13,302	252.1	14,097	261.9	168,913	276.5	160.0
Year	**775,963**	**141.2**	**138,537**	**247.5**	**144,390**	**255.1**	**2,637,678**	**232.8**	**159.0**
1993 January	65,219	138.5	8,437	248.7	9,027	259.1	159,320	267.3	156.2
February	59,225	139.3	7,002	254.1	7,421	263.8	153,537	250.7	155.6
March	63,957	137.5	8,548	248.6	9,022	258.8	185,876	256.7	156.4
April	63,814	139.3	10,074	280.0	10,534	286.5	169,838	268.9	159.9
May	62,568	140.0	10,378	262.7	10,803	269.3	163,917	286.3	161.7
June	63,702	139.0	10,638	245.8	11,149	254.2	244,015	243.2	159.9
July	59,853	138.0	15,424	237.3	16,045	243.3	313,392	240.9	164.5
August	65,843	137.4	15,099	227.0	15,624	232.2	340,505	252.6	165.1
September	65,357	138.5	15,324	226.1	15,766	231.0	250,296	263.6	162.8
October	67,123	140.5	13,596	231.0	14,005	236.6	226,238	241.3	159.1
November	65,938	138.4	10,868	218.0	11,420	227.3	201,903	254.0	156.9
December	66,552	136.2	16,331	198.8	17,085	205.5	165,685	272.4	154.9
Year	**769,152**	**138.5**	**141,719**	**236.2**	**147,902**	**243.3**	**2,574,523**	**256.0**	**159.5**
1994 January	62,601	135.8	16,700	228.5	17,781	237.9	160,321	261.5	156.6
February	64,409	136.8	16,554	266.2	17,543	274.4	142,801	273.5	158.9
March	72,938	135.8	12,796	221.6	13,319	227.7	179,885	261.5	153.1
April	67,372	138.1	9,904	213.1	10,400	220.9	199,308	238.2	153.6
May	70,978	138.3	13,291	224.8	13,885	231.2	211,856	240.6	155.3
5 Months	**338,298**	**137.0**	**69,245**	**233.3**	**72,928**	**241.1**	**894,170**	**253.3**	**155.4**
1993 5 Months	**314,784**	**138.9**	**44,438**	**259.9**	**46,807**	**268.3**	**832,489**	**265.9**	**158.0**
1992 5 Months	**314,207**	**142.1**	**58,674**	**218.3**	**60,884**	**225.2**	**964,508**	**209.8**	**154.6**

[a] Includes supplemental gaseous fuels.

[b] Heavy oil includes fuel oil nos. 4, 5, and 6, and topped crude oil. The weighted averages for petroleum and all fossil fuels include both heavy and light oil (No. 2 fuel oil, kerosene, and jet fuel) prices. Data do not include petroleum coke.

[c] Data for 1973-1982 do not include small quantities of rerefined motor oil, bunker oil, and liquefied petroleum gas.

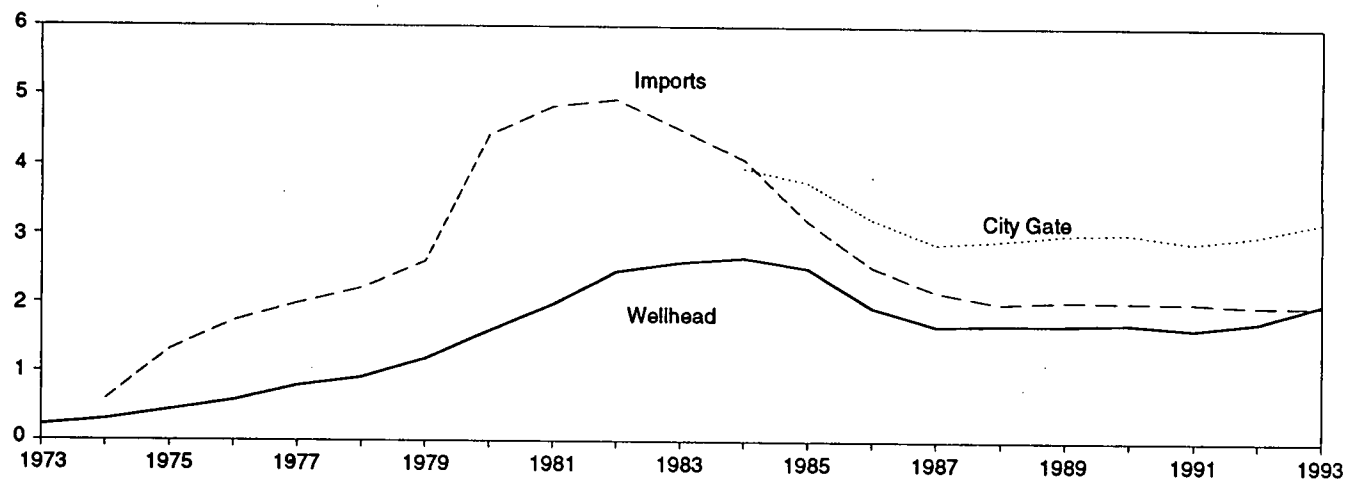
Notes: • See Note 8 at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1979:** Annual data for quantity are simple sums of unrounded monthly values and for cost are averages of monthly values, weighted by quantities of Btu, from the following: **1973-May 1977**—Federal Power Commission, Form FPC-423, "Monthly Report on Cost and Quality of Fuels for Electric Utility Plants." **June 1977-December 1977**—Federal Energy Regulatory Commission, Form FERC-423, "Monthly Report on Cost and Quality of Fuels for Electric Utility Plants." **1978 and 1979**—Energy Information Administration (EIA), Form FERC-423, "Monthly Report on Cost and Quality of Fuels for Electric Utility Plants." • **1980:** EIA, *Electric Power Monthly*, April 1991, Table 33. • **1981:** EIA, *Electric Power Monthly*, April 1992, Table 33. • **1982 and 1991 monthly data:** EIA, *Electric Power Monthly*, April 1993, Table 33. • **1983 forward:** EIA, *Electric Power Monthly*, September 1994, Table 34.

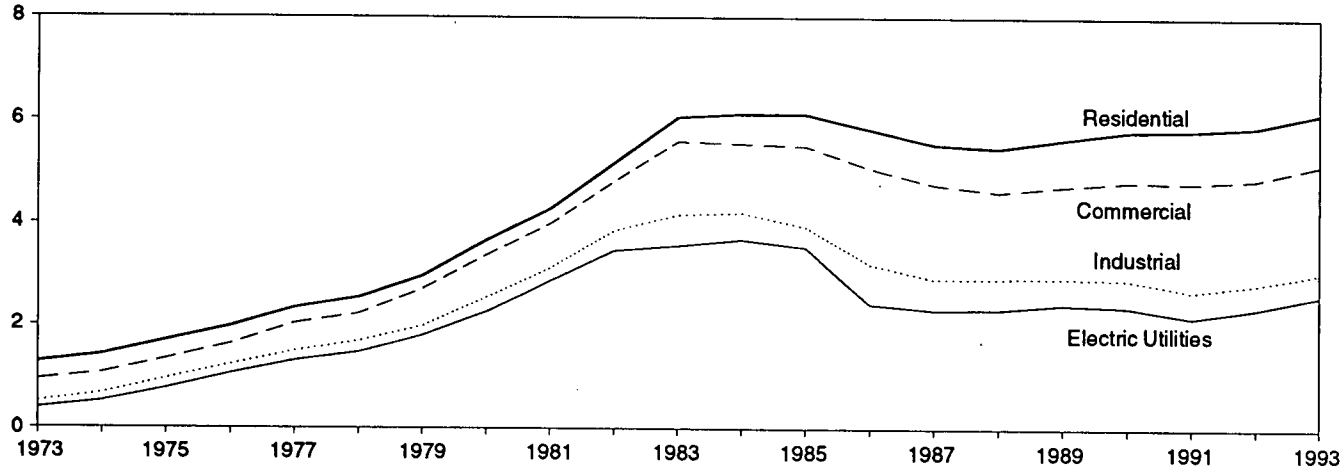
Figure 9.4 Natural Gas Prices

(Dollars per Thousand Cubic Feet)

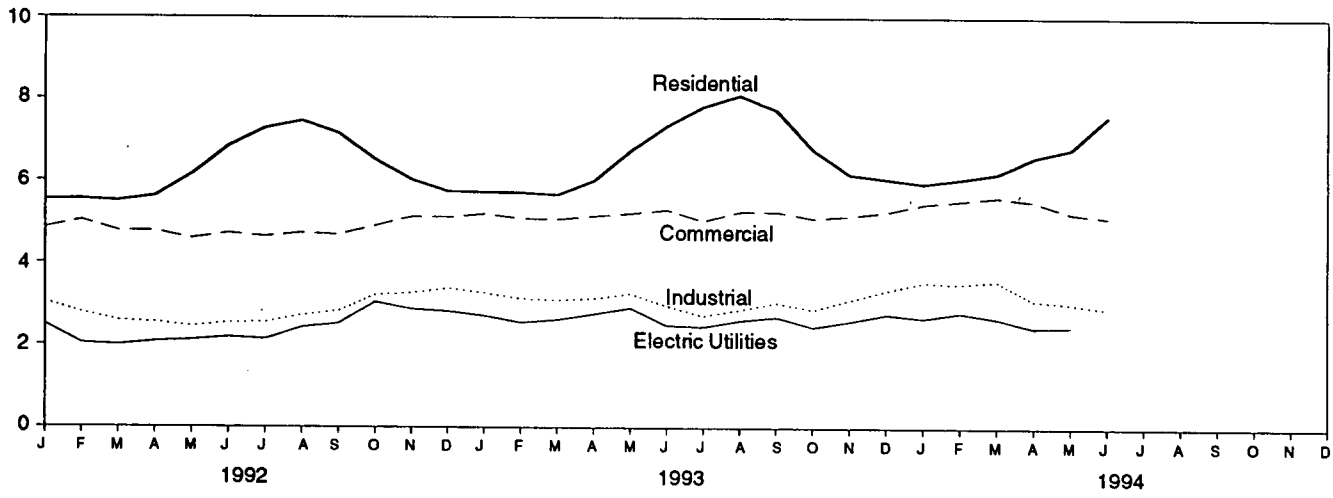
Selected Prices, 1973-1993



Delivered to Consumers, 1973-1993



Delivered to Consumers, Monthly



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 9.11.

Table 9.11 Natural Gas Prices

(Dollars per Thousand Cubic Feet)

	Wellhead	Major Interstate Pipeline Companies		City Gate	Delivered to Consumers[a,b]			
		Imports	Purchases from Producers		Residential	Commercial	Industrial	Electric Utilities[c]
1973 Average	**0.22**	**NA**	**NA**	**NA**	**1.29**	**0.94**	**0.50**	**0.38**
1974 Average	**.30**	**.59**	**.27**	**NA**	**1.43**	**1.07**	**.67**	**.51**
1975 Average	**.44**	**1.31**	**.37**	**NA**	**1.71**	**1.35**	**.96**	**.77**
1976 Average	**.58**	**1.73**	**.48**	**NA**	**1.98**	**1.64**	**1.24**	**1.06**
1977 Average	**.79**	**1.99**	**.70**	**NA**	**2.35**	**2.04**	**1.50**	**1.32**
1978 Average	**.91**	**2.21**	**.83**	**NA**	**2.56**	**2.23**	**1.70**	**1.48**
1979 Average	**1.18**	**2.60**	**1.22**	**NA**	**2.98**	**2.73**	**1.99**	**1.81**
1980 Average	**1.59**	**4.42**	**1.63**	**NA**	**3.68**	**3.39**	**2.56**	**2.27**
1981 Average	**1.98**	**4.84**	**2.15**	**NA**	**4.29**	**4.00**	**3.14**	**2.89**
1982 Average	**2.46**	**4.94**	**2.72**	**NA**	**5.17**	**4.82**	**3.87**	**3.48**
1983 Average	**2.59**	**4.51**	**2.93**	**NA**	**6.06**	**5.59**	**4.18**	**3.58**
1984 Average	**2.66**	**4.08**	**2.91**	**3.95**	**6.12**	**5.55**	**4.22**	**3.70**
1985 Average	**2.51**	**3.19**	**2.85**	**3.75**	**6.12**	**5.50**	**3.95**	**3.55**
1986 Average	**1.94**	**2.53**	**2.39**	**3.22**	**5.83**	**5.08**	**3.23**	**2.43**
1987 Average	**1.67**	**2.17**	**2.10**	**2.87**	**5.54**	**4.77**	**2.94**	**2.32**
1988 Average	**1.69**	**2.00**	**2.13**	**2.92**	**5.47**	**4.63**	**2.95**	**2.33**
1989 Average	**1.69**	**2.04**	**2.18**	**3.01**	**5.64**	**4.74**	**2.96**	**2.43**
1990 Average	**1.71**	**2.03**	**2.19**	**3.03**	**5.80**	**4.83**	**2.93**	**2.38**
1991 Average	**1.64**	**2.02**	**1.92**	**2.90**	**5.82**	**4.81**	**2.69**	**2.18**
1992 January	1.74	2.20	2.10	2.90	5.53	4.85	3.04	2.49
February	1.26	1.98	1.70	2.70	5.54	5.03	2.78	2.03
March	1.35	1.45	1.90	2.61	5.50	4.77	2.58	1.99
April	1.42	2.01	1.73	2.74	5.62	4.77	2.54	2.07
May	1.51	1.79	1.99	2.90	6.15	4.59	2.44	2.11
June	1.62	2.03	2.16	3.00	6.84	4.72	2.53	2.18
July	1.55	1.89	1.86	3.01	7.27	4.64	2.54	2.13
August	1.84	1.85	2.14	3.18	7.45	4.73	2.71	2.42
September	1.92	2.05	2.13	3.23	7.15	4.69	2.82	2.51
October	2.38	2.13	2.69	3.50	6.52	4.90	3.21	3.04
November	2.13	2.32	2.33	3.33	6.02	5.12	3.26	2.87
December	2.07	1.92	2.40	3.17	5.74	5.11	3.38	2.81
Average	**1.74**	**1.97**	**2.09**	**3.01**	**5.89**	**4.88**	**2.84**	**2.36**
1993 January	1.98	2.04	2.17	3.11	5.72	5.19	3.26	2.70
February	1.74	1.91	1.94	2.94	5.71	5.08	3.12	2.54
March	1.92	1.78	2.21	3.06	5.66	5.06	3.09	2.61
April	2.06	2.15	2.27	3.24	6.00	5.14	3.13	2.75
May	2.32	2.13	2.63	3.58	6.74	5.21	3.25	2.90
June	1.89	1.95	R2.02	3.44	7.34	5.30	2.96	2.48
July	1.92	1.78	2.02	3.34	7.82	5.03	2.71	2.45
August	2.02	2.02	2.35	3.35	8.10	5.26	2.87	2.60
September	2.15	2.17	2.58	3.53	7.74	5.26	3.04	2.69
October	1.93	1.97	2.05	3.15	6.78	5.10	2.87	2.45
November	1.94	1.85	2.32	3.15	6.17	5.16	3.11	2.59
December	2.20	2.02	2.82	3.23	6.06	5.26	3.35	2.76
Average	**2.01**	**1.98**	**2.28**	**3.20**	**6.15**	**5.16**	**3.07**	**2.61**
1994 January	1.99	2.08	2.83	3.06	5.95	R5.45	3.55	2.67
February	2.10	1.81	3.31	3.24	6.06	R5.53	3.51	2.80
March	2.08	2.04	2.81	3.29	6.19	R5.62	3.58	2.66
April	1.88	2.06	2.51	3.12	6.59	R5.51	3.10	2.44
May	R1.92	1.53	2.65	3.13	R6.80	R5.23	R3.02	R2.46
June	E1.81	1.90	2.43	3.20	7.59	5.13	2.90	NA
6-Month Average	**E1.96**	**1.90**	**2.76**	**3.17**	**6.25**	**5.47**	**3.31**	**NA**
1993 6-Month Average	**1.99**	**1.99**	**2.21**	**3.16**	**5.90**	**5.14**	**3.14**	**2.65**
1992 6-Month Average	**1.48**	**1.91**	**1.93**	**2.79**	**5.67**	**4.83**	**2.67**	**2.14**

[a] Includes supplemental gaseous fuels.
[b] See Note 9 at end of section.
[c] See Note 8 at end of section.
R=Revised data. NA=Not available. E=Estimate.

Notes: • Prices shown on this page are intended to include all taxes. See Note 9 at end of section. • Wellhead annual and year-to-date prices are simple averages of the monthly prices; all other annual and year-to-date prices are volume-weighted averages of the monthly prices. • Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1986: Wellhead**—Energy Information Administration (EIA), *Natural Gas Annual 1991*, Table 95. **Major Interstate Pipeline Companies, 1974-1977**—Calculated from revenue and sales data reported to the Federal Power Commission (FPC), Form FPC-11, "Natural Gas Pipeline Company Monthly Statement." **Major Interstate Pipeline Companies, 1978-1983**—EIA, *Natural Gas Monthly*, December 1984, Table 10. **Major Interstate Pipeline Companies, 1984-1986**—EIA, *Natural Gas Monthly*, December 1989, Table 4. **City Gate, 1984-1986**—EIA, *Natural Gas Monthly*, December 1989, Table 4. **Delivered to Consumers, 1973-1986**—EIA, *Natural Gas Annual 1991*, Table 98. • **1987 forward:** EIA, *Natural Gas Monthly*, September 1994, Table 4.

Energy Prices Notes

1. The average domestic first purchase price represents the average price at which all domestic crude oil is purchased. Prior to February 1976, the price represented an estimate of the average of posted prices; beginning with February 1976, the price represents an average of actual first purchase prices. The data series was previously called "Actual Domestic Wellhead Price."

2. F.O.B. literally means "Free on Board." It denotes a transaction whereby the seller makes the product available with an agreement on a given port at a given price; it is the responsibility of the buyer to arrange for the transportation and insurance.

3. The landed cost of imported crude oil from selected countries does not represent the total cost of all imported crude. Prior to March 1975, imported crude costs to U.S. company-owned refineries in the Caribbean were not included in the landed cost, and costs of crude oil from countries that export only small amounts to the United States were also excluded. Beginning in March 1975, however, coverage was expanded to include U.S. company-owned refineries in the Caribbean. Landed costs do not include supplemental fees.

4. Beginning with January 1981, refiner acquisition costs of crude oil are from data collected on Form EIA-14, "Refiners' Monthly Cost Report." Those costs were previously published from data collected on Form ERA-49, "Domestic Crude Oil Entitlements Program Refiners Monthly Report." Form ERA-49 was discontinued with the decontrol of crude oil on January 28, 1981. Crude oil purchases and costs are defined for Form EIA-14 in accordance with conventions used for Form ERA-49. Also, the respondents for the two forms are essentially the same. However, due to possible different interpretations of the filing requirements and a different method for handling prior period adjustments, care must be taken when comparing the data collected on the two forms.

The refiner acquisition cost of crude oil is the average price paid by refiners for crude oil booked into their refineries in accordance with accounting procedures generally accepted and consistently and historically applied by the refiners concerned. Domestic crude oil is that oil produced in the United States or from the outer continental shelf as defined in 43 USC Section 1331. Imported crude oil is either that oil reported on Form ERA-51, "Transfer Pricing Report," or any crude oil that is not domestic oil. The composite cost is the weighted average of domestic and imported crude oil costs.

Crude oil costs and volumes reported on Form ERA-49 excluded unfinished oils but included the Strategic Petroleum Reserve (SPR). Crude oil costs and volumes reported on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report," included unfinished oils but excluded SPR. Imported averages derived from Form ERA-49 exclude oil purchased for SPR, whereas the composite averages derived from Form ERA-49 include SPR. None of the prices derived from Form EIA-14 include either unfinished oils or SPR.

5. Several different series of motor gasoline prices are published in this section. U.S. City Average Retail Prices of Motor Gasoline are calculated monthly by the Bureau of Labor Statistics during the development of the Consumer Price Index (CPI). These prices include all Federal, State, and local taxes paid at the time of sale. For the period 1974-1977, prices were collected in 56 urban areas. For the period 1978 forward, prices were collected from a new sample of service stations in 85 urban areas selected to represent all urban consumers—about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-serve).

Refiner prices of finished motor gasoline for resale and to end users are determined by the Energy Information Administration (EIA) in a monthly survey of refiners and gas plant operators (Form EIA-782A). The prices do not include any Federal, State, or local taxes paid at the time of sale. Estimates of prices prior to January 1983 are based on Form FEA-P302-M-1/EIA-460, "Petroleum Industry Monthly Report for Product Prices," and also exclude all Federal, State, or local taxes paid at the time of sale. Sales for resale are those made to purchasers who are other-than-ultimate consumers. Sales to end users are sales made directly to the consumer of the product, including bulk consumers (such as agriculture, industry, and utilities) and residential and commercial consumers.

6. Starting in January 1983, Form EIA-782, "Monthly Petroleum Product Sales Report," replaced 10 previous surveys. Every attempt was made to continue the most important price series. However, prices published through December 1982 and those published since January 1983 do not necessarily form continuous data series due to changes in survey forms, definitions, instructions, populations, samples, processing systems, and statistical procedures. To provide historical data, continuous series were generated for annual data 1978-1982 and for monthly data 1981 and 1982 by estimating the prices that would have been published had Form EIA-782 survey and system been in operation at that time. This form of estimation was performed after detailed adjustment was made for product and sales type matching and for discontinuity due to other factors. An important difference between the previous and present prices is the distinction between wholesale and resale and between retail and end user. The resale category continues to include sales among resellers. However, bulk sales to utility, industrial, and commercial accounts previously included in the wholesale category are now counted as made to end users. The end-user category continues to include retail sales through company owned and operated

outlets but also includes the bulk utility, industrial, and commercial sales. Additional information may be found in Estimated Historic Time Series for the EIA-782, a feature article reprinted from the December 1983 [3] *Petroleum Marketing Monthly*, published by EIA.

7. National average electricity prices are shown in two data series. The "Annual Series" is based on data from more than 3,000 publicly and privately owned electric utilities that report on Form EIA-861, "Annual Electric Utility Report." The "Monthly Series" is based on data from over 400 utilities statistically chosen as a stratified sample of the utilities that report on Form EIA-861. The selected utilities report monthly on Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions," formerly the "Electric Utility Company Monthly Statement." Annual values shown for the monthly series are the sum of the monthly revenue divided by the sum of the monthly sales. Prior to January 1986, only privately owned utilities were included in the monthly survey and the sample was chosen by using cut-off, rather than stratification, techniques.

8. Data for 1973-1982 cover all electric generating plants at which the generator nameplate capacity of all steam-electric units combined totaled 25 megawatts or greater. From 1974-1982, peaking units were included in the data and counted towards the 25-megawatt-or-greater total. Data for 1983-1990 cover all electric generating plants at which the generator nameplate capacity of all steam-electric units combined totaled 50 megawatts or greater. Data for 1991 forward cover all electric generating plants at which the generator nameplate capacity of all steam-electric units and combined-cycle units together totaled 50 megawatts or greater.

9. Natural gas prices are intended to include all taxes. Instructions on the data collection forms specifically direct that all Federal, State, and local taxes, surcharges, and/or adjustments billed to consumers are to be included. However, sales and other taxes itemized on consumers' bills are sometimes excluded by the reporting utilities.

Delivered-to-consumers prices for 1987 forward represent natural gas delivered and sold to residential, commercial, industrial, and electric utility consumers. They do not include the price of natural gas delivered to industrial and commercial consumers on behalf of third parties. Volumes of natural gas delivered on behalf of third parties are included in the consumption data shown in Table 4.4. Additional information is available in the EIA *Natural Gas Monthly*, Appendix C.

Section 10. International Energy

Crude Oil Production. World crude oil production during June 1994 was 61 million barrels per day, up 0.3 million barrels per day from the level in the previous month. World crude oil production in the first half of 1994 averaged 60 million barrels per day, up 1 percent from the first half 1993 level.

Organization of Petroleum Exporting Countries (OPEC) production during June 1994 averaged 26 million barrels per day, up 0.1 million barrels per day from the level during the previous month. OPEC production in the first half of 1994 averaged 26 million barrels per day, a 1-percent increase from the first half of 1993 level. Production by the Arab members of OPEC in June 1994 averaged 16 million barrels per day, up slightly from the May 1994 level. Production by the Arab members of OPEC during the first half of 1994 averaged 16 million barrels per day, 1 percent above the first half of 1993 level. During June 1994, production increased in the United Arab Emirates by 20 thousand barrels per day and in Qatar by 10 thousand barrels per day. Production remained unchanged in Algeria, Iraq, Kuwait, Libya, and Saudia Arabia. Among the non-Arab members of OPEC, production during June 1994 increased in Iran by 100 thousand barrels per day and decreased in Nigeria by 10 thousand barrels per day. Production remained unchanged in Indonesia and Venezuela.

Among the non-OPEC nations, production during June 1994 increased in the former U.S.S.R. by 110 thousand barrels per day, in Canada by 25 thousand barrels per day and in China by 10 thousand barrels per day. Production decreased in the United States by 91 thousand barrels per day. Production remained unchanged in Ecuador, Mexico, and the United Kingdom.

Petroleum Consumption. In April 1994, consumption in all Organization for Economic Cooperation and Development (OECD) countries was 38.8 million barrels per day, 2 percent higher than the April 1993 rate. The consumption rate was higher than it was 1 year ago in Italy (+6 percent)[9], the United Kingdom and the United States (both +4 percent), Germany (+3 percent), and Canada (+1 percent). Consumption was lower in Japan and France (both -3 percent), compared with levels 1 year earlier.

Petroleum Stocks. For all OECD countries, petroleum stocks at the end of April 1994 totaled 3.6 billion barrels, 1 percent lower than the ending stock level in April 1993. Stock levels were higher than the levels 1 year ago in Japan (+5 percent). Stocks were lower in the United Kingdom (-7 percent), Italy (-4 percent), the United States and France (both -2 percent), and Germany (down less than 1 percent). Stock levels were unchanged in Canada, compared with levels 1 year earlier.

Nuclear Electricity Generation. Based on *Nucleonics Week* information for June 1994, all reporting countries with nuclear capacity generated 169.4 gross terawatthours[10] of nuclear-generated electricity.

During 1993, nine nuclear units became operable: Comanche Peak-2 in the United States; Darlington-4 in Canada; Guangdong-1 in China; Golfech-2 in France; Shika-1, Hamaoka-4, Genkai-3, and Kashiwazaki Kariwa-4 in Japan; and Balakova-4 in Russia. Three units were permanently shutdown in 1993: Trojan in the United States; and Trawsfynydd-1 and Trawsfynydd-2 in the United Kingdom.

During the first 6 months of 1994, two nuclear units became operable: Guangdong-2 in China during February and Japan's Ikata-3 during March. Two units were permanently shutdown: the United Kingdom's Dounreay during March and France's Bugey-1 during May.

As of June 30, 1994, there were 430 operable nuclear generating units in the world.

[9] Percentage changes are based on unrounded data.
[10] One terawatthour equals 1 billion kilowatthours.

Table 10.1a World Crude Oil Production: Algeria Through Venezuela

(Thousand Barrels per Day)

	Algeria	Iraq	Kuwait[a]	Libya	Qatar	Saudi Arabia[a]	United Arab Emirates	Arab OPEC[b]	Indonesia	Iran	Nigeria	Venezuela
1973 Average	1,097	2,018	3,020	2,175	570	7,596	1,533	18,009	1,339	5,861	2,054	3,366
1974 Average	1,009	1,971	2,546	1,521	518	8,480	1,679	17,724	1,375	6,022	2,255	2,976
1975 Average	983	2,262	2,084	1,480	438	7,075	1,664	15,985	1,307	5,350	1,783	2,346
1976 Average	1,075	2,415	2,145	1,933	497	8,577	1,936	18,579	1,504	5,883	2,067	2,294
1977 Average	1,152	2,348	1,969	2,063	445	9,245	1,999	19,221	1,686	5,663	2,085	2,238
1978 Average	1,231	2,563	2,131	1,983	487	8,301	1,831	18,525	1,635	5,242	1,897	2,165
1979 Average	1,224	3,477	2,500	2,092	508	9,532	1,831	21,163	1,591	3,168	2,302	2,356
1980 Average	1,106	2,514	1,656	1,787	472	9,900	1,709	19,144	1,577	1,662	2,055	2,168
1981 Average	1,002	1,000	1,125	1,140	405	9,815	1,474	15,961	1,605	1,380	1,433	2,102
1982 Average	987	1,012	823	1,150	330	6,483	1,250	12,035	1,339	2,214	1,295	1,895
1983 Average	968	1,005	1,064	1,105	295	5,086	1,149	10,672	1,343	2,440	1,241	1,801
1984 Average	1,014	1,209	1,157	1,087	394	4,663	1,146	10,670	1,412	2,174	1,388	1,798
1985 Average	1,037	1,433	1,023	1,059	301	3,388	1,193	9,434	1,325	2,250	1,495	1,677
1986 Average	945	1,690	1,419	1,034	308	4,870	1,330	11,596	1,390	2,035	1,467	1,787
1987 Average	1,048	2,079	1,585	972	293	4,265	1,541	11,783	1,343	2,298	1,341	1,752
1988 Average	1,040	2,685	1,492	1,175	346	5,086	1,565	13,389	1,342	2,240	1,450	1,903
1989 Average	1,095	2,897	1,783	1,150	380	5,064	1,860	14,229	1,409	2,810	1,716	1,907
1990 Average	1,175	2,040	1,175	1,375	406	6,410	2,117	14,698	1,462	3,088	1,810	2,137
1991 Average	1,230	305	190	1,483	395	8,115	2,386	14,104	1,592	3,312	1,892	2,375
1992 January	1,230	450	565	1,550	350	8,790	2,435	15,370	1,580	3,500	1,975	2,390
February	1,230	450	630	1,550	325	8,640	2,425	15,250	1,605	3,500	1,925	2,340
March	1,230	450	735	1,450	375	8,260	2,300	14,800	1,630	3,350	1,900	2,190
April	1,230	450	863	1,500	375	8,213	2,300	14,930	1,605	3,250	1,925	2,190
May	1,210	450	915	1,450	375	8,265	2,300	14,965	1,530	3,250	1,925	2,290
June	1,210	450	1,015	1,450	375	8,315	2,275	15,090	1,560	3,250	1,925	2,290
July	1,210	450	1,080	1,450	400	8,350	2,300	15,240	1,550	3,300	1,975	2,290
August	1,210	450	1,130	1,425	425	8,400	2,330	15,370	1,540	3,450	2,000	2,340
September	1,210	450	1,200	1,475	425	8,450	2,320	15,530	1,550	3,450	2,025	2,390
October	1,210	450	1,280	1,500	440	8,505	2,310	15,695	1,550	3,650	2,050	2,440
November	1,210	450	1,375	1,500	440	8,500	2,305	15,780	1,550	3,650	2,050	2,440
December	1,210	450	1,550	1,500	440	8,575	2,305	16,030	1,550	3,550	2,100	2,415
Average	1,217	450	1,029	1,483	396	8,438	2,325	15,338	1,566	3,429	1,982	2,334
1993 January	1,210	500	1,675	1,480	450	8,500	2,295	16,110	1,550	3,650	2,125	2,410
February	1,210	500	1,865	1,425	430	8,440	2,305	16,175	1,530	3,750	2,105	2,390
March	1,200	500	1,650	1,350	400	8,300	2,270	15,670	1,500	3,700	2,075	2,340
April	1,200	500	1,645	1,350	400	8,000	2,270	15,365	1,480	3,500	2,025	2,340
May	1,200	500	1,713	1,350	420	8,000	2,230	15,413	1,510	3,650	2,025	2,340
June	1,200	500	1,775	1,350	400	8,150	2,230	15,605	1,510	3,650	1,995	2,340
July	1,180	500	1,940	1,350	410	8,240	2,210	15,830	1,510	3,800	1,975	2,390
August	1,180	500	2,045	1,370	410	8,345	2,210	16,060	1,510	3,500	2,025	2,390
September	1,180	530	2,020	1,370	410	8,270	2,220	16,000	1,510	3,650	2,045	2,380
October	1,180	530	2,045	1,390	410	8,145	2,220	15,920	1,480	3,700	2,005	2,400
November	1,170	540	2,045	1,370	410	7,995	2,220	15,750	1,480	3,550	2,025	2,400
December	1,170	540	2,050	1,370	410	8,000	2,220	15,760	1,510	3,700	2,175	2,400
Average	1,190	512	1,872	1,377	413	8,198	2,241	15,803	1,507	3,650	2,050	2,377
1994 January	1,170	540	1,995	1,370	410	8,095	2,220	15,800	1,510	3,600	2,175	2,490
February	1,170	540	1,998	1,370	395	8,088	2,245	15,805	1,510	3,550	2,175	2,490
March	1,170	540	2,005	1,370	410	8,095	2,220	15,810	1,510	3,650	2,125	2,490
April	1,170	550	2,020	1,370	410	8,110	2,220	15,850	1,510	3,500	2,045	2,480
May	1,170	550	2,050	1,370	410	8,090	2,230	15,870	1,510	3,550	2,075	2,500
June	1,170	550	2,050	1,370	420	8,090	2,250	15,900	1,510	3,650	2,065	2,500
6-Mo. Avg.	1,170	545	2,020	1,370	409	8,095	2,231	15,839	1,510	3,584	2,110	2,492
1993 6-Mo. Avg.	1,203	500	1,718	1,384	417	8,230	2,266	15,718	1,513	3,649	2,058	2,360
1992 6-Mo. Avg.	1,223	450	787	1,491	363	8,413	2,339	15,066	1,585	3,349	1,929	2,281

[a] Includes about one-half of the production in the Kuwait-Saudi Arabia Neutral Zone from 1973 through July 1990 and in June 1991. Kuwaiti Neutral Zone output was discontinued following Iraq's invasion of Kuwait on August 2, 1990, but was resumed in June 1991. In June 1994, Neutral Zone production by both Kuwait and Saudi Arabia totaled about 380 thousand barrels per day.

[b] The Arab members of the Organization of Petroleum Exporting Countries (OPEC) are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates. Production in the Neutral Zone between Kuwait and Saudi Arabia is included in "Arab OPEC."

Notes: • Crude oil includes lease condensate but excludes natural gas plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available.

Sources: See end of section.

Table 10.1b World Crude Oil Production: Total OPEC, Ecuador Through Former U.S.S.R., and World

(Thousand Barrels per Day)

	Total OPEC[a]	Ecuador[a]	Persian Gulf Nations[b]	Canada	China	Mexico	United Kingdom	United States	Former U.S.S.R.	Other[c]	World
1973 Average	**30,779**	**209**	**20,668**	**1,798**	**1,090**	**465**	**2**	**9,208**	**8,324**	**3,804**	**55,679**
1974 Average	**30,552**	**177**	**21,282**	**1,551**	**1,315**	**571**	**2**	**8,774**	**8,912**	**3,862**	**55,716**
1975 Average	**26,994**	**161**	**18,934**	**1,430**	**1,490**	**705**	**12**	**8,375**	**9,523**	**4,139**	**52,828**
1976 Average	**30,549**	**188**	**21,514**	**1,314**	**1,670**	**831**	**245**	**8,132**	**10,060**	**4,355**	**57,344**
1977 Average	**31,115**	**183**	**21,725**	**1,321**	**1,874**	**981**	**768**	**8,245**	**10,603**	**4,616**	**59,707**
1978 Average	**29,673**	**202**	**20,606**	**1,316**	**2,082**	**1,209**	**1,082**	**8,707**	**11,105**	**4,782**	**60,158**
1979 Average	**30,784**	**214**	**21,066**	**1,500**	**2,122**	**1,461**	**1,568**	**8,552**	**11,384**	**5,089**	**62,674**
1980 Average	**26,781**	**204**	**17,961**	**1,435**	**2,114**	**1,936**	**1,622**	**8,597**	**11,706**	**5,204**	**59,599**
1981 Average	**22,632**	**211**	**15,245**	**1,285**	**2,012**	**2,313**	**1,811**	**8,572**	**11,850**	**5,390**	**56,076**
1982 Average	**18,934**	**211**	**12,156**	**1,271**	**2,045**	**2,748**	**2,065**	**8,649**	**11,912**	**5,646**	**53,481**
1983 Average	**17,654**	**237**	**11,081**	**1,356**	**2,120**	**2,689**	**2,291**	**8,688**	**11,972**	**6,248**	**53,255**
1984 Average	**17,599**	**258**	**10,784**	**1,438**	**2,296**	**2,780**	**2,480**	**8,879**	**11,861**	**6,897**	**54,488**
1985 Average	**16,353**	**281**	**9,630**	**1,471**	**2,505**	**2,745**	**2,530**	**8,971**	**11,585**	**7,540**	**53,981**
1986 Average	**18,441**	**293**	**11,696**	**1,474**	**2,620**	**2,435**	**2,539**	**8,680**	**11,895**	**7,850**	**56,227**
1987 Average	**18,672**	**174**	**12,103**	**1,535**	**2,690**	**2,548**	**2,406**	**8,349**	**11,985**	**8,242**	**56,601**
1988 Average	**20,483**	**302**	**13,457**	**1,616**	**2,730**	**2,512**	**2,232**	**8,140**	**11,978**	**8,669**	**58,662**
1989 Average	**22,279**	**279**	**14,837**	**1,560**	**2,757**	**2,520**	**1,802**	**7,613**	**11,625**	**9,338**	**59,773**
1990 Average	**23,465**	**285**	**15,278**	**1,553**	**2,774**	**2,553**	**1,820**	**7,355**	**10,880**	**9,785**	**60,471**
1991 Average	**23,569**	**299**	**14,741**	**1,548**	**2,835**	**2,680**	**1,797**	**7,417**	**9,887**	**10,074**	**60,105**
1992 January	25,100	295	16,130	1,585	2,830	2,675	1,920	7,361	9,115	10,526	61,407
February	24,880	295	16,010	1,560	2,865	2,665	1,905	7,389	8,650	10,375	60,584
March	24,170	315	15,510	1,620	2,835	2,680	1,755	7,348	8,760	10,429	59,912
April	24,205	315	15,487	1,535	2,855	2,680	1,835	7,293	9,025	10,523	60,265
May	24,265	315	15,592	1,510	2,835	2,660	1,700	7,169	8,455	10,251	59,160
June	24,420	315	15,716	1,560	2,830	2,680	1,545	7,167	8,440	10,443	59,400
July	24,660	320	15,916	1,630	2,825	2,660	1,780	7,131	8,365	10,498	59,869
August	25,005	330	16,220	1,675	2,815	2,685	1,825	6,922	8,130	10,472	59,858
September	25,245	330	16,330	1,620	2,860	2,685	1,830	7,030	7,980	10,543	60,123
October	25,685	330	16,670	1,665	2,875	2,655	1,930	7,126	7,965	10,687	60,918
November	25,770	330	16,755	1,640	2,845	2,640	1,945	7,024	7,910	10,517	60,621
December	25,945	330	16,905	1,575	2,785	2,655	1,935	7,103	7,870	10,744	60,942
Average	**24,947**	**318**	**16,104**	**1,598**	**2,838**	**2,668**	**1,825**	**7,171**	**8,388**	**10,501**	**60,255**
1993 January	26,145	330	17,105	1,570	2,885	2,605	1,815	6,961	7,800	10,406	60,517
February	26,250	330	17,325	1,610	2,875	2,610	1,925	6,943	7,785	10,547	60,874
March	25,585	330	16,855	1,635	2,885	2,635	1,710	6,974	7,685	10,714	60,154
April	25,010	330	16,350	1,605	2,900	2,674	1,695	6,881	7,665	10,679	59,439
May	25,238	345	16,548	1,660	2,925	2,673	1,745	6,847	7,495	10,703	59,630
June	25,400	350	16,740	1,725	2,960	2,675	1,675	6,795	7,400	10,381	59,361
July	25,795	350	17,135	1,710	2,930	2,650	1,930	6,688	7,120	10,795	59,968
August	25,775	350	17,045	1,770	2,855	2,650	1,940	6,758	7,025	10,671	59,794
September	25,875	350	17,135	1,740	2,895	2,700	1,945	6,712	6,915	10,685	59,817
October	25,795	360	17,085	1,725	2,975	2,700	2,060	6,839	6,910	10,909	60,273
November	25,495	360	16,795	1,675	2,945	2,730	2,195	6,912	6,915	11,100	60,327
December	25,835	360	16,955	1,710	2,898	2,745	2,270	6,858	6,885	11,158	60,718
Average	**25,681**	**346**	**16,921**	**1,678**	**2,911**	**2,671**	**1,909**	**6,847**	**7,297**	**10,731**	**60,070**
1994 January	25,865	360	16,895	1,665	2,900	2,745	2,280	E 6,777	6,885	11,071	60,548
February	25,820	360	16,850	1,720	2,920	2,710	2,280	E 6,745	6,615	11,227	60,397
March	25,895	360	16,955	1,705	2,920	2,685	2,315	E 6,719	6,560	11,147	60,306
April	25,715	R 365	16,845	1,660	2,940	2,700	2,340	E 6,634	6,385	R 11,125	R 59,864
May	25,845	R 365	16,915	R 1,695	2,940	2,700	2,345	E 6,658	R 6,535	R 11,163	R 60,246
June	25,965	365	17,045	1,720	2,950	2,700	2,345	E 6,567	6,645	11,301	60,558
6-Mo. Avg.	**25,851**	**363**	**16,918**	**1,694**	**2,928**	**2,707**	**2,318**	**E 6,683**	**6,605**	**11,171**	**60,320**
1993 6-Mo. Avg.	**25,598**	**336**	**16,815**	**1,634**	**2,905**	**2,646**	**1,759**	**6,900**	**7,637**	**10,573**	**59,988**
1992 6-Mo. Avg.	**24,505**	**308**	**15,739**	**1,562**	**2,841**	**2,673**	**1,776**	**7,287**	**8,742**	**10,424**	**60,119**

[a] "Total OPEC" consists of Algeria, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela. Production from the Neutral Zone between Kuwait and Saudi Arabia is included in "Total OPEC." Although Ecuador belonged to OPEC from November 19, 1973, until December 31, 1992, when it formally withdrew, it is not included in "Total OPEC."

[b] The Persian Gulf Nations are Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates. Production from the Neutral Zone between Kuwait and Saudi Arabia is included in "Persian Gulf Nations."

[c] "Other" is a calculated total derived from the difference between "World" and the sum of production in "Total OPEC," Ecuador, Canada, China, Mexico, the United Kingdom, the United States, and the former U.S.S.R.

R=Revised data. E=Estimate.

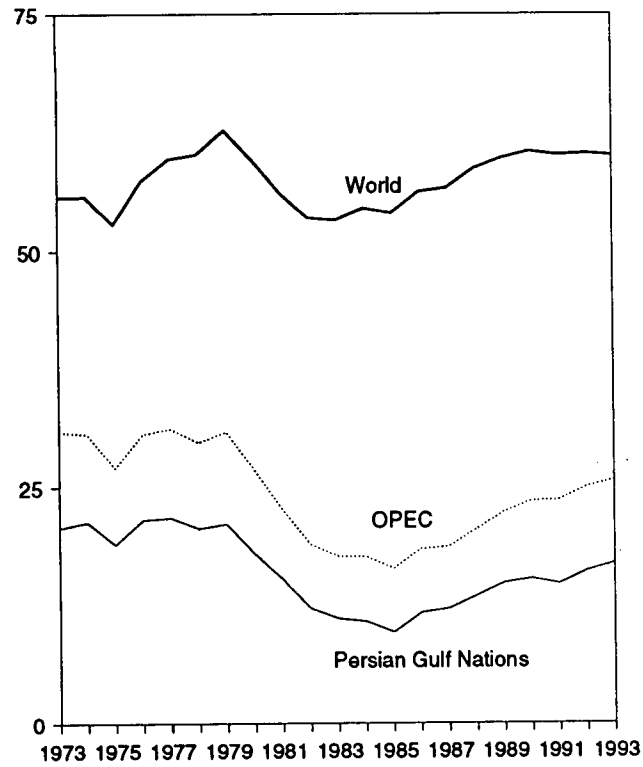
Notes: • Crude oil includes lease condensate but excludes natural gas plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available. • Data for countries may not sum to World totals due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: See end of section.

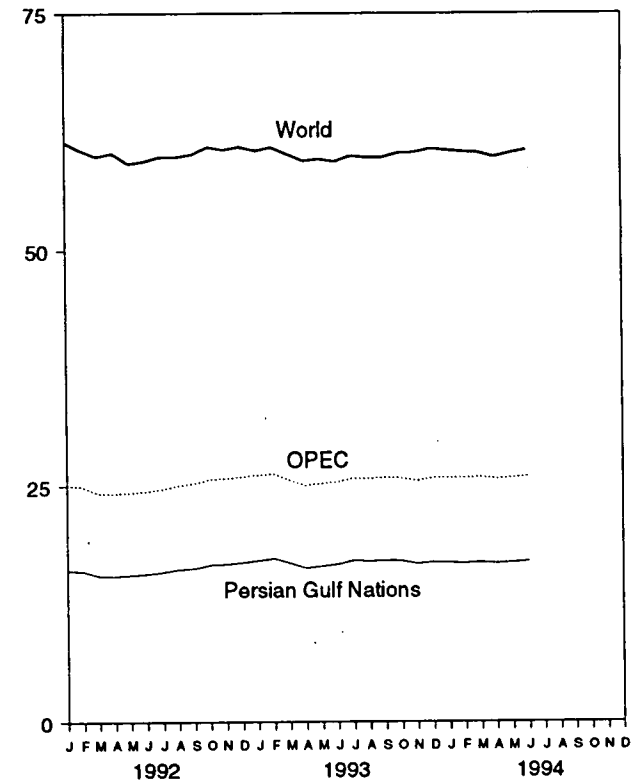
Figure 10.1 Crude Oil Production

(Million Barrels per Day)

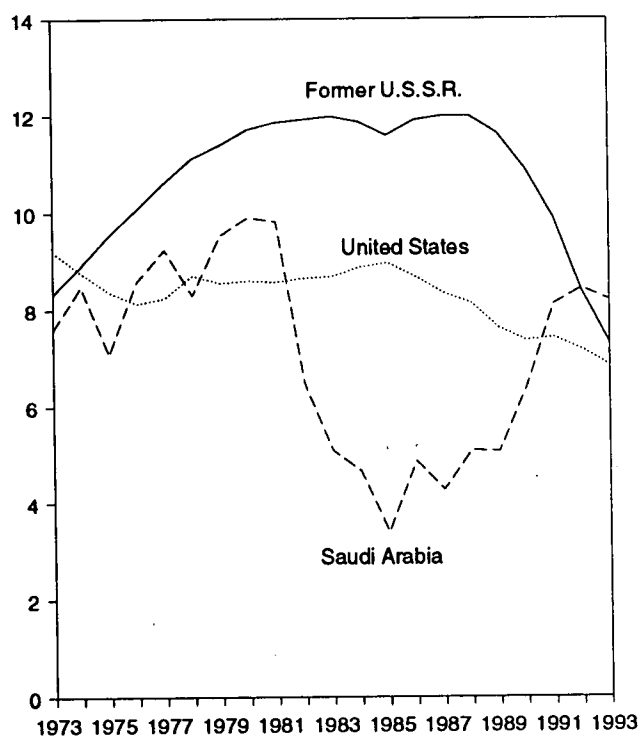
World Production, 1973-1993



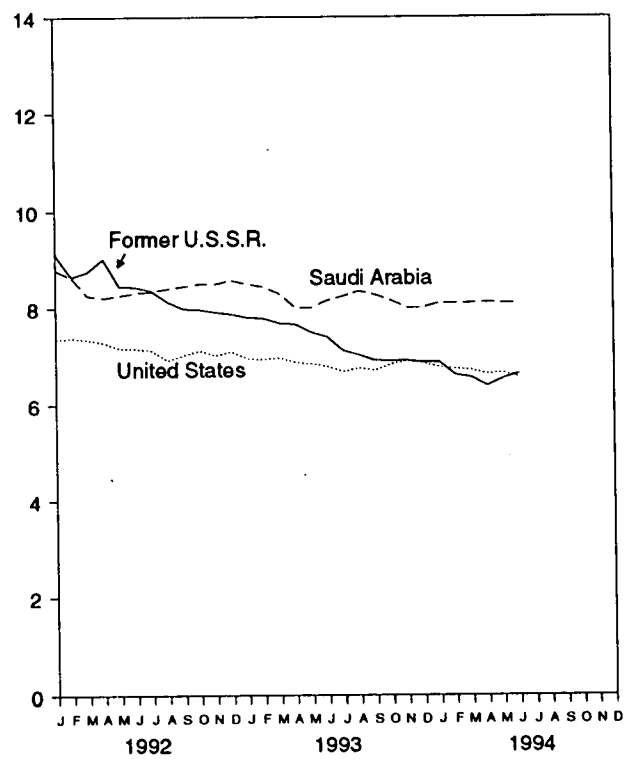
World Production, Monthly



Leading Producers, 1973-1993



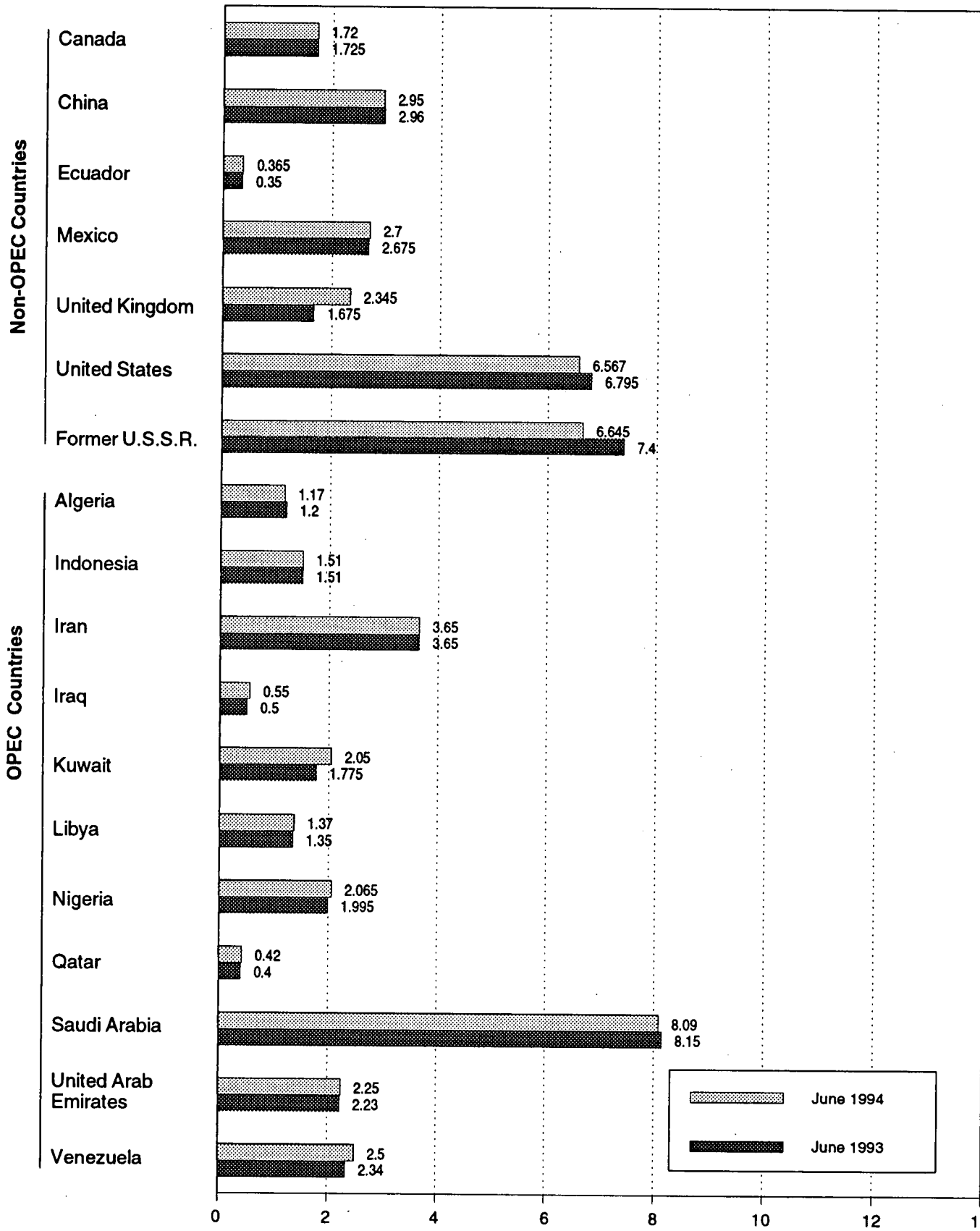
Leading Producers, Monthly



Note: OPEC is the Organization of Petroleum Exporting Countries.
Sources: Tables 10.1a and 10.1b.

Figure 10.2 Crude Oil Production by Selected Country

(Million Barrels per Day)

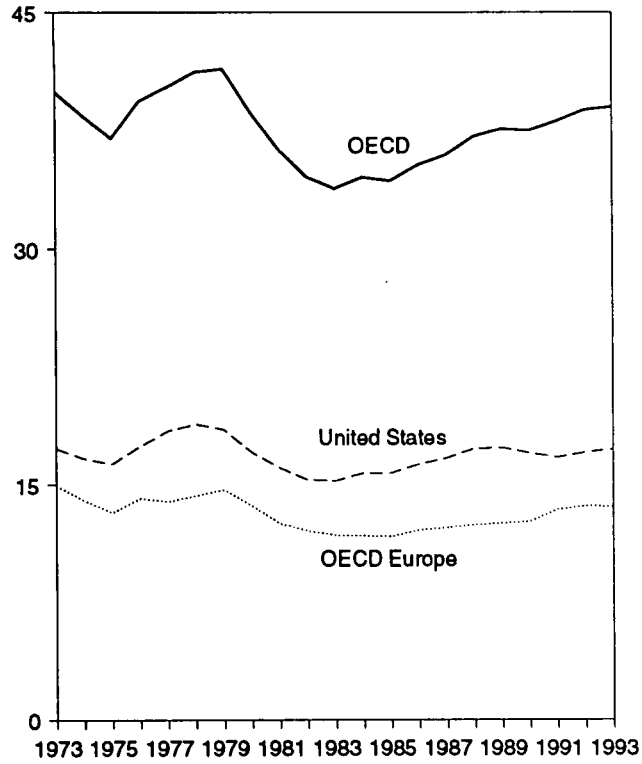


Note: OPEC is the Organization of Petroleum Exporting Countries.
Sources: Tables 10.1a and 10.1b.

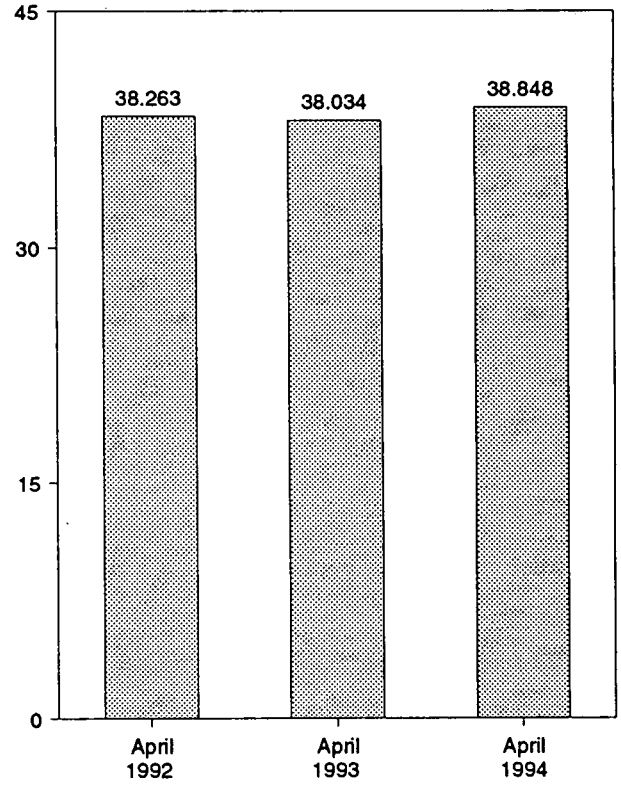
Figure 10.3 Petroleum Consumption in OECD Countries

(Million Barrels per Day)

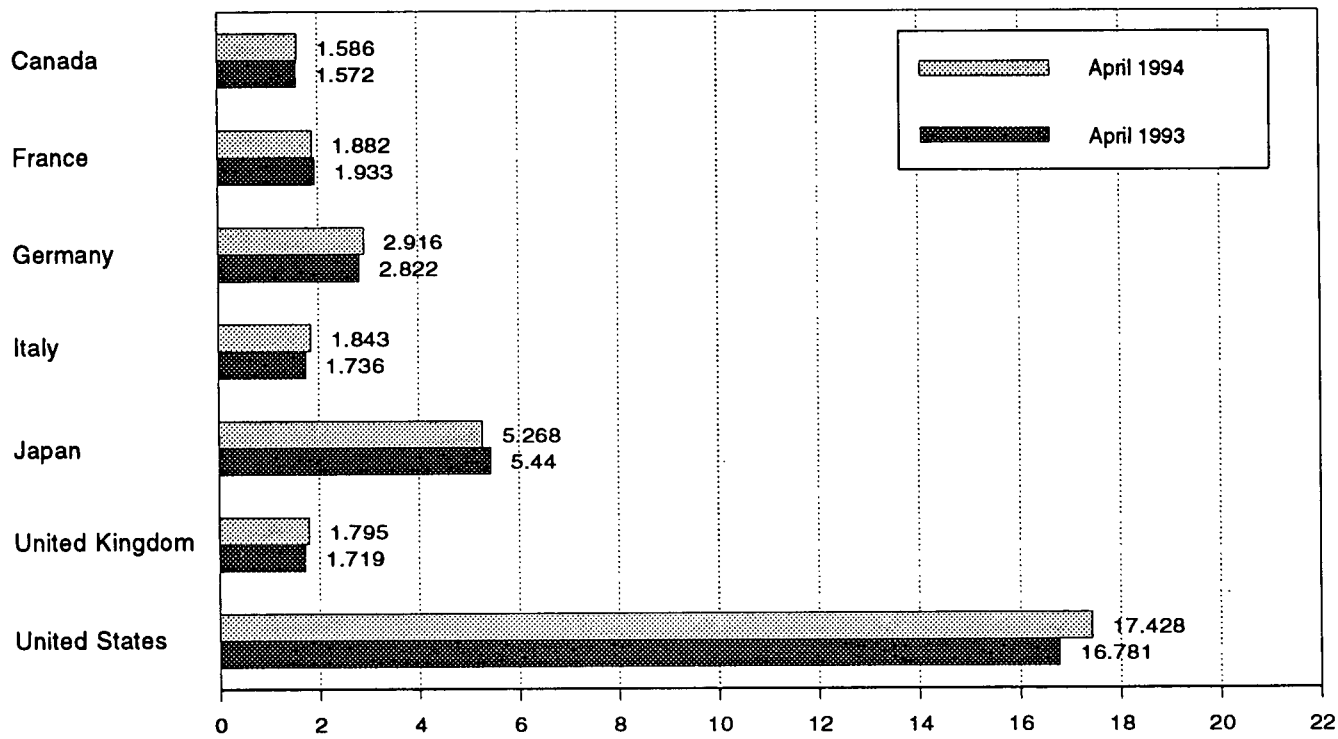
OECD Consumption, 1973-1993



OECD Consumption



Consumption by Selected OECD Country



Note: OECD is the Organization for Economic Cooperation and Development.
Source: Table 10.2.

Table 10.2 Petroleum Consumption in OECD Countries

(Thousand Barrels per Day)

	Canada	France	Germany[a]	Italy	Japan	United Kingdom	United States	OECD Europe[b]	Other OECD[c]	OECD[d]
1973 Average	**1,729**	**2,601**	**3,055**	**2,068**	**4,949**	**2,341**	**17,308**	**14,925**	**988**	**39,900**
1974 Average	**1,779**	**2,447**	**2,748**	**2,004**	**4,864**	**2,210**	**16,653**	**13,988**	**1,095**	**38,379**
1975 Average	**1,779**	**2,252**	**2,650**	**1,855**	**4,621**	**1,911**	**16,322**	**13,217**	**1,041**	**36,980**
1976 Average	**1,818**	**2,420**	**2,877**	**1,971**	**4,837**	**1,892**	**17,461**	**14,124**	**1,119**	**39,358**
1977 Average	**1,850**	**2,294**	**2,865**	**1,897**	**4,880**	**1,905**	**18,431**	**13,916**	**1,160**	**40,237**
1978 Average	**1,902**	**2,408**	**2,927**	**1,952**	**4,945**	**1,938**	**18,847**	**14,290**	**1,204**	**41,187**
1979 Average	**1,971**	**2,463**	**3,003**	**2,039**	**5,050**	**1,971**	**18,513**	**14,667**	**1,178**	**41,379**
1980 Average	**1,873**	**2,256**	**2,707**	**1,934**	**4,960**	**1,725**	**17,056**	**13,634**	**1,072**	**38,595**
1981 Average	**1,768**	**2,023**	**2,449**	**1,874**	**4,848**	**1,590**	**16,058**	**12,515**	**1,080**	**36,269**
1982 Average	**1,578**	**1,880**	**2,372**	**1,781**	**4,582**	**1,590**	**15,296**	**12,053**	**1,008**	**34,517**
1983 Average	**1,448**	**1,835**	**2,324**	**1,750**	**4,395**	**1,531**	**15,231**	**11,765**	**954**	**33,793**
1984 Average	**1,472**	**1,754**	**2,322**	**1,646**	**4,576**	**1,849**	**15,726**	**11,736**	**989**	**34,500**
1985 Average	**1,504**	**1,775**	**2,338**	**1,717**	**4,384**	**1,634**	**15,726**	**11,681**	**976**	**34,271**
1986 Average	**1,506**	**1,772**	**2,498**	**1,738**	**4,439**	**1,649**	**16,281**	**12,102**	**951**	**35,279**
1987 Average	**1,548**	**1,789**	**2,424**	**1,855**	**4,484**	**1,603**	**16,665**	**12,255**	**958**	**35,911**
1988 Average	**1,693**	**1,797**	**2,422**	**1,836**	**4,752**	**1,697**	**17,283**	**12,427**	**939**	**37,093**
1989 Average	**1,733**	**1,857**	**2,280**	**1,930**	**4,983**	**1,738**	**17,325**	**12,531**	**998**	**37,570**
1990 Average	**1,690**	**1,818**	**2,382**	**1,872**	**5,140**	**1,752**	**16,988**	**12,629**	**1,027**	**37,475**
1991 Average	**1,622**	**1,935**	**2,828**	**1,863**	**5,284**	**1,801**	**16,714**	**13,391**	**1,056**	**38,067**
1992 January	1,627	2,211	2,968	2,237	5,768	1,833	17,012	14,459	R1,020	R39,885
February	1,623	2,106	2,814	2,149	6,339	1,819	16,893	14,051	R1,051	R39,956
March	1,595	1,937	2,809	1,886	5,865	1,818	16,825	13,681	R1,060	R39,026
April	1,581	1,990	2,893	1,891	5,205	1,858	16,764	13,666	R1,047	R38,263
May	1,589	1,629	2,588	1,671	4,838	1,695	16,485	12,346	R1,008	R36,266
June	1,646	1,815	2,699	1,801	4,942	1,725	16,978	13,035	R1,092	R37,694
July	1,642	1,926	3,029	1,900	5,117	1,804	17,143	13,661	R1,033	R38,596
August	1,675	1,733	2,829	1,655	4,955	1,700	16,929	12,909	R950	R37,418
September	1,654	1,953	3,072	2,003	5,139	1,870	16,876	14,222	R1,052	R38,943
October	1,705	1,939	2,752	1,930	5,303	1,825	17,448	13,474	R1,019	R38,949
November	1,714	1,888	2,823	2,053	5,637	1,853	17,091	13,805	R1,054	R39,300
December	1,670	1,999	2,841	2,077	6,277	1,839	17,928	13,989	R1,109	R40,974
Average	**1,643**	**1,926**	**2,843**	**1,937**	**5,446**	**1,803**	**17,033**	**13,605**	R**1,041**	R**38,768**
1993 January	R1,556	1,953	2,532	1,858	5,929	1,715	16,173	R12,815	R968	R37,441
February	R1,665	2,139	2,897	1,970	6,278	1,863	17,334	R13,997	R1,131	R40,406
March	R1,664	2,012	2,935	1,945	6,230	1,875	17,575	R14,018	R1,169	R40,655
April	1,572	1,933	2,822	R1,736	5,440	1,719	16,781	R13,116	R1,124	R38,034
May	R1,580	1,697	2,589	R1,715	4,754	1,664	16,508	R12,078	R1,134	R36,054
June	R1,673	1,964	3,047	R1,763	4,949	1,796	17,096	R13,628	R1,117	R38,463
July	1,700	1,857	2,970	1,799	4,849	1,794	17,357	R13,664	R1,054	R38,624
August	1,716	1,657	2,897	1,718	4,777	1,777	17,332	R13,084	R1,119	R38,027
September	1,712	1,796	3,168	1,921	4,757	1,834	17,650	R14,088	R1,092	R39,300
October	1,639	1,822	2,818	1,911	5,011	1,789	17,323	R13,369	R1,114	R38,456
November	1,697	2,076	3,062	2,095	5,519	1,970	17,780	R14,473	R1,131	R40,601
December	1,685	2,016	3,129	2,210	6,237	1,834	17,953	R14,563	R1,304	R41,743
Average	**1,655**	**1,908**	**2,904**	**1,886**	**5,389**	**1,802**	**17,237**	R**13,568**	R**1,121**	R**38,970**
1994 January	R1,633	1,878	2,473	1,797	R5,885	R1,725	17,924	R12,762	R1,038	R39,241
February	R1,710	1,999	2,990	1,932	R6,493	R1,901	18,302	R14,201	R1,143	R41,850
March	R1,668	1,856	3,070	1,916	R6,241	R1,937	17,289	R13,913	R1,193	R40,305
April	1,586	1,882	2,916	1,843	5,268	1,795	17,428	13,413	1,154	38,848
4-Mo. Average	**1,648**	**1,902**	**2,858**	**1,871**	**5,965**	**1,838**	**17,724**	**13,558**	**1,132**	**40,026**
1993 4-Mo. Average	**1,613**	**2,007**	**2,794**	**1,876**	**5,966**	**1,792**	**16,958**	**13,477**	**1,097**	**39,111**
1992 4-Mo. Average	**1,606**	**2,061**	**2,872**	**2,040**	**5,790**	**1,832**	**16,874**	**13,965**	**1,044**	**39,280**

[a] Through December 1990, the data for Germany are for the former West Germany only. Beginning with January 1991, the data for Germany are for the unified Germany, i.e., the former East Germany and West Germany.

[b] "OECD Europe" consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

[c] "Other OECD" consists of Australia, New Zealand, and the U.S. Territories.

[d] The Organization for Economic Cooperation and Development (OECD) consists of Canada, Japan, and the United States, as well as "OECD Europe" and "Other OECD."

R=Revised data.

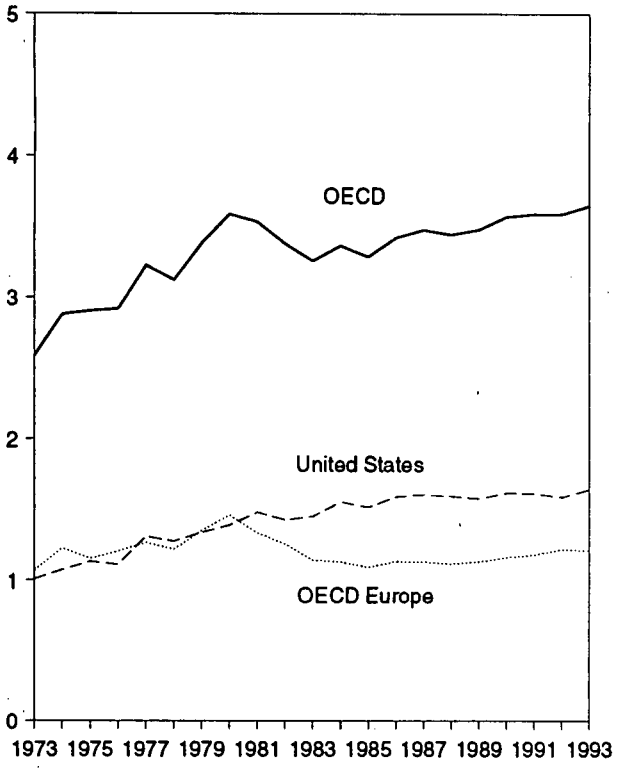
Notes: • Data through 1991 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **United States:** Table 3.1a. • **All Other Data: 1973-1979**—International Energy Agency (IEA), *Annual Oil and Gas Statistics of OECD Countries.* **1980 forward**—IEA, quarterly and monthly computer tapes supporting *Quarterly Oil Statistics and Energy Balances.*

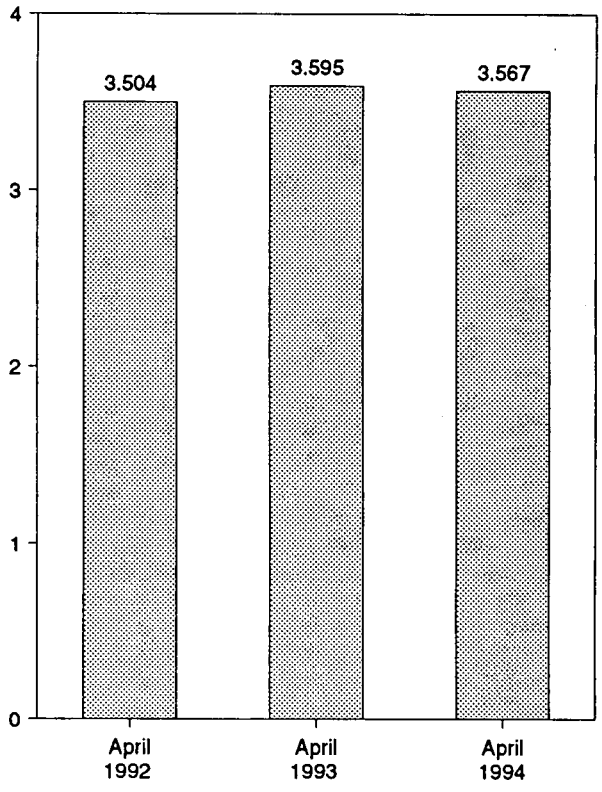
Figure 10.4 Petroleum Stocks in OECD Countries

(Billion Barrels)

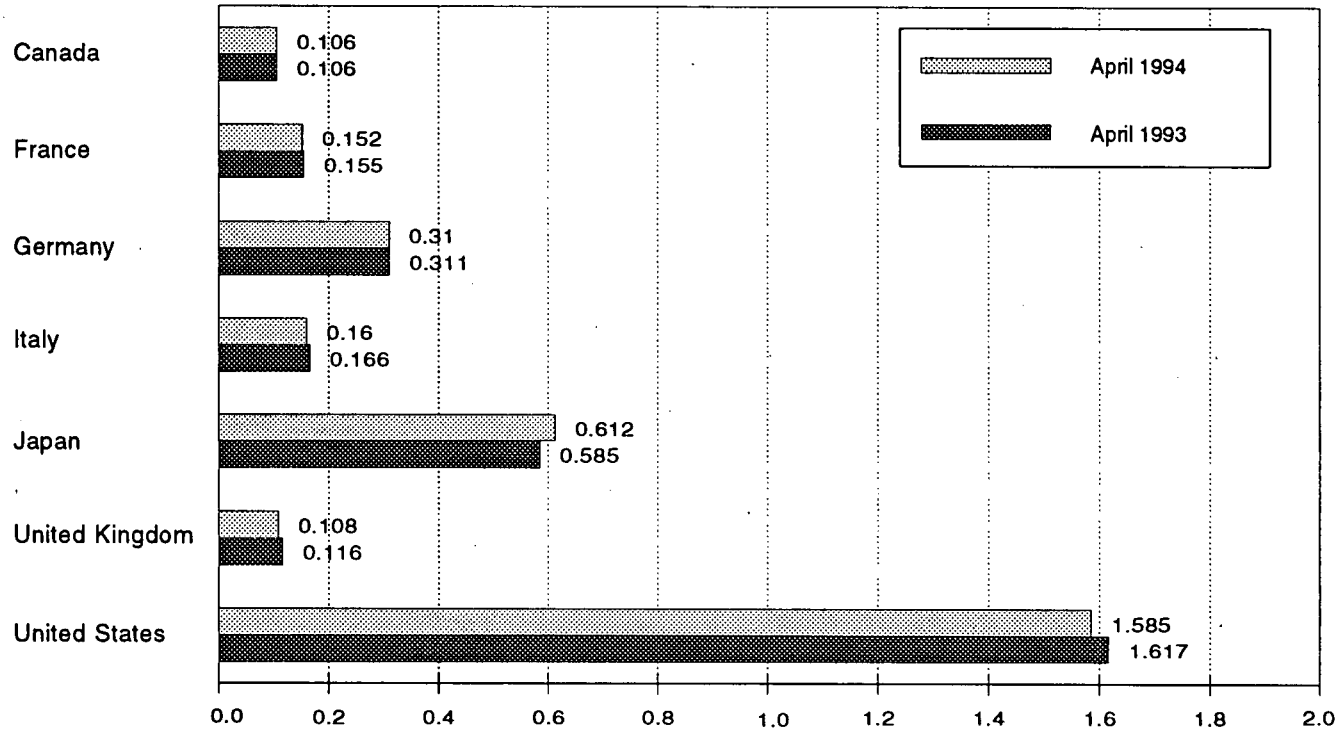
OECD Stocks, End of Year, 1973-1993



OECD Stocks, End of Month



Stocks by Selected Country, End of Month



Note: OECD is the Organization for Economic Cooperation and Development.
Source: Table 10.3.

Table 10.3 Petroleum Stocks in OECD Countries, End of Period

(Million Barrels)

	Canada	France	Germany[a]	Italy	Japan	United Kingdom	United States	OECD Europe[b]	Other OECD[c]	OECD[d]
1973 Year	**140**	**201**	**181**	**152**	**303**	**156**	**1,008**	**1,070**	**67**	**2,588**
1974 Year	**145**	**249**	**213**	**167**	**370**	**191**	**1,074**	**1,227**	**64**	**2,880**
1975 Year	**174**	**225**	**187**	**143**	**375**	**165**	**1,133**	**1,154**	**67**	**2,903**
1976 Year	**153**	**234**	**208**	**143**	**380**	**165**	**1,112**	**1,205**	**68**	**2,918**
1977 Year	**167**	**239**	**225**	**161**	**409**	**148**	**1,312**	**1,268**	**68**	**3,224**
1978 Year	**144**	**201**	**238**	**154**	**413**	**157**	**1,278**	**1,219**	**68**	**3,122**
1979 Year	**150**	**226**	**272**	**163**	**460**	**169**	**1,341**	**1,353**	**75**	**3,379**
1980 Year	**164**	**243**	**319**	**170**	**495**	**168**	**1,392**	**1,464**	**72**	**3,587**
1981 Year	**161**	**214**	**297**	**167**	**482**	**143**	**1,484**	**1,337**	**67**	**3,531**
1982 Year	**136**	**193**	**272**	**179**	**484**	**125**	**1,430**	**1,258**	**68**	**3,376**
1983 Year	**121**	**153**	**249**	**149**	**470**	**118**	**1,454**	**1,142**	**68**	**3,255**
1984 Year	**128**	**152**	**239**	**159**	**479**	**112**	**1,556**	**1,130**	**69**	**3,362**
1985 Year	**113**	**139**	**233**	**157**	**494**	**123**	**1,519**	**1,092**	**66**	**3,284**
1986 Year	**111**	**127**	**252**	**155**	**509**	**124**	**1,593**	**1,133**	**72**	**3,418**
1987 Year	**126**	**127**	**259**	**169**	**540**	**121**	**1,607**	**1,130**	**72**	**3,474**
1988 Year	**116**	**140**	**266**	**155**	**538**	**112**	**1,597**	**1,118**	**71**	**3,440**
1989 Year	**114**	**138**	**271**	**164**	**577**	**118**	**1,581**	**1,133**	**71**	**3,476**
1990 Year	**121**	**140**	**265**	**172**	**590**	**112**	**1,621**	**1,163**	**73**	**3,568**
1991 Year	**119**	**153**	**288**	**160**	**606**	**119**	**1,617**	**1,181**	**65**	**3,588**
1992 January	117	149	293	167	600	116	1,610	1,167	68	3,563
February	111	145	303	172	595	118	1,588	1,180	66	3,541
March	111	142	303	169	585	115	1,571	1,161	66	3,494
April	111	140	307	165	578	115	1,583	1,171	62	3,504
May	108	147	311	171	587	115	1,602	1,189	63	3,550
June	112	147	307	166	583	114	1,603	1,190	69	3,556
July	110	146	299	166	585	120	1,620	1,181	67	3,563
August	113	150	303	169	604	117	1,621	1,210	69	3,616
September	110	148	299	165	607	112	1,636	1,193	69	3,615
October	108	148	302	166	613	112	1,640	1,200	69	3,630
November	110	149	306	172	610	115	1,636	1,206	71	3,633
December	107	146	310	174	603	113	1,592	1,219	67	3,588
1993 January	108	162	319	173	615	120	1,618	[R]1,250	68	[R]3,660
February	102	157	317	168	607	120	1,602	[R]1,236	68	[R]3,616
March	107	138	312	165	594	120	1,590	1,202	66	3,559
April	[R]106	155	311	166	585	116	1,617	[R]1,215	73	[R]3,595
May	106	162	320	172	593	117	1,650	[R]1,227	69	[R]3,644
June	107	139	310	168	603	119	1,667	1,188	70	3,634
July	112	156	313	169	618	115	1,682	[R]1,207	70	[R]3,689
August	112	168	316	170	635	117	1,676	[R]1,246	70	[R]3,739
September	108	149	312	162	648	115	1,665	[R]1,209	77	[R]3,707
October	105	167	318	162	654	111	1,688	[R]1,232	78	[R]3,758
November	107	157	310	165	644	116	1,686	[R]1,219	78	[R]3,735
December	104	158	310	165	617	118	1,647	1,213	68	3,649
1994 January	102	165	323	168	618	118	1,620	[R]1,257	69	[R]3,665
February	[R]97	160	316	158	612	112	1,581	1,212	67	[R]3,569
March	102	152	308	156	603	111	1,578	1,181	72	[R]3,536
April	106	152	310	160	612	108	1,585	1,190	74	3,567

[a] Through December 1990, the data for Germany are for the former West Germany only. Beginning with January 1991, the data for Germany are for the unified Germany, i.e., the former East Germany and West Germany.

[b] "OECD Europe" consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

[c] "Other OECD" consists of Australia, New Zealand, and the U.S. Territories.

[d] The Organization for Economic Cooperation and Development (OECD) consists of Canada, Japan, and the United States, as well as "OECD Europe" and "Other OECD."

R=Revised data.

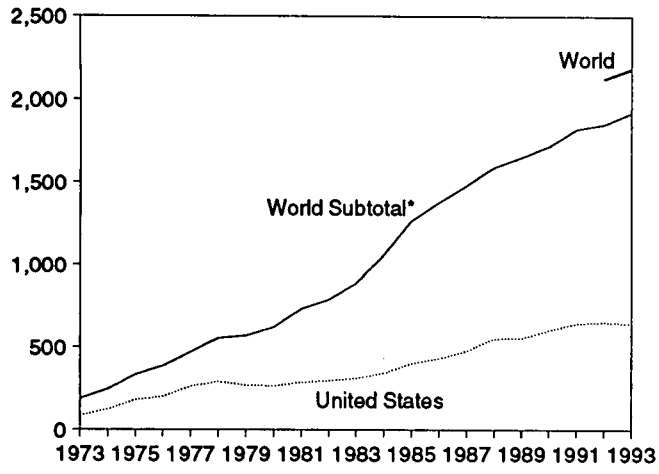
Notes: • Petroleum stocks include crude oil (including strategic reserves), unfinished oils, natural gas plant liquids, and refined products. Petroleum stocks include all nonmilitary petroleum held for storage, regardless of ownership, within each country in bulk terminals, refinery tanks, pipeline tankage, intercoastal tankers, tankers in port, and inland ship bunkers. Data exclude oil held in pipelines (except for those in the United States), rail and truck cars, sea-going ships' bunkers, service stations, retail stores, and tankers at sea. • In the United States in January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys, thereby affecting subsequent stocks reported. New-basis end-of-year U.S. stocks, in million barrels, would have been 1,121 in 1974, 1,425 in 1980, and 1,461 in 1982. • Data through 1991 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **United States:** Table 3.1a. • **All Other Data:** International Energy Agency, quarterly and monthly computer tapes supporting *Quarterly Oil Statistics and Energy Balances.*

Figure 10.5 Nuclear Electricity Gross Generation

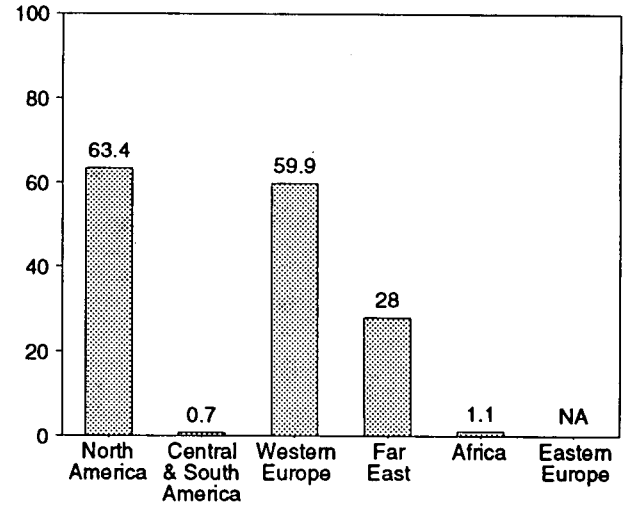
(Billion Kilowatthours)

U.S. and World Generation, 1973-1993



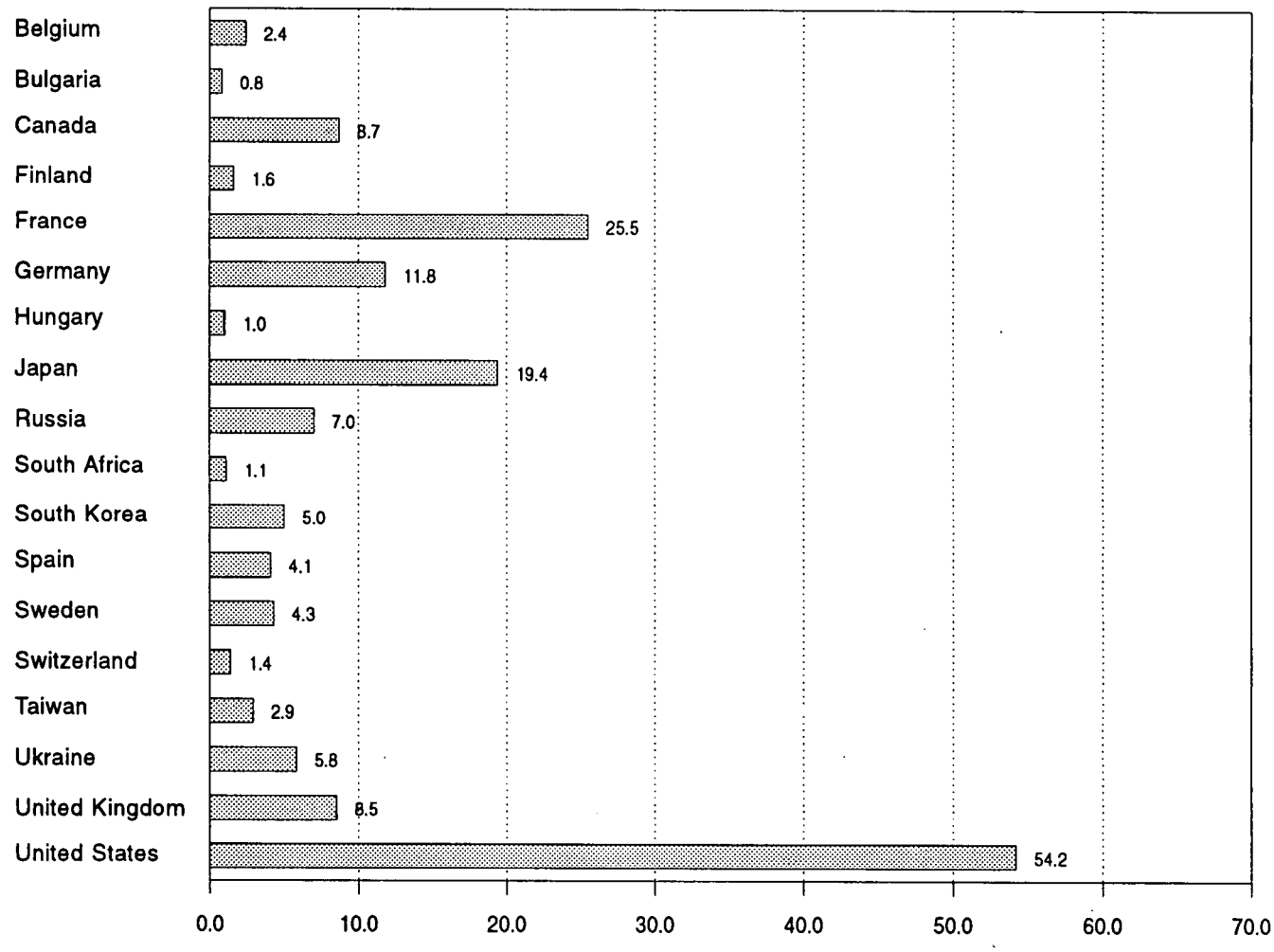
*World excluding Eastern Europe.

Generation by Region, June 1994



NA = Not available.

Generation by Selected Country, June 1994



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 10.4a-10.4e.

Table 10.4a Nuclear Electricity Gross Generation: Regions and World

(Billion Kilowatthours)

	North America	Central and South America	Western Europe	Far East	Africa	Subtotal	Eastern Europe[a]	World
1973 Total	**103.1**	–	**73.9**	**12.3**	–	**189.3**	**NA**	**NA**
1974 Total	**139.7**	**1.0**	**83.9**	**21.4**	–	**246.0**	**NA**	**NA**
1975 Total	**195.5**	**2.5**	**111.7**	**24.4**	–	**334.1**	**NA**	**NA**
1976 Total	**219.8**	**2.6**	**126.2**	**40.3**	–	**388.9**	**NA**	**NA**
1977 Total	**290.8**	**1.6**	**148.1**	**31.5**	–	**472.0**	**NA**	**NA**
1978 Total	**325.4**	**2.9**	**166.9**	**60.6**	–	**555.9**	**NA**	**NA**
1979 Total	**309.0**	**2.7**	**184.3**	**74.7**	–	**570.7**	**NA**	**NA**
1980 Total	**305.8**	**2.3**	**214.2**	**97.4**	–	**619.8**	**NA**	**NA**
1981 Total	**331.8**	**2.8**	**293.4**	**102.9**	–	**730.9**	**NA**	**NA**
1982 Total	**341.2**	**1.9**	**321.8**	**123.6**	–	**788.5**	**NA**	**NA**
1983 Total	**366.6**	**3.6**	**377.2**	**140.1**	–	**887.5**	**NA**	**NA**
1984 Total	**397.6**	**6.6**	**485.4**	**167.7**	**4.2**	**1,061.5**	**NA**	**NA**
1985 Total	**465.6**	**9.1**	**582.8**	**202.0**	**5.9**	**1,265.4**	**NA**	**NA**
1986 Total	**508.8**	**5.8**	**631.5**	**223.6**	**9.3**	**1,378.9**	**NA**	**NA**
1987 Total	**560.1**	**6.2**	**648.3**	**259.5**	**6.6**	**1,480.7**	**NA**	**NA**
1988 Total	**639.7**	**5.5**	**688.1**	**248.5**	**11.1**	**1,592.8**	**NA**	**NA**
1989 Total	**640.2**	**6.6**	**732.2**	**263.4**	**11.7**	**1,654.1**	**NA**	**NA**
1990 Total	**681.3**	**9.4**	**738.6**	**284.3**	**8.9**	**1,722.5**	**NA**	**NA**
1991 Total	**733.4**	**9.2**	**769.7**	**303.3**	**9.7**	**1,825.2**	**NA**	**NA**
1992 January	68.0	.6	77.4	26.8	.9	173.7	NA	NA
February	62.3	.7	70.9	23.8	.4	158.1	NA	NA
March	56.2	.6	74.1	24.7	.4	156.1	NA	NA
April	51.2	.6	64.5	23.5	.4	140.2	NA	NA
May	53.4	.5	59.7	23.9	.7	138.2	NA	NA
June	59.7	.7	56.2	24.9	1.2	142.7	NA	NA
July	66.5	1.0	56.0	30.2	1.3	155.0	NA	NA
August	68.6	1.2	55.9	32.7	1.0	159.5	NA	NA
September	60.2	1.1	58.8	25.2	1.1	146.4	NA	NA
October	58.7	.4	65.5	24.7	1.0	150.3	NA	NA
November	61.0	.7	65.7	25.0	.6	153.1	NA	NA
December	69.5	.7	76.5	27.6	.8	175.1	NA	NA
Total	**735.2**	**8.8**	**783.9**	**315.2**	**9.9**	**1,852.9**	**E 271.5**	**E 2,124.5**
1993 January	70.5	.8	78.9	28.1	.6	178.9	NA	NA
February	61.5	.6	72.6	25.3	.6	160.6	NA	NA
March	57.7	.6	76.3	26.9	.5	162.1	NA	NA
April	53.2	.7	68.6	25.6	.6	148.7	NA	NA
May	60.0	.7	60.1	E 25.9	.8	E 147.5	NA	NA
June	63.0	.7	60.7	E 26.0	.5	E 151.0	NA	NA
July	68.6	.7	60.8	E 31.8	1.0	E 163.1	NA	NA
August	68.5	.7	57.9	E 33.3	.9	E 161.2	NA	NA
September	60.8	.7	63.9	E 28.5	.5	E 154.4	NA	NA
October	55.8	.4	65.7	E 28.5	.4	E 150.7	NA	NA
November	57.7	.6	70.6	E 27.9	.4	E 157.2	NA	NA
December	65.5	.7	81.0	E 30.0	.8	E 178.1	NA	NA
Total	**744.6**	**8.1**	**817.0**	**E 342.6**	**7.7**	**E 1,922.7**	**E 263.0**	**E 2,185.6**
1994 January	69.5	.7	76.3	E 28.6	.9	E 176.0	NA	NA
February	61.3	.7	67.5	E 25.0	.8	E 155.2	NA	NA
March	61.8	.7	70.3	E 27.0	.8	E 160.5	NA	NA
April	55.0	.7	66.8	E 28.3	1.0	E 151.8	NA	NA
May	R 60.3	.7	R 60.2	E 28.2	1.3	RE 150.7	NA	NA
June	E 63.4	.7	59.9	E 28.0	1.1	E 153.0	NA	NA
6-Month Total	**E 371.2**	**4.3**	**401.0**	**E 165.0**	**5.8**	**E 947.3**	**NA**	**NA**
1993 6-Month Total	**365.9**	**4.2**	**417.1**	**E 157.8**	**3.7**	**E 948.7**	**NA**	**NA**
1992 6-Month Total	**350.7**	**3.7**	**402.8**	**147.6**	**4.1**	**908.9**	**NA**	**NA**

[a] See Table 10.4e for country-specific estimated annual generation in 1992 and 1993, and available monthly generation in 1993, for Eastern Europe.

R=Revised data. NA=Not available. – =Not applicable. E=Estimate.

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for regions may not sum to totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Table 10.4b Nuclear Electricity Gross Generation: North, Central, and South America

(Billion Kilowatthours)

	Canada	Mexico	United States	North America	Argentina	Brazil	Central and South America
1973 Total	15.3	–	87.8	103.1	–	–	–
1974 Total	15.4	–	124.3	139.7	1.0	–	1.0
1975 Total	13.2	–	182.3	195.5	2.5	–	2.5
1976 Total	18.0	–	201.8	219.8	2.6	–	2.6
1977 Total	26.6	–	264.2	290.8	1.6	–	1.6
1978 Total	33.0	–	292.4	325.4	2.9	–	2.9
1979 Total	38.4	–	270.6	309.0	2.7	–	2.7
1980 Total	40.4	–	265.4	305.8	2.3	–	2.3
1981 Total	43.3	–	288.5	331.8	2.8	–	2.8
1982 Total	42.6	–	298.6	341.2	1.9	0.1	1.9
1983 Total	53.0	–	313.6	366.6	3.4	.2	3.6
1984 Total	53.8	–	343.8	397.6	4.5	2.1	6.6
1985 Total	62.9	–	402.7	465.6	5.8	3.4	9.1
1986 Total	74.6	–	434.1	508.8	5.7	.1	5.8
1987 Total	80.6	–	479.5	560.1	5.2	1.0	6.2
1988 Total	85.6	–	554.1	639.7	5.1	.3	5.5
1989 Total	83.2	–	557.0	640.2	5.0	1.6	6.6
1990 Total	75.8	2.1	603.4	681.3	7.4	2.0	9.4
1991 Total	86.1	4.2	643.0	733.4	7.7	1.4	9.2
1992 January	6.9	.5	60.6	68.0	.6	.0	.6
February	6.4	.4	55.4	62.3	.7	.0	.7
March	7.4	.5	48.3	56.2	.6	.0	.6
April	6.4	.5	44.3	51.2	.6	.0	.6
May	4.8	.5	48.1	53.4	.5	.0	.5
June	5.6	.3	53.7	59.7	.6	.1	.7
July	7.2	.3	59.0	66.5	.7	.3	1.0
August	6.9	.2	61.6	68.6	.7	.4	1.2
September	6.9	.0	53.2	60.2	.7	.3	1.1
October	7.2	(s)	51.5	58.7	.3	.1	.4
November	7.4	.4	53.2	61.0	.4	.3	.7
December	8.0	.4	61.0	69.5	.6	.1	.7
Total	81.3	3.9	650.0	735.2	7.1	1.8	8.8
1993 January	8.2	.5	61.8	70.5	.6	.2	.8
February	7.4	.3	53.7	61.5	.4	.2	.6
March	7.8	.1	49.8	57.7	.6	(s)	.6
April	7.3	.5	45.4	53.2	.7	.0	.7
May	6.7	.5	52.8	60.0	.7	.0	.7
June	7.1	.5	55.4	63.0	.7	.0	.7
July	9.3	.5	58.9	68.6	.7	.0	.7
August	9.1	.5	58.9	68.5	.7	.0	.7
September	7.9	.5	52.5	60.8	.7	.0	.7
October	8.5	.4	46.9	55.8	.4	.0	.4
November	8.2	.4	49.1	57.7	.6	.0	.6
December	9.2	.4	55.9	65.5	.7	.0	.7
Total	97.6	4.9	642.0	744.6	7.7	.4	8.1
1994 January	9.7	.2	59.6	69.5	.7	.0	.7
February	9.1	.0	52.2	61.3	.7	.0	.7
March	10.5	(s)	51.3	61.8	.7	.0	.7
April	9.1	.4	45.4	55.0	.7	.0	.7
May	8.8	.4	R51.1	R60.3	.7	.0	.7
June	E8.7	.5	E54.2	E63.4	.7	.0	.7
6-Month Total	E55.9	1.5	E313.8	E371.2	4.3	.0	4.3
1993 6-Month Total	44.6	2.3	319.0	365.9	3.8	.4	4.2
1992 6-Month Total	37.6	2.6	310.5	350.7	3.6	.1	3.7

R=Revised data. – =Not applicable. E=Estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Table 10.4c Nuclear Electricity Gross Generation: Western Europe

(Billion Kilowatthours)

	Belgium	Finland	France	Germany[a]	Italy[b]	Netherlands	Spain	Sweden	Switzerland	United Kingdom[c]	Western Europe
1973 Total	**0.0**	**–**	**14.7**	**11.9**	**3.1**	**1.1**	**6.5**	**2.1**	**6.2**	**28.2**	**73.9**
1974 Total	**.1**	**–**	**14.7**	**12.0**	**3.4**	**3.3**	**7.2**	**2.3**	**7.0**	**33.8**	**83.9**
1975 Total	**6.8**	**–**	**18.3**	**21.7**	**3.8**	**3.3**	**7.5**	**12.0**	**7.7**	**30.5**	**111.7**
1976 Total	**10.0**	**–**	**15.8**	**24.5**	**3.8**	**3.9**	**7.6**	**16.0**	**7.9**	**36.8**	**126.2**
1977 Total	**11.9**	**2.7**	**17.9**	**36.0**	**3.4**	**3.7**	**6.5**	**19.9**	**8.1**	**38.1**	**148.1**
1978 Total	**12.5**	**3.3**	**30.6**	**35.7**	**4.5**	**4.1**	**7.6**	**23.8**	**8.3**	**36.6**	**166.9**
1979 Total	**11.4**	**6.7**	**39.9**	**42.2**	**2.6**	**3.5**	**6.7**	**21.0**	**11.8**	**38.5**	**184.3**
1980 Total	**12.5**	**7.0**	**61.2**	**43.7**	**2.2**	**4.2**	**5.2**	**26.7**	**14.3**	**37.2**	**214.2**
1981 Total	**12.8**	**14.5**	**105.2**	**53.4**	**2.7**	**3.7**	**9.4**	**37.7**	**15.2**	**38.9**	**293.4**
1982 Total	**15.6**	**16.5**	**108.9**	**63.4**	**6.8**	**3.9**	**8.8**	**38.8**	**15.0**	**44.1**	**321.8**
1983 Total	**24.1**	**17.4**	**144.2**	**65.8**	**5.8**	**3.6**	**10.7**	**40.4**	**15.5**	**49.6**	**377.2**
1984 Total	**27.7**	**18.5**	**191.2**	**92.6**	**6.9**	**3.8**	**23.1**	**51.3**	**16.3**	**54.1**	**485.4**
1985 Total	**34.5**	**18.8**	**224.0**	**125.8**	**7.0**	**3.9**	**28.0**	**58.6**	**22.4**	**59.7**	**582.8**
1986 Total	**38.6**	**18.8**	**254.3**	**118.9**	**8.7**	**4.2**	**37.5**	**69.9**	**22.5**	**58.2**	**631.5**
1987 Total	**41.9**	**19.4**	**265.5**	**130.2**	**.2**	**3.6**	**41.2**	**67.2**	**23.0**	**56.2**	**648.3**
1988 Total	**43.1**	**19.3**	**274.9**	**145.2**	**.0**	**3.7**	**50.4**	**69.4**	**22.7**	**59.4**	**688.1**
1989 Total	**41.2**	**18.8**	**302.5**	**149.6**	**.0**	**4.0**	**56.1**	**65.6**	**22.8**	**71.6**	**732.2**
1990 Total	**42.7**	**18.9**	**314.1**	**147.2**	**.0**	**3.4**	**54.3**	**68.2**	**23.6**	**66.1**	**738.6**
1991 Total	**42.9**	**19.2**	**331.4**	**147.3**	**.0**	**3.3**	**55.6**	**76.8**	**22.9**	**70.4**	**769.7**
1992 January	4.3	1.8	33.5	15.6	.0	.4	5.4	7.6	2.3	6.5	77.4
February	4.0	1.7	29.8	15.2	.0	.3	4.6	6.8	2.1	6.3	70.9
March	4.0	1.8	30.7	15.8	.0	.1	4.2	7.1	2.2	8.3	74.1
April	3.4	1.7	28.0	14.1	.0	.1	3.6	6.7	1.9	5.0	64.5
May	3.8	1.3	25.6	11.8	.0	.3	4.3	4.7	1.9	6.0	59.7
June	3.6	1.4	22.4	11.8	.0	.3	4.5	3.9	1.3	7.0	56.2
July	3.1	1.6	23.7	12.0	.0	.4	5.0	3.6	1.7	4.9	56.0
August	3.4	1.4	24.6	10.9	.0	.4	5.2	3.5	1.1	5.5	55.9
September	3.1	1.3	25.6	11.6	.0	.4	4.2	3.9	2.0	6.9	58.8
October	3.6	1.6	28.5	13.2	.0	.4	5.0	5.2	2.3	5.7	65.5
November	3.3	1.7	29.5	13.0	.0	.4	4.4	5.2	2.2	6.1	65.7
December	3.9	1.8	33.1	13.8	.0	.4	5.4	5.4	2.3	10.4	76.5
Total	**43.5**	**19.0**	**337.6**	**158.8**	**.0**	**3.8**	**55.8**	**63.5**	**23.4**	**78.5**	**783.9**
1993 January	4.3	1.8	36.3	15.1	.0	.4	5.4	5.8	2.3	7.6	78.9
February	3.7	1.6	32.7	13.9	.0	.3	4.3	5.9	2.1	7.9	72.6
March	3.4	1.8	34.3	14.2	.0	.1	4.9	7.1	2.3	8.3	76.3
April	3.3	1.7	30.5	12.4	.0	.1	4.2	6.6	2.0	7.7	68.6
May	3.1	1.3	26.9	11.8	.0	.4	4.1	4.6	1.9	6.0	60.1
June	3.0	1.6	25.4	12.0	.0	.4	4.4	4.7	1.2	8.2	60.7
July	3.2	1.8	26.9	12.3	.0	.4	5.0	3.1	1.8	6.4	60.8
August	3.4	1.5	25.9	11.1	.0	.4	5.1	3.2	1.1	6.1	57.9
September	3.4	1.3	28.8	11.2	.0	.4	4.6	4.1	1.7	8.4	63.9
October	3.2	1.8	29.1	12.6	.0	.4	4.7	4.7	2.2	6.9	65.7
November	3.7	1.7	33.7	12.6	.0	.4	4.2	5.3	2.3	6.7	70.6
December	4.3	1.8	36.2	14.3	.0	.4	5.2	6.3	2.4	10.2	81.0
Total	**41.9**	**19.6**	**366.7**	**153.5**	**.0**	**3.9**	**56.1**	**61.4**	**23.3**	**90.4**	**817.0**
1994 January	4.3	1.8	34.1	13.8	.0	.4	5.1	6.9	2.4	7.6	76.3
February	3.5	1.6	30.8	12.1	.0	.1	4.1	6.7	2.1	6.6	67.5
March	3.6	1.8	30.5	12.7	.0	.1	4.1	7.2	2.3	7.9	70.3
April	3.3	1.7	28.6	12.0	.0	.4	4.3	6.9	2.3	7.3	66.8
May	2.8	1.1	25.3	11.2	.0	.4	4.7	5.6	2.0	R7.2	R60.2
June	2.4	1.6	25.5	11.8	.0	.4	4.1	4.3	1.4	8.5	59.9
6-Month Total	**19.8**	**9.6**	**174.7**	**73.6**	**.0**	**1.7**	**26.4**	**37.5**	**12.4**	**45.2**	**401.0**
1993 6-Month Total	**20.8**	**9.7**	**186.1**	**79.3**	**.0**	**1.6**	**27.3**	**34.7**	**11.8**	**45.7**	**417.1**
1992 6-Month Total	**23.1**	**9.7**	**170.0**	**84.3**	**.0**	**1.5**	**26.6**	**36.8**	**11.8**	**39.1**	**402.8**

[a] Through December 1990, the data for Germany are for the former West Germany only. Beginning with January 1991, the data for Germany are for the unified Germany, i.e., the former East Germany and West Germany.

[b] In 1987, Italy's citizens voted for a nuclear power moratorium, which shut down their nuclear power plants indefinitely.

[c] Monthly data for the United Kingdom are totals for 4- or 5-week reporting periods, not calendar months.

R=Revised data. – =Not applicable. (s)=Less than 0.05 billion kilowatthours.

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week.*

Table 10.4d Nuclear Electricity Gross Generation: Far East and Africa

(Billion Kilowatthours)

	China[a]	India	Japan	Pakistan	South Korea	Taiwan	Far East	South Africa[b]
1973 Total	–	2.5	9.4	0.5	–	–	12.3	–
1974 Total	–	1.9	18.9	.6	–	–	21.4	–
1975 Total	–	2.5	21.3	.5	–	–	24.4	–
1976 Total	–	3.2	36.6	.5	–	–	40.3	–
1977 Total	–	2.8	28.2	.3	0.1	0.1	31.5	–
1978 Total	–	2.3	53.1	.2	2.3	2.7	60.6	–
1979 Total	–	3.2	62.0	(s)	3.2	6.3	74.7	–
1980 Total	–	2.9	82.8	.1	3.5	8.2	97.4	–
1981 Total	–	3.1	86.0	.2	2.9	10.7	102.9	–
1982 Total	–	2.2	104.5	.1	3.8	13.1	123.6	–
1983 Total	–	2.9	109.1	.2	9.0	18.9	140.1	–
1984 Total	–	4.1	127.2	.3	11.8	24.3	167.7	4.2
1985 Total	–	4.5	152.0	.3	16.5	28.7	202.0	5.9
1986 Total	–	5.1	164.8	.5	26.1	26.9	223.6	9.3
1987 Total	–	5.5	182.8	.3	37.8	33.1	259.5	6.6
1988 Total	–	6.1	173.6	.2	38.7	29.9	248.5	11.1
1989 Total	–	4.0	183.7	.1	47.2	28.3	263.4	11.7
1990 Total	–	6.3	191.9	.4	52.8	32.9	284.3	8.9
1991 Total	–	5.4	205.8	.4	56.3	35.3	303.3	9.7
1992 January	–	.5	18.5	(s)	4.6	3.1	26.8	.9
February	–	.5	17.1	.0	4.0	2.2	23.8	.4
March	–	.5	17.9	(s)	4.2	2.2	24.7	.4
April	–	.4	16.0	(s)	4.5	2.6	23.5	.4
May	–	.4	16.3	(s)	4.5	2.6	23.9	.7
June	–	.3	17.1	.1	4.5	2.9	24.9	1.2
July	–	.4	21.1	.1	5.3	3.3	30.2	1.3
August	–	.5	23.1	.1	5.4	3.6	32.7	1.0
September	–	.5	17.2	.1	4.6	2.8	25.2	1.1
October	–	.6	16.2	.1	4.9	2.9	24.7	1.0
November	–	.7	16.3	.1	4.7	3.2	25.0	.6
December	–	.8	19.1	.1	5.1	2.6	27.6	.8
Total	–	6.3	218.0	.6	56.4	33.8	315.2	9.9
1993 January	–	.7	19.5	(s)	4.8	3.0	28.1	.6
February	–	.6	17.4	.1	4.5	2.7	25.3	.6
March	–	.6	18.9	.1	4.6	2.8	26.9	.5
April	–	.2	17.6	.1	4.8	2.8	25.6	.6
May	NA	.4	17.4	(s)	5.3	2.7	E25.9	.8
June	NA	.5	17.9	(s)	5.1	2.6	E26.0	.5
July	NA	.7	22.3	.1	5.5	3.4	E31.8	1.0
August	NA	.5	24.2	(s)	4.9	3.6	E33.3	.9
September	NA	.4	20.5	.1	4.6	2.9	E28.5	.5
October	NA	.5	20.6	(s)	4.6	2.8	E28.5	.4
November	NA	.5	20.9	.0	4.2	2.3	E27.9	.4
December	NA	.6	21.5	(s)	5.1	2.8	E30.0	.8
Total	E2.6	6.2	243.5	.4	58.1	34.3	E342.6	7.7
1994 January	NA	.4	20.5	.1	5.0	2.6	E28.6	.9
February	NA	.3	17.8	(s)	4.1	2.8	E25.0	.8
March	NA	.4	19.0	.1	4.6	2.9	E27.0	.8
April	NA	.4	20.2	(s)	4.9	2.7	E28.3	1.0
May	NA	.5	19.8	.1	4.9	2.9	E28.2	1.3
June	NA	.5	19.4	.1	5.0	2.9	E28.0	1.1
6-Month Total	NA	2.5	116.7	.3	28.7	16.8	E165.0	5.8
1993 6-Month Total	NA	3.1	108.8	.2	29.2	16.6	E157.8	3.7
1992 6-Month Total	–	2.8	102.8	.2	26.4	15.5	147.6	4.1

[a] The total gross generation estimate for 1993 for China is calculated as 5 percent more than the annual net nuclear generation reported by the International Atomic Energy Agency (IAEA) and is published in *Nuclear Power Reactors in the World*, April 1994.

[b] South Africa comprises all of Africa's nuclear electricity generation.

NA=Not available. – =Not applicable. E=Estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Table 10.4e Nuclear Electricity Gross Generation: Eastern Europe

(Billion Kilowatthours)

	Bulgaria	Czech Republic[a]	Hungary	Kazakhstan[a]	Lithuania[a]	Romania[b]	Russia	Slovakia[a]	Slovenia	Ukraine	Eastern Europe[c]
1973 Total	–	–	–	NA	–	–	NA	NA	–	–	NA
1974 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1975 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1976 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1977 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1978 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1979 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1980 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1981 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1982 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1983 Total	NA	–	NA	NA	–	–	NA	NA	NA	NA	NA
1984 Total	NA	–	NA	NA	–	–	NA	NA	NA	NA	NA
1985 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1986 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1987 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1988 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1989 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1990 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1991 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1992 January	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
February	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
March	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
April	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
May	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
June	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
July	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
August	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
September	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
October	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
November	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
December	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
Total	E 12.2	E 12.9	E 13.8	E .5	E 16.4	–	E 125.6	E 11.7	E 4.0	E 74.6	E 271.5
1993 January	E 1.5	NA	1.4	NA	NA	–	11.0	NA	.5	E 7.8	NA
February	E 1.5	NA	1.2	NA	NA	–	9.8	NA	.4	E 7.8	NA
March	E 1.5	NA	1.2	NA	NA	–	10.6	NA	.4	7.8	NA
April	E 1.5	NA	1.0	NA	NA	–	10.3	NA	.5	5.5	NA
May	1.2	NA	1.0	NA	NA	–	9.6	NA	.2	5.1	NA
June	.8	NA	1.0	NA	NA	–	10.1	NA	.0	5.0	NA
July	.9	NA	1.0	NA	NA	–	8.4	NA	(s)	5.6	NA
August	.9	NA	1.0	NA	NA	–	9.5	NA	.4	6.0	NA
September	1.1	.9	1.0	NA	NA	–	9.3	NA	.5	5.1	NA
October	.6	.9	1.2	NA	NA	–	9.7	NA	.5	5.3	NA
November	.9	1.0	1.3	NA	NA	–	10.4	NA	.4	5.3	NA
December	1.6	.9	1.4	NA	NA	–	11.9	NA	.3	6.3	NA
Total	14.0	E 13.2	13.8	E .4	E 12.9	–	120.4	E 11.6	4.0	E 72.7	E 263.0
1994 January	1.6	1.2	1.4	NA	NA	–	11.0	NA	.3	7.6	NA
February	1.4	1.2	1.2	NA	NA	–	10.0	NA	.4	6.7	NA
March	1.6	1.3	1.2	NA	NA	–	9.5	NA	.4	6.5	NA
April	1.1	E 1.3	1.0	NA	NA	–	8.0	NA	.5	5.8	NA
May	1.1	E 1.3	1.0	NA	NA	–	7.5	NA	.5	6.2	NA
June	.8	E 1.3	1.0	NA	NA	–	7.0	NA	.5	5.8	NA
6-Month Total	7.8	E 7.5	6.9	NA	NA	–	53.0	NA	2.5	38.7	NA
1993 6-Month Total	8.0	NA	6.9	NA	NA	–	61.3	NA	1.9	39.1	NA
1992 6-Month Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA

[a] The total gross generation estimate for 1993 for Czech Republic, Kazakhstan, Lithuania, and Slovakia is calculated as 5 percent more than the annual net nuclear generation reported by the International Atomic Energy Agency (IAEA) and is published in *Nuclear Power Reactors in the World*, April 1994.

[b] Romania has a nuclear generating unit under construction. Its earliest initial operation is projected to be in 1995.

[c] The total gross generation estimate for 1992 for Eastern European countries are calculated as 5 percent more than the annual net nuclear generation reported by the IAEA and published in the Energy Information Administration annual report, *World Nuclear Capacity and Fuel Cycle Requirements 1993*, November 1993, Table 10.

NA=Not available. – =Not applicable. E=Estimate.

Notes: • Armenia has two nuclear generating units under construction. The earliest initial commercial operation for one unit is projected to be in 1995. • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Sources for Tables 10.1a and 10.1b

• **United States:** Table 3.1a.

• **Other Countries: Annual Data: 1973-1979**—Energy Information Administration (EIA), *International Energy Annual 1981,* Table 8. **1980**—EIA, International Energy *Annual 1989,* Table 1. **1981**—EIA, *International Energy Annual 1990,* Table 1. **1982**—EIA, *International Energy Annual 1991,* Table 1. **1983-1992**—EIA, *International Energy Annual 1992,* Table 1. **1993**—Average of monthly data. **Monthly data**—*Petroleum Intelligence Weekly,* the *Oil and Gas Journal,* and other industry sources.

• **World: Annual data—1973-1979**—EIA, *International Energy Annual 1981,* Table 8. **1980**—EIA, *International Energy Annual 1989,* Table 1. **1981**—EIA, *International Energy Annual 1990,* Table 1. **1982**—EIA, *International Energy Annual 1991,* Table 1. **1983-1992**—EIA, *International Energy Annual 1992,* Table 1. **1993**—Average of monthly data. **Monthly data**—EIA, *International Petroleum Statistics Report,* sum of all countries' monthly data.

Appendix A. Thermal Conversion Factors

The thermal conversion factors presented in the following eight tables can be used to estimate the heat content in British thermal units (Btu) of a given amount of energy measured in physical units, such as barrels or cubic feet. For example, 10 barrels of asphalt have a heat content of approximately 66.36 million Btu (10 barrels x 6.636 million Btu/barrel = 66.36 million Btu).

Thermal conversion factors for hydrocarbon mixes (Table A1) are weighted averages of the thermal conversion factors for each hydrocarbon included in the mix. For example, in calculating the thermal conversion factor for a 60-40 butane-propane mixture, the thermal conversion factor for butane is weighted 1.5 times more heavily than the thermal conversion factor for propane.

In general, the annual thermal conversion factors presented in Tables A1 through A8 are computed from final annual data. However, if the current year's final data are not available in time for publication, thermal conversion factors for the current year are computed from the best available data and are labeled "preliminary." The source of each factor is described in the section entitled "Thermal Conversion Factor Source Documentation," which follows Table A8 in this appendix.

Table A1. Approximate Heat Content of Petroleum Products

(Million Btu per Barrel)

Petroleum Product	Heat Content	Petroleum Product	Heat Content
Asphalt	6.636	Petrochemical Feedstocks	
Aviation Gasoline	5.048	Naphtha Less Than 401° F	5.248
Butane	4.326	Other Oils Equal to or Greater Than 401° F	5.825
Butane-Propane Mixture[a]	4.130	Still Gas	6.000
Distillate Fuel Oil	5.825	Petroleum Coke	6.024
Ethane	3.082	Plant Condensate	5.418
Ethane-Propane Mixture[b]	3.308	Propane	3.836
Isobutane	3.974	Residual Fuel Oil	6.287
Jet Fuel, Kerosene Type	5.670	Road Oil	6.636
Jet Fuel, Naphtha Type	5.355	Special Naphthas	5.248
Kerosene	5.670	Still Gas	6.000
Lubricants	6.065	Unfinished Oils	5.825
Motor Gasoline	5.253	Unfractionated Stream	5.418
Natural Gasoline and Isopentane	4.620	Waxes	5.537
Pentanes Plus	4.620	Miscellaneous	5.796

[a] 60 percent butane and 40 percent propane.

[b] 70 percent ethane and 30 percent propane.

Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A2. Approximate Heat Content of Crude Oil, Crude Oil and Products, and Natural Gas Plant Liquids

(Million Btu per Barrel)

	Crude Oil			Crude Oil and Products		Natural Gas Plant Liquids Production
	Production	Imports	Exports	Imports	Exports	
1973	5.800	5.817	5.800	5.897	5.752	4.049
1974	5.800	5.827	5.800	5.884	5.774	4.011
1975	5.800	5.821	5.800	5.858	5.748	3.984
1976	5.800	5.808	5.800	5.856	5.745	3.964
1977	5.800	5.810	5.800	5.834	5.797	3.941
1978	5.800	5.802	5.800	5.839	5.808	3.925
1979	5.800	5.810	5.800	5.810	5.832	3.955
1980	5.800	5.812	5.800	5.796	5.820	3.914
1981	5.800	5.818	5.800	5.775	5.821	3.930
1982	5.800	5.826	5.800	5.775	5.820	3.872
1983	5.800	5.825	5.800	5.774	5.800	3.839
1984	5.800	5.823	5.800	5.745	5.850	3.812
1985	5.800	5.832	5.800	5.736	5.814	3.815
1986	5.800	5.903	5.800	5.808	5.832	3.797
1987	5.800	5.901	5.800	5.820	5.858	3.804
1988	5.800	5.900	5.800	5.820	5.840	3.800
1989	5.800	5.906	5.800	5.833	5.857	3.826
1990	5.800	5.934	5.800	5.849	5.833	3.822
1991	5.800	5.948	5.800	5.873	5.823	3.807
1992	5.800	5.953	5.800	5.877	5.777	3.804
1993[a]	5.800	5.954	5.800	5.883	5.779	3.801
1994[a]	5.800	5.954	5.800	5.883	5.779	3.801

[a] Preliminary.
Note: Crude oil includes lease condensate.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A3. Approximate Heat Content of Petroleum Products, Weighted Averages

(Million Btu per Barrel)

	Consumption							
	Residential and Commercial	Industrial	Transportation	Electric Utilities	Total	Imports	Exports	LPG Consumption
1973	5.387	5.568	5.395	6.245	5.515	5.983	5.752	3.746
1974	5.377	5.538	5.394	6.238	5.504	5.959	5.773	3.730
1975	5.358	5.528	5.392	6.250	5.494	5.935	5.747	3.715
1976	5.383	5.538	5.395	6.251	5.504	5.980	5.743	3.711
1977	5.389	5.555	5.400	6.249	5.518	5.908	5.796	3.677
1978	5.382	5.553	5.404	6.251	5.519	5.955	5.814	3.669
1979	5.471	5.418	5.428	6.258	5.494	5.811	5.864	3.680
1980	5.468	5.376	5.440	6.254	5.479	5.748	5.841	3.674
1981	5.409	5.313	5.432	6.258	5.448	5.659	5.837	3.643
1982	5.392	5.263	5.422	6.258	5.415	5.664	5.829	3.615
1983	5.286	5.273	5.415	6.255	5.406	5.677	5.800	3.614
1984	5.384	5.223	5.422	6.251	5.395	5.613	5.867	3.599
1985	5.326	5.221	5.423	6.247	5.387	5.572	5.819	3.603
1986	5.357	5.286	5.427	6.257	5.418	5.624	5.839	3.640
1987	5.316	5.253	5.430	6.249	5.403	5.599	5.860	3.659
1988	5.320	5.248	5.434	6.250	5.410	5.618	5.842	3.652
1989	5.257	5.233	5.440	6.241	5.410	5.641	5.869	3.683
1990	5.208	5.272	5.445	6.247	5.411	5.614	5.838	3.625
1991	5.163	5.192	5.442	6.248	5.384	5.636	5.827	3.614
1992	5.169	5.188	5.445	6.243	5.378	5.623	5.774	3.624
1993[a]	5.174	5.186	5.442	6.241	5.379	5.620	5.777	3.606
1994[a]	5.174	5.186	5.442	6.241	5.379	5.620	5.777	3.606

[a] Preliminary.
Note: Weighted averages of the products included in each category are calculated by using heat content values shown in Table A1.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A4. Approximate Heat Content of Natural Gas

(Btu per Cubic Foot)

	Production		Consumption				
	Dry	Marketed (Wet)	Sectors Other Than Electric Utilities	Electric Utilities	Total	Imports	Exports
1973	1,021	1,093	1,020	1,024	1,021	1,026	1,023
1974	1,024	1,097	1,024	1,022	1,024	1,027	1,016
1975	1,021	1,095	1,020	1,026	1,021	1,026	1,014
1976	1,020	1,093	1,019	1,023	1,020	1,025	1,013
1977	1,021	1,093	1,019	1,029	1,021	1,026	1,013
1978	1,019	1,088	1,016	1,034	1,019	1,030	1,013
1979	1,021	1,092	1,018	1,035	1,021	1,037	1,013
1980	1,026	1,098	1,024	1,035	1,026	1,022	1,013
1981	1,027	1,103	1,025	1,035	1,027	1,014	1,011
1982	1,028	1,107	1,026	1,036	1,028	1,018	1,011
1983	1,031	1,115	1,031	1,030	1,031	1,024	1,010
1984	1,031	1,109	1,030	1,035	1,031	1,005	1,010
1985	1,032	1,112	1,031	1,038	1,032	1,002	1,011
1986	1,030	1,110	1,029	1,034	1,030	997	1,008
1987	1,031	1,112	1,031	1,032	1,031	999	1,011
1988	1,029	1,109	1,029	1,028	1,029	1,002	1,018
1989	1,031	1,107	1,031	1,030	1,031	1,004	1,019
1990	1,031	1,105	1,030	1,034	1,031	1,012	1,018
1991	1,030	1,108	1,031	1,024	1,030	1,014	1,022
1992	1,030	1,110	1,031	1,022	1,030	1,011	1,018
1993[a]	1,030	1,110	1,031	1,022	1,030	1,011	1,018
1994[a]	1,030	1,110	1,031	1,022	1,030	1,011	1,018

[a] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A5. Approximate Heat Content of Coal

(Million Btu per Short Ton)

	Production	Consumption					Imports	Exports
		Residential and Commercial	Coke Plants	Other Industrial[a]	Electric Utilities[b]	Total		
1973	23.376	22.831	26.780	22.586	22.246	23.057	25.000	26.596
1974	23.072	22.479	26.778	22.419	21.781	22.677	25.000	26.700
1975	22.897	22.261	26.782	22.436	21.642	22.506	25.000	26.562
1976	22.855	22.774	26.781	22.530	21.679	22.498	25.000	26.601
1977	22.597	22.919	26.787	22.322	21.508	22.265	25.000	26.548
1978	22.248	22.466	26.789	22.207	21.275	22.017	25.000	26.478
1979	22.454	22.242	26.788	22.452	21.364	22.100	25.000	26.548
1980	22.415	22.543	26.790	22.690	21.295	21.947	25.000	26.384
1981	22.308	22.474	26.794	22.585	21.085	21.713	25.000	26.160
1982	22.239	22.695	26.797	22.712	21.194	21.674	25.000	26.223
1983	22.052	22.775	26.798	22.691	21.133	21.576	25.000	26.291
1984	22.010	22.844	26.799	22.543	21.101	21.573	25.000	26.402
1985	21.870	22.646	26.798	22.020	20.959	21.366	25.000	26.307
1986	21.913	22.947	26.798	22.198	21.084	21.462	25.000	26.292
1987	21.922	23.404	26.799	22.381	21.136	21.517	25.000	26.291
1988	21.823	23.571	26.799	22.360	20.900	21.328	25.000	26.299
1989	21.765	23.650	26.800	22.347	20.848	21.272	25.000	26.160
1990	21.822	23.137	26.799	22.457	20.929	21.331	25.000	26.202
1991	21.681	23.114	26.799	22.460	20.755	21.146	25.000	26.188
1992	21.646	23.105	26.799	22.250	20.787	21.143	25.000	26.161
1993[c]	21.397	23.124	26.800	22.195	20.639	20.993	25.000	26.335
1994[c]	21.397	23.124	26.800	22.195	20.639	20.993	25.000	26.335

[a] Includes transportation.
[b] Data shown in this column are not the same as those shown in the *Electric Power Monthly* (EPM). The EPM data report coal receipts; the data shown here represent coal consumption.
[c] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A6. Approximate Heat Content of Bituminous Coal and Lignite
(Million Btu per Short Ton)

	Production	Consumption					Imports	Exports
		Residential and Commercial	Coke Plants	Other Industrial[a]	Electric Utilities	Total		
1973	23.391	22.887	26.800	22.585	22.262	23.073	25.000	26.612
1974	23.087	22.523	26.800	22.420	21.799	22.694	25.000	26.716
1975	22.910	22.258	26.800	22.439	21.659	22.522	25.000	26.573
1976	22.863	22.819	26.800	22.528	21.692	22.509	25.000	26.613
1977	22.597	22.594	26.800	22.290	21.521	22.266	25.000	26.561
1978	22.242	22.078	26.800	22.175	21.284	22.014	25.000	26.501
1979	22.449	21.884	26.800	22.436	21.372	22.100	25.000	26.570
1980	22.411	22.488	26.800	22.690	21.301	21.950	25.000	26.404
1981	22.301	22.010	26.800	22.572	21.091	21.710	25.000	26.176
1982	22.233	22.226	26.800	22.695	21.200	21.670	25.000	26.231
1983	22.048	22.438	26.800	22.680	21.141	21.576	25.000	26.300
1984	22.005	22.406	26.800	22.525	21.108	21.570	25.000	26.410
1985	21.867	22.568	26.800	22.013	20.965	21.368	25.000	26.320
1986	21.908	22.669	26.800	22.185	21.091	21.462	25.000	26.308
1987	21.918	22.800	26.800	22.360	21.143	21.514	25.000	26.304
1988	21.817	23.135	26.800	22.341	20.905	21.324	25.000	26.308
1989	21.759	22.917	26.800	22.324	20.854	21.268	25.000	26.166
1990	21.819	22.678	26.800	22.444	20.935	21.330	25.000	26.207
1991	21.678	22.635	26.800	22.448	20.761	21.146	25.000	26.192
1992	21.643	22.768	26.800	22.242	20.792	21.142	25.000	26.165
1993[b]	21.393	22.803	26.800	22.183	20.644	20.992	25.000	26.341
1994[b]	21.393	22.803	26.800	22.183	20.644	20.992	25.000	26.341

[a] Includes transportation.
[b] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A7. Approximate Heat Content of Anthracite and Coal Coke
(Million Btu per Short Ton)

	Anthracite					Coal Coke Imports and Exports
	Production	Consumption			Imports and Exports	
		Sectors Other Than Electric Utilities	Electric Utilities	Total		
1973	22.132	22.674	17.920	21.464	25.400	24.800
1974	21.711	22.330	17.200	20.919	25.400	24.800
1975	21.582	22.272	17.064	20.762	25.400	24.800
1976	22.045	22.618	17.526	21.254	25.400	24.800
1977	22.661	24.101	17.244	22.066	25.400	24.800
1978	23.079	24.388	17.104	22.398	25.400	24.800
1979	23.170	24.272	17.454	22.069	25.400	24.800
1980	22.869	22.719	17.652	21.405	25.400	24.800
1981	23.291	23.749	18.168	22.080	25.400	24.800
1982	23.289	24.578	18.160	22.518	25.400	24.800
1983	22.734	24.536	16.516	21.583	25.400	24.800
1984	23.107	25.128	17.018	22.322	25.400	24.800
1985	22.428	23.031	16.784	20.817	25.400	24.800
1986	23.084	24.399	15.578	21.512	25.400	24.800
1987	23.108	26.293	15.962	22.435	25.400	24.800
1988	23.266	26.021	17.312	22.423	25.400	24.800
1989	23.385	27.196	16.310	22.623	25.400	24.800
1990	22.574	25.199	16.140	21.668	25.400	24.800
1991	22.573	25.268	15.858	21.410	25.400	24.800
1992	22.572	24.617	16.944	21.423	25.400	24.800
1993[a]	22.573	24.566	16.534	21.492	25.400	24.800
1994[a]	22.573	24.566	16.534	21.492	25.400	24.800

[a] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A8. Approximate Heat Rates for Electricity

(Btu per Kilowatthour)

	Electricity Generation			
	Fossil-Fueled Steam-Electric Plants[a]	Nuclear Steam-Electric Plants	Geothermal Energy Plants	Electricity Consumption
1973	10,389	10,903	21,674	3,412
1974	10,442	11,161	21,674	3,412
1975	10,406	11,013	21,611	3,412
1976	10,373	11,047	21,611	3,412
1977	10,435	10,769	21,611	3,412
1978	10,361	10,941	21,611	3,412
1979	10,353	10,879	21,545	3,412
1980	10,388	10,908	21,639	3,412
1981	10,453	11,030	21,639	3,412
1982	10,454	11,073	21,629	3,412
1983	10,520	10,905	21,290	3,412
1984	10,440	10,843	21,303	3,412
1985	10,447	10,813	21,263	3,412
1986	10,446	10,799	21,263	3,412
1987	10,419	10,776	21,263	3,412
1988	10,324	10,743	21,096	3,412
1989	10,317	10,724	21,096	3,412
1990	10,335	10,680	21,096	3,412
1991	10,352	10,740	20,997	3,412
1992[b]	10,302	10,678	20,955	3,412
1993[b]	10,302	10,678	20,955	3,412
1994[b]	10,302	10,678	20,955	3,412

[a] This thermal conversion factor is used for hydroelectric power generation and for biomass fuels, wind, photovoltaic, and solar thermal energy consumed at electric utilities.
[b] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows this table.

Thermal Conversion Factor Source Documentation

Approximate Heat Content of Petroleum and Natural Gas Plant Liquids

Asphalt. The Energy Information Administration (EIA) adopted the thermal conversion factor of 6.636 million British thermal units (Btu) per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Aviation Gasoline. EIA adopted the Bureau of Mines thermal conversion factor of 5.048 million Btu per barrel for "Gasoline, Aviation" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985,* a 1968 release of historical and projected statistics.

Butane. EIA adopted the Bureau of Mines thermal conversion factor of 4.326 million Btu per barrel in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Butane-Propane Mixture. EIA adopted the Bureau of Mines calculation of 4.130 million Btu per barrel based on an assumed mixture of 60 percent butane and 40 percent propane. See **Butane** and **Propane.**

Crude Oil, Exports. Assumed by EIA to be 5.800 million Btu per barrel or equal to the thermal conversion factor for crude oil produced in the United States. See **Crude Oil and Lease Condensate, Production.**

Crude Oil, Imports. Calculated annually by EIA by weighting the thermal conversion factor of each type of crude oil imported by the quantity imported. Thermal conversion factors for each type were calculated on a foreign country basis, by determining the average American Petroleum Institute (API) gravity of crude imported from each foreign country from Form ERA-60 in 1977 and converting average API gravity to average Btu content by using National Bureau of Standards, Miscellaneous Publication No. 97, *Thermal Properties of Petroleum Products,* 1933.

Crude Oil and Lease Condensate, Production. EIA adopted the thermal conversion factor of 5.800 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

Crude Oil and Petroleum Products, Exports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product

exported and crude oil exported weighted by the quantity of each petroleum product and crude oil exported. See **Crude Oil, Exports** and **Petroleum Products, Exports.**

Crude Oil and Petroleum Products, Imports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product and each type of crude oil imported weighted by the quantity of each petroleum product and each type of crude oil imported. See **Crude Oil, Imports** and **Petroleum Products, Imports.**

Distillate Fuel Oil. EIA adopted the Bureau of Mines thermal conversion factor of 5.825 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Value of Various Fuels, Adopted January 3, 1950."

Ethane. EIA adopted the Bureau of Mines thermal conversion factor of 3.082 million Btu per barrel in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Ethane-Propane Mixture. EIA calculated 3.308 million Btu per barrel based on an assumed mixture of 70 percent ethane and 30 percent propane. See **Ethane** and **Propane.**

Isobutane. EIA adopted the Bureau of Mines thermal conversion factor of 3.974 million Btu per barrel in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Jet Fuel, Kerosene Type. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel for "Jet Fuel, Commercial" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985,* a 1968 release of historical and projected statistics.

Jet Fuel, Naphtha Type. EIA adopted the Bureau of Mines thermal conversion factor of 5.355 million Btu per barrel for "Jet Fuel, Military" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985,* a 1968 release of historical and projected statistics.

Kerosene. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

Liquefied Petroleum Gases (LPG) Consumption. Calculated annually by EIA as the average of the thermal conversion factors of each liquefied petroleum gas consumed, weighted by the quantity of each liquefied petroleum gas consumed.

Lubricants. EIA adopted the thermal conversion factor of 6.065 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Miscellaneous Products. EIA adopted the thermal conversion factor of 5.796 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Motor Gasoline. EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985,* a 1968 release of historical and projected statistics.

Natural Gas Plant Liquids, Production. Calculated annually by EIA as the average of the thermal conversion factors of each natural gas plant liquid produced weighted by the quantity of each natural gas plant liquid produced.

Natural Gasoline. EIA adopted the thermal conversion factor of 4.620 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Pentanes Plus. EIA assumed the thermal conversion factor to be 4.620 million Btu per barrel or equal to that for natural gasoline. See **Natural Gasoline.**

Petrochemical Feedstocks, Naphtha Less Than 401 Degrees Fahrenheit. Assumed by EIA to be 5.248 million Btu per barrel, equal to the thermal conversion factor for special naphthas. See **Special Naphthas.**

Petrochemical Feedstocks, Oils Equal to or Greater Than 401 Degrees Fahrenheit. Assumed by EIA to be 5.825 million Btu per barrel, equal to the thermal conversion factor for distillate fuel oil. See **Distillate Fuel Oil.**

Petrochemical Feedstocks, Still Gas. Assumed by EIA to be 6.000 million Btu per barrel, equal to the thermal conversion factor for still gas. See **Still Gas.**

Petroleum Coke. EIA adopted the thermal conversion factor of 6.024 million Btu per barrel as reported in Btu per short ton in the Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Value of Various Fuels, Adopted January 3, 1950." The Bureau of Mines calculated this factor by dividing 30,120,000 Btu per short ton, as given in the referenced Bureau of Mines internal memorandum, by 5.0 barrels per short ton, as given in the Bureau of Mines Form 6-1300-M and successor EIA forms.

Petroleum Products, Total Consumption. Calculated annually by EIA as the average of the

thermal conversion factors for all petroleum products consumed, weighted by the quantity of each petroleum product consumed.

Petroleum Products, Consumption by Electric Utilities. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed at electric utilities, weighted by the quantity of each petroleum product consumed at electric utilities. The quantity of petroleum consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Industrial Users. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed in the industrial sector, weighted by the estimated quantity of each petroleum product consumed in the industrial sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Residential and Commercial Users. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the residential and commercial sector, weighted by the estimated quantity of each petroleum product consumed in the residential and commercial sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Transportation Users. Calculated annually by EIA as the average of the thermal conversion factor for all petroleum products consumed in the transportation sector, weighted by the estimated quantity of each petroleum product consumed in the transportation sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Exports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product, weighted by the quantity of each petroleum product exported.

Petroleum Products, Imports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product imported, weighted by the quantity of each petroleum product imported.

Plant Condensate. Estimated to be 5.418 million Btu per barrel by EIA from data provided by McClanahan Consultants, Inc., Houston, Texas.

Propane. EIA adopted the Bureau of Mines thermal conversion factor of 3.836 million Btu per barrel in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Residual Fuel Oil. EIA adopted the thermal conversion factor of 6.287 million Btu per barrel as reported in the Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

Road Oil. EIA adopted the Bureau of Mines thermal conversion factor of 6.636 million Btu per barrel, which was assumed to be equal to that of asphalt (see **Asphalt**) and was first published by the Bureau of Mines in the *Petroleum Statement, Annual, 1970.*

Special Naphthas. EIA adopted the Bureau of Mines thermal conversion factor of 5.248 million Btu per barrel, which was assumed to be equal to that of total gasoline (aviation and motor) factor and was first published in the *Petroleum Statement, Annual, 1970.*

Still Gas. EIA adopted the Bureau of Mines estimated thermal conversion factor of 6.000 million Btu per barrel and first published in the *Petroleum Statement, Annual, 1970.*

Unfinished Oil. EIA assumed the thermal conversion factor to be 5.825 million Btu per barrel or equal to that for distillate fuel oil (see **Distillate Fuel Oil**) and first published in the *Annual Report to Congress, Volume 3, 1977.*

Unfractionated Stream. EIA assumed the thermal conversion factor to be 5.418 million Btu per barrel or equal to that for plant condensate (see **Plant Condensate**) and first published in the *Annual Report to Congress, Volume 2, 1981.*

Waxes. EIA adopted the thermal conversion factor of 5.537 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Approximate Heat Content of Natural Gas

Natural Gas, Total Consumption. 1973-1979: EIA adopted the thermal conversion factor calculated annually by the American Gas Association (AGA) and published in *Gas Facts,* an AGA annual publication. 1980 forward: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity of natural gas consumed. The heat content and quantity consumed are from Form EIA-176. Published sources are: 1980-1989: EIA, *Natural Gas Annual 1992, Volume 2,* Table 15. 1990-1992: EIA, *Natural Gas Annual 1992, Volume 2,* Table 16. 1993 forward: 1992 value used as an estimate.

Natural Gas, Consumption by Electric Utilities. Calculated annually by EIA by dividing the total heat content of natural gas received at electric utilities by the total quantity received at electric utilities. The

heat contents and receipts are from Form FERC-423 and predecessor forms.

Natural Gas, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the heat content of all natural gas consumed less the heat content of natural gas consumed at electric utilities by the quantity of all natural gas consumed less the quantity of natural gas consumed at electric utilities. Data are from Forms EIA-176, FERC-423, EIA-759, and predecessor forms.

Natural Gas, Exports. Calculated annually by EIA by dividing the heat content of exported natural gas by the quantity of natural gas exported, both reported on Form FPC-14.

Natural Gas, Imports. Calculated annually by EIA by dividing the heat content of imported natural gas by the quantity of natural gas imported, both reported on Form FPC-14.

Natural Gas Production, Dry. Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See **Natural Gas Total Consumption.**

Natural Gas Production, Marketed (Wet). Calculated annually by EIA by adding the heat content of dry natural gas production and the total heat content of natural gas plant liquids production and dividing this sum by the total quantity of marketed (wet) natural gas production.

Approximate Heat Content of Coal and Coal Coke

Anthracite, Total Consumption. Calculated annually by EIA by dividing the sum of the heat content of anthracite consumed by electric utilities and all other sectors combined by the total quantity of anthracite consumed.

Anthracite, Consumption by Electric Utilities. Calculated annually by EIA by dividing the heat content of anthracite receipts at electric utilities by the quantity of anthracite received at electric utilities. Heat contents and receipts are from Form FERC-423 and predecessor forms.

Anthracite, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the heat content of anthracite production less the heat content of the anthracite consumed at electric utilities, net exports, and shipments to U.S. Armed Forces overseas by the quantity of anthracite consumed by sectors other than electric utilities less the quantity of anthracite stock changes, losses, and "unaccounted for."

Anthracite, Imports and Exports. EIA assumed the anthracite imports and exports to be freshly mined anthracite having an estimated heat content of 25.40 million Btu per short ton.

Anthracite, Production. Calculated annually by EIA by dividing the sum of the heat content of freshly mined anthracite (estimated to have an average heat content of 25.400 million Btu per short ton) and the heat content of anthracite recovered from culm banks and river dredging (estimated to have a heat content of 17.500 million Btu per short ton) by the total quantity of anthracite production.

Bituminous Coal and Lignite, Total Consumption. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite consumed by electric utilities, coal coke plants, other industrial plants, the residential and commercial sector, and the transportation sector by the sum of their respective tonnages.

Bituminous Coal and Lignite, Consumption by Coke Plants. Estimated by EIA to be 26.800 million Btu per short ton on the basis of an input/output analysis of coal carbonization.

Bituminous Coal and Lignite, Consumption by Electric Utilities. Calculated annually by EIA by dividing the total heat content of bituminous coal and lignite received at electric utilities by the total quantity received at electric utilities. Heat contents and receipts are from Form FERC-423 and predecessor forms.

Bituminous Coal and Lignite, Consumption by Other Industrial and Transportation Users. 1973: Calculated by EIA through regression analysis measuring the difference between the average Btu value of coal consumed by other industrial users and that of coal consumed at electric utilities in the 1974-1982 period. 1974 forward: Calculated annually by EIA by assuming that the bituminous coal and lignite delivered to other industrial users from each coal-producing area (reported on Form EIA-6 and predecessor Bureau of Mines Form 6-1419-Q) contained a heat value equal to that of bituminous coal and lignite received at electric utilities from each of the same coal-producing areas (reported on Form FERC-423). The average Btu value of coal by coal-producing area was applied to the volume of deliveries to other industrial users from each coal-producing area, and the sum total of the heat content was divided by the total volume of deliveries. Coal-producing areas are the Bureau of Mines coal-producing districts for 1974 through 1989 and coal-producing States for 1990 forward.

Bituminous Coal and Lignite, Consumption by Residential and Commercial Users. 1973: Calculated by EIA through regression analysis measuring the difference between the average Btu value of coal consumed by residential and commercial users and that of coal consumed by electric utilities

in the 1974-1982 period. 1974 forward: Calculated annually by EIA by assuming that the bituminous coal and lignite delivered to residential and commercial users from each coal-producing area (reported on Form EIA-6 and predecessor Bureau of Mines Form 6-1419-Q) contained a heat value equal to that of bituminous coal and lignite received at electric utilities from each of the same coal-producing areas (reported on Form FERC-423). The average Btu value of coal by coal-producing area was applied to the volume of deliveries to residential and commercial users from each coal-producing area, and the total of the heat value was divided by the total volume of deliveries. Coal-producing areas are the Bureau of Mines coal-producing districts for 1974 through 1989 and coal-producing States for 1990 forward.

Bituminous Coal and Lignite, Exports. Calculated annually by EIA by dividing the sum of the heat content of exported metallurgical coal (estimated to average 27.000 million Btu per short ton) and the heat content of exported steam coal (estimated to have an average thermal content of 25.000 million Btu per short ton) by the total quantity of bituminous coal and lignite exported.

Bituminous Coal and Lignite, Imports. EIA estimated the average thermal conversion factor to be 25.000 million Btu per short ton.

Bituminous Coal and Lignite, Production. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite consumption, net exports, stock changes, and unaccounted for by the sum of their respective tonnages. Consumers' stock changes by sectors were assumed to have the same conversion factor as that of the consumption sector. Producers' stock changes and unaccounted for were assumed to have the same conversion factor as that for consumption by all users.

Coal, Consumption. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite consumption by the sum of their respective tonnages.

Coal, Consumption by Electric Utilities. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite received at electric utilities by the sum of their respective tonnages received.

Coal, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite consumed by sectors other than electric utilities by the sum of their respective tonnages.

Coal, Exports. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite exported by the sum of their respective tonnages.

Coal, Imports. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite imported by the sum of their respective tonnages.

Coal, Production. Calculated annually by EIA by dividing the sum of the total heat content of bituminous coal and lignite and anthracite production by the sum of their respective tonnages.

Coal Coke, Imports and Exports. EIA adopted the Bureau of Mines estimate of 24.800 million Btu per short ton.

Approximate Heat Rates for Electricity

Fossil-Fueled Steam-Electric Plant Generation. There is no generally accepted practice for measuring the thermal conversion rates for power plants that generate electricity from hydroelectric, wood and waste, wind, photovoltaic, or solar thermal energy sources. Therefore, EIA uses data from Form EIA-767 to calculate a rate factor that is equal to the prevailing annual average heat rate factor for fossil-fueled steam-electric power plants in the United States. By using that factor, it is possible to evaluate fossil fuel requirements for replacing those sources during periods of interruption such as droughts. The heat content of a kilowatthour of electricity produced, regardless of the generation process, is 3,412 Btu per kilowatthour. 1973-1991: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published by EIA in *Electric Plant Cost and Power Production Expenses 1991*, Table 9. 1992 forward: Unpublished factors calculated on the basis of data from Form EIA-767.

Geothermal Energy Plant Generation. 1973-1981: Calculated annually by EIA by weighting the annual average heat rates of operating geothermal units by the installed nameplate capacities as reported on Form FPC-12. 1982 forward: Estimated annually by EIA on the basis of an informal survey of relevant plants.

Nuclear Steam-Electric Plant Generation. 1973-1991: Calculated annually by EIA by dividing the total heat content consumed in nuclear generating units by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation are reported on Form FERC-1, Form EIA-412, and predecessor forms. The factors, beginning with 1982 data, are published in the following EIA reports—1982: *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1982*, page 215. 1983-1991: *Electric Plant Cost and Power Production Expenses 1991*, Table 13. 1992 forward: Calculated annually by EIA by dividing the total heat content of the steam leaving the nuclear generating units to generate electricity by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation data are reported in Nuclear Regulatory Commission, *Licensed Operating Reactors—Status Summary Report.*

Appendix B. Metric and Other Physical Conversion Factors

Data presented in the *Monthly Energy Review* and in other Energy Information Administration publications are expressed predominately in units that historically have been used in the United States, such as British thermal units, barrels, cubic feet, and short tons. However, because U.S. commerce involves other nations, most of which use metric units of measure, the U.S. Government is committed to the transition to the metric system, as stated in the Metric Conversion Act of 1975 (Public Law 94–168), amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100–418), and Executive Order 12770 of July 25, 1991.

The metric conversion factors presented in Table B1 can be used to calculate the metric-unit equivalents of values expressed in U.S. customary units. For example, 500 short tons are the equivalent of 453.6 metric tons (500 short tons x 0.9071847 metric tons/short ton = 453.6 metric tons).

In the metric system of weights and measures, the names of multiples and subdivisions of any unit may be derived by combining the name of the unit with prefixes, such as deka, hecto, and kilo, meaning, respectively, 10, 100, 1,000, and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth. Common metric prefixes can be found in Table B2.

The conversion factors presented in Table B3 can be used to calculate equivalents in various physical units commonly used in energy analyses. For example, 10 barrels are the equivalent of 420 U.S. gallons (10 barrels x 42 gallons/barrel = 420 gallons).

Table B1. Metric Conversion Factors

Type of Unit	U.S. Unit	*multiplied by*	Conversion Factor	*equals*	Metric Unit
Mass	short tons (2,000 lb)	x	0.907 184 7	=	metric tons (t)
	long tons	x	1.016 047	=	metric tons (t)
	pounds (lb)	x	0.453 592 37[a]	=	kilograms (kg)
	pounds uranium oxide (lb U_3O_8)	x	0.384 647[b]	=	kilograms uranium (kgU)
	ounces, avoirdupois (avdp oz)	x	28.349 52	=	grams (g)
Volume	barrels of oil (bbl)	x	0.158 987 3	=	cubic meters (m^3)
	cubic yards (yd^3)	x	0.764 555	=	cubic meters (m^3)
	cubic feet (ft^3)	x	0.028 316 85	=	cubic meters (m^3)
	U.S. gallons (gal)	x	3.785 412	=	liters (L)
	ounces, fluid (fl oz)	x	29.573 53	=	milliliters (mL)
	cubic inches (in^3)	x	16.387 06	=	milliliters (mL)
Length	miles (mi)	x	1.609 344[a]	=	kilometers (km)
	yards (yd)	x	0.914 4[a]	=	meters (m)
	feet (ft)	x	0.304 8[a]	=	meters (m)
	inches (in)	x	2.54[b]	=	centimeters (cm)
Area	acres	x	0.404 69	=	hectares (ha)
	square miles (mi^2)	x	2.589 988	=	square kilometers (km^2)
	square yards (yd^2)	x	0.836 127 4	=	square meters (m^2)
	square feet (ft^2)	x	0.092 903 04[a]	=	square meters (m^2)
	square inches (in^2)	x	6.451 6[b]	=	square centimeters (cm^2)
Temperature	degrees Fahrenheit (°F)	x	5/9 (after subtracting 32)[a,c]	=	degrees Celsius (°C)
Energy	British thermal units (Btu)	x	1, 055.055 852 62 [a,d]	=	joules (J)
	calories (cal)	x	4.186 8[a]	=	joules (J)
	kilowatthours (kWh)	x	3.6[a]	=	megajoules (MJ)

[a]Exact conversion.
[b]Calculated by the Energy Information Administration.
[c]To convert degrees Celsius (°C) to degrees Fahrenheit (°F) exactly, multiply by 9/5, then add 32.
[d]The Btu used in this table is the International Table Btu adopted by the Fifth International Conference on Properties of Steam, London, 1956.

Notes: • Spaces have been inserted after every third digit to the right of the decimal for ease of reading. • Most metric units belong to the International System of Units (SI), and the liter, hectare, and metric ton are accepted for use with the SI units. For more information about the SI units, contact Dr. Barry Taylor at Building 221, Room B610, National Institute of Standards and Technology, Gaithersburg, MD 20899, or on telephone number 301–975–4220.

Sources: • General Services Administration, Federal Standard 376B, *Preferred Metric Units for General Use by the Federal Government* (Washington, DC, January 27, 1993), pp. 9–11, 13, and 16. • National Institute of Standards and Technology, Special Publications 330, 811, and 814. • American National Standards Institute/Institute of Electrical and Electronic Engineers, ANSI/IEEE Std 268–1992, pp. 28 and 29.

Table B2. Metric Prefixes

Unit Multiple	Prefix	Symbol	Unit Subdivision	Prefix	Symbol
10^{1}	deka	da	10^{-1}	deci	d
10^{2}	hecto	h	10^{-2}	centi	c
10^{3}	kilo	k	10^{-3}	milli	m
10^{6}	mega	M	10^{-6}	micro	μ
10^{9}	giga	G	10^{-9}	nano	n
10^{12}	tera	T	10^{-12}	pico	p
10^{15}	peta	P	10^{-15}	femto	f
10^{18}	exa	E	10^{-18}	atto	a
10^{21}	zetta	Z	10^{-21}	zepto	z
10^{24}	yotta	Y	10^{-24}	yocto	y

Source: U.S. Department of Commerce, National Institute of Standards and Technology, *The International System of Units (SI)*, NIST Special Publication 330, 1991 Edition (Washington, DC, August 1991), p. 10.

Table B3. Other Physical Conversion Factors

Energy Source	Original Unit	*multiplied by*	Conversion Factor	*equals*	Final Unit
Petroleum	barrels (bbl)	x	42[a]	=	U.S. gallons (gal)
Coal	short tons	x	2,000[a]	=	pounds (lb)
	long tons	x	2,240[a]	=	pounds (lb)
	metric tons (t)	x	1,000[a]	=	kilograms (kg)
Wood	cords (cd)	x	1.25[b]	=	short tons
	cords (cd)	x	128[a]	=	cubic feet (ft^3)

[a]Exact conversion.
[b]Calculated by the Energy Information Administration.
Source: U.S. Department of Commerce, National Institute of Standards and Technology, *Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, NIST Handbook 44, 1994 Edition (Washington, DC, October 1993), pp. B–10, C–17 and C–21.

Appendix C. List of Features

The following is a complete list of features that have appeared in the *Monthly Energy Review* since the first issue was published in October 1974. There are four categories of features on the list. "Articles" cover a wide range of energy-related subjects in depth. "Highlights" summarize the most important information presented in the subject Energy Information Administration (EIA) report. "Energy Previews" provide brief overviews of EIA preliminary energy data on a given topic. "EIA Data News" items present information on recent changes in the scope, design, methodology, and findings of EIA's energy surveys and databases. Questions and comments about features may be directed to Barbara T. Fichman by telephone at 202-586-5737, by fax at 202-586-0018, or by Internet E-Mail at bfichman@eia.doe.gov.

Feature	Cover Date
1994	
Energy Preview: Commercial Buildings Energy Consumption Survey, Preliminary Estimates, 1992	January 1994
Highlights: *Household Vehicles Energy Consumption 1991*	February 1994
Highlights: *Energy Use and Carbon Emissions: Some International Comparisons*	April 1994
Highlights: *Commercial Buildings Characteristics 1992*	June 1994
Article: Demand, Supply, and Price Outlook for Reformulated Motor Gasoline 1995	July 1994
Article: Commercial Nuclear Electric Power in the United States: Problems and Prospects	August 1994
Highlights: *Reducing Home Heating and Cooling Costs*	August 1994
1993	
Energy Preview: Residential Transportation Energy Consumption Survey, Preliminary Estimates, 1991	January 1993
EIA Data News: Natural Gas Transported for the Account of Others	February 1993
Highlights: *Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets*	July 1993
Highlights: *Household Energy Consumption and Expenditures 1990*	August 1993
Article: Demand, Supply, and Price Outlook for Low-Sulfur Diesel Fuel	August 1993
Energy Preview: Manufacturing Energy Consumption Survey, Preliminary Estimates, 1991	September 1993
Highlights: *Natural Gas 1992: Issues and Trends*	September 1993
Highlights: *International Energy Outlook 1993*	October 1993
Highlights: *The Changing Structure of the U.S. Coal Industry: An Update*	November 1993
Highlights: *Emissions of Greenhouse Gases in the United States 1985-1990*	December 1993
Highlights: *Assessment of Energy Use in Multibuilding Facilities*	December 1993
1992	
Energy Preview: Residential Energy Consumption and Expenditures Preliminary Estimates, 1990	April 1992
EIA Data News: Oxygenate Data Collection Begins	May 1992
Highlights: *Lighting in Commercial Buildings*	June 1992
Article: Demand, Supply, and Price Outlook for Oxgenated Gasoline, Winter 1992-1993	August 1992
EIA Data News: EIA Statistics on Electric Utility Demand-Side Management	September 1992
EIA Data News: EIA Statistics on Nonutility Power Producers	October 1992
Highlights: *Derived Annual Estimates of Manufacturing Energy Consumption, 1974-1988*	November 1992
Article: Energy Efficiency in the Manufacturing Sector	December 1992
1991	
Highlights: *U.S. Energy Industry Financial Developments, 1990 Fourth Quarter*	March 1991
Article: U.S. Wholesale Electricity Transactions	April 1991

Feature	Cover Date
1990	
Article: Refining Results Highlight Energy Companies' First-Half Profit Performance	June 1990
Highlights: *U.S. Oil and Gas Reserves by Year of Field Discovery*	August 1990
1989	
Article: A Review of Valdez Oil Spill Market Impacts	March 1989
Article: Monthly U.S. Crude Oil Production Estimates	March 1989
Article: Superconductivity and Energy Production and Consumption	May 1989
Highlights: *Commercial Buildings Consumption and Expenditures 1986*	May 1989
Article: Higher Prices Yield Improved Energy Industry Financial Results in the First Half of 1989	June 1989
Article: The Future Structure of the U.S. Commercial Nuclear Power Equipment Manufacturing Industry	July 1989
Highlights: *Potential Costs of Restricting Chlorofluorocarbon Use*	September 1989
Highlights: *Manufacturing Energy Consumption Survey: Changes in Energy Efficiency, 1980-1985*	October 1989
Highlights: *Household Energy Consumption and Expenditures 1987, Part 1: National Data*	November 1989
Article: Improved Energy Profits Offset by Refining Results in 1989	December 1989
1988	
Article: Measures of Energy Consumption, Expenditures, and Prices	May 1988
Highlights: *Characteristics of Commercial Buildings 1986*	June 1988
Article: The U.S. Energy Industry's Financial Recovery Continued in the First Half of 1988	June 1988
Article: A U.S. Perspective on Condensate	June 1988
Article: State Energy Severance Taxes, 1972-1987	July 1988
Highlights: *Manufacturing Energy Consumption Survey: Consumption of Energy, 1985*	September 1988
Highlights: *Profiles of Foreign Direct Investment in U.S. Energy 1987*	October 1988
Highlights: *Manufacturing Energy Consumption Survey: Fuel Switching, 1985*	November 1988
Article: Increased Refining Income Led U.S. Energy Industry Financial Recovery in 1988	December 1988
1987	
Article: Manufacturing Sector Energy Consumption, 1985 Provisional Estimates	January 1987
Highlights: *Consumption and Expenditures, April 1984 Through March 1985, Part 1: National Data*	April 1987
Highlights: *Consumption and Expenditures, April 1984 Through March 1985, Part 2: Regional Data*	May 1987
Article: U.S. Energy Industry Financial Developments, 1987 Second Quarter	June 1987
Article: End-Use Consumption of Residential Energy	July 1987
Highlights: *Uranium Industry Annual 1986*	September 1987
Highlights: *Potential Oil Production from ANWR*	October 1987
Highlights: *Profiles of Foreign Direct Investment in U.S. Energy 1986*	November 1987
Article: The U.S. Energy Industry in 1987: A Slow Recovery	December 1987
1986	
Article: State Motor Gasoline Taxes, 1960-1985	March 1986
Article: The Impact of Low Oil Prices on Electric Utility Fuel Choice	June 1986
Article: U.S. Energy Industry Financial Developments, 1986 Second Quarter	June 1986
Highlights: *International Energy Annual 1985*	September 1986
Article: U.S. Energy Industry Financial Developments, 1986	December 1986

Feature	Cover Date
1985	
Highlights: *Annual Energy Review 1984*	January 1985
Highlights: *Performance Profiles of Major Energy Producers 1983*	February 1985
Article: Estimating Well Completions	March 1985
Highlights: *State Energy Price and Expenditure Report 1970-1982*	March 1985
Highlights: *State Energy Data Report, Consumption Estimates, 1960-1983*	April 1985
Highlights: *Annual Outlook for U.S. Electric Power 1985*	June 1985
Highlights: *Short-Term Energy Outlook, Volume 1, October 1985*	August 1985
Highlights: *Analysis of Growth in Electricity Demand, 1980-1984*	August 1985
Highlights: *Profiles of Foreign Direct Investment in U.S. Energy 1984*	November 1985
Highlights: *Performance Profiles of Major Energy Producers 1984*	December 1985
1984	
Highlights: *Annual Energy Review 1983*	February 1984
Highlights: *Annual Energy Outlook 1983*	March 1984
Highlights: *State Energy Data Report, Consumption Estimates, 1960-1982*	March 1984
Highlights: *State Energy Price and Expenditure Report, 1970-1981*	May 1984
Highlights: Solar Collector Manufacturing Activity 1983	June 1984
Highlights: *International Energy Annual 1983*	September 1984
Highlights: Estimates of U.S. Wood Energy Consumption, 1980-1983	September 1984
Highlights: *Energy Conservation Indicators 1983 Annual Report*	November 1984
Highlights: *Annual Energy Outlook 1984*	December 1984
1983	
Highlights: *Residential Energy Consumption Survey: Consumption and Expenditures*	January 1983
Highlights: *Residential Energy Consumption Survey: Housing Characteristics*	February 1983
Article: The Effect of Weather on Energy Use	April 1983
Article: Trends in U.S. Energy Since 1973	May 1983
Article: Data Series on Petroleum Use at Electric Utilities	July 1983
Highlights: *Energy Price and Expenditure Data Report, 1970-1980*	July 1983
Highlights: *Railroad Deregulation: Impact on Coal*	August 1983
Highlights: *Port Deepening and User Fees: Impact on U.S. Coal Exports*	August 1983
Highlights: *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1982 Annual Report*	September 1983
Article: Residential Energy Consumption, 1978 Through 1981	September 1983
Article: Exploring for Oil and Gas	November 1983
Article: The Influence of Federal Actions on Petroleum Exploration	December 1983[2]
Article: Aggregate Statistics: Accurate or Misleading?	December 1983[3]
1982	
Article: The Interstate and Intrastate Natural Gas Markets	January 1982
Article: Natural Gas Drilling and Production Under the Natural Gas Policy Act	February 1982
Highlights: *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1981 Annual Report*	September 1982
Article: Impacts of Financial Constraints on the Electric Utility Industry	October 1982
Highlights: *Energy Company Development Patterns in the Postembargo Era*	November 1982
1981	
Article: Changes in 1981 Petroleum Data Series	May 1981
Article: Information Services of the Energy Information Administration	September 1981
Article: An Overview of Natural Gas Markets	December 1981
1980	
Article: The Solar Collector Industry and Solar Energy	February 1980
Article: Trends in the Installation of Energy Using Equipment in New Residential Buildings	March 1980
Article: The Energy Information Administration's Oil and Gas Reserves Program—The First Year's Report	June 1980
Article: Energy From Urban Waste	August 1980
Article: Natural Gas Liquids: Revisions to 1979 Data	October 1980
Article: EIA Weekly Petroleum Data: Data Collection and Methods of Estimation	November 1980
Article: The Department of Energy Disclosure Policy for Individually Identifiable Information Maintained by the Energy Information Administration	December 1980

Feature	Cover Date
1979	
Article: The Energy Requirements of U.S. Agriculture	July 1979
Article: Three Mile Island—Possible Regulatory Responses and Their Impacts on the Nation's Short-Term Electric Utility Fuel Outlook	October 1979
Article: Reduction in Natural Gas Requirements Due to Fuel Switching	December 1979
1978	
Article: Short-Term Petroleum Supply and Demand	May 1978
1977	
Article: Crude Oil Entitlements Program	January 1977
Article: Motor Gasoline Supply and Demand	July 1977
1976	
Article: Curtailments of Natural Gas Service	January 1976
Article: Home Heating Conservation Alternatives and the Solar Collector Industry	March 1976
Article: Trends in United States Petroleum Imports	September 1976
1975	
Article: Energy Consumption	March 1975
Article: Nuclear Power	April 1975
Article: The Price of Crude Oil	June 1975
Article: U.S. Coal Resources and Reserves	July 1975
Article: Propane—A National Energy Resource	September 1975
Article: Short-Term Energy Supply and Demand Forecasting at FEA	October 1975

Glossary

Anthracite: A hard, black, lustrous coal containing a high percentage of fixed carbon and a low percentage of volatile matter. Often referred to as hard coal. It conforms to ASTM Specification D388-84 for anthracite, meta-anthracite, and semianthracite.

Asphalt: A dark-brown-to-black cement-like material containing bitumens as the predominant constituents obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts.

ASTM: The American Society for Testing and Materials.

Aviation Gasoline Blending Components: Naphthas that are used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, and reformate). Excludes oxygenates (alcohols and ethers), butane, and pentanes plus.

Aviation Gasoline, Finished: All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910 and Military Specification MIL-G-5572. Excludes blending components that will be used in blending or compounding into finished aviation gasoline.

Barrel (petroleum): A unit of volume equal to 42 U.S. gallons.

Base (Cushion) Gas: The volume of gas needed as a permanent inventory to maintain adequate underground storage reservoir pressures and deliverability rates throughout the withdrawal season. All native gas is included in the base gas volume.

Bituminous Coal: A dense black coal, often with well-defined bands of bright and dull material, with a moisture content usually less than 20 percent. Often referred to as soft coal. It is the most common coal and is used primarily for generating electricity, making coke, and space heating. It conforms to ASTM Specification D388-84 for bituminous coal. In this report, bituminous coal includes subbituminous coal.

British Thermal Unit (Btu): The quantity of heat needed to raise the temperature of 1 pound of water by 1° F at or near 39.2° F. See **Heat Content of a Quantity of Fuel, Gross** and **Heat Content of a Quantity of Fuel, Net.**

Butane: A normally gaseous straight-chain or branched-chain hydrocarbon (C_4H_{10}). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

- *Isobutane:* A normally gaseous branched-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 10.9° F. It is extracted from natural gas or refinery gas streams.
- *Normal Butane*: A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 31.1° F. It is extracted from natural gas or refinery gas streams.

Butylene: An olefinic hydrocarbon (C_4H_8) recovered from refinery processes.

Capacity Factor: The ratio of the electrical energy produced by a generating unit for a given period of time to the electrical energy that could have been produced at continuous full-power operation during the same period.

CIF: See **Cost, Insurance, Freight.**

City Gate: A point or measuring station at which a distribution gas utility receives gas from a natural gas pipeline company or transmission system.

Coal: A black or brownish-black solid, combustible substance formed by the partial decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal, subbituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value. Coal rank indicates the progressive alteration, or coalification, from lignite to anthracite. Lignite contains approximately 9 to 17 million Btu per ton. The heat contents of subbituminous and bituminous coal range from 16 to 24 million Btu per ton, and from 19 to 30 million Btu per ton, respectively. Anthracite contains approximately 22 to 28 million Btu per ton.

Coal Coke: A hard, porous product made from baking bituminous coal in ovens at temperatures as high as 2,000° F. It is used both as a fuel and as a reducing agent in smelting iron ore in a blast furnace.

Commercial Sector: The commercial sector, as defined economically, consists of business establishments that are not engaged in transportation or in manufacturing or other types of industrial activity (agriculture, mining, or construction). Commercial establishments include hotels, motels,

restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; religious and nonprofit organizations; health, social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included if the establishment operating them is considered commercial.

Completion: The installation of permanent equipment for the production of oil or gas. If a well is equipped to produce only oil or gas from one zone or reservoir, the definition of a well (classified as an oil well or gas well) and the definition of a completion are identical. However, if a well is equipped to produce oil and/or gas separately from more than one reservoir, a well is not synonymous with a completion.

Conversion Factor: A number that translates units of one system into corresponding values of another system. Conversion factors can be used to translate physical units of measure for various fuels into Btu equivalents.

Cost, Insurance, Freight (CIF): A type of sale in which the buyer of the product agrees to pay a unit price that includes the f.o.b. value of the product at the point of origin plus all costs of insurance and transportation. This type of transaction differs from a "delivered" purchase in that the buyer accepts the quantity as determined at the loading port (as certified by the Bill of Loading and Quality Report) rather than pay on the basis of the quantity and quality ascertained at the unloading port. It is similar to the terms of an f.o.b. sale, except that the seller, as a service for which he is compensated, arranges for transportation and insurance.

Crude Oil f.o.b. Price: The crude oil price actually charged at the oil-producing country's port of loading. Includes deductions for any rebates and discounts or additions of premiums, where applicable. It is the actual price paid with no adjustment for credit terms.

Crude Oil (Including Lease Condensate): A mixture of hydrocarbons that exists in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Where identifiable, liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded.

Crude Oil Landed Cost: The price of crude oil at the port of discharge, including charges associated with the purchase, transporting, and insuring of a cargo from the purchase point to the port of discharge. The cost does not include charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage).

Crude Oil Refinery Input: The total crude oil put into processing units at refineries.

Crude Oil Stocks: Stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

Crude Oil Used Directly: Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

Cubic Foot (natural gas): A unit of volume equal to 1 cubic foot at a pressure base of 14.73 pounds standard per square inch absolute and a temperature base of 60° F.

Degree-Day Normals: Simple arithmetic averages of monthly or annual degree-days over a long period of time (usually the 30-year period 1961-1990). The averages may be simple degree-day normals or population-weighted degree-day normals.

Degree-Days, Cooling (CDD): The number of degrees per day that the daily average temperature is above 65° F. The daily average temperature is the mean of the maximum and minimum temperatures for a 24-hour period.

Degree-Days, Heating (HDD): The number of degrees per day that the daily average temperature is below 65° F. The daily average temperature is the mean of the maximum and minimum temperatures for a 24-hour period.

Degree-Days, Population-Weighted: Heating or cooling degree-days weighted by the population of the area in which the degree-days are recorded. To compute State population-weighted degree-days, each State is divided into from one to nine climatically homogeneous divisions, which are assigned weights based on the ratio of the population of the division to the total population of the State. Degree-day readings for each division are multiplied by the corresponding population weight for each division and those products are then summed to arrive at the State population-weighted degree-day figure. To compute national population-weighted degree-days, the Nation is divided into nine Census regions comprised of from three to eight States, which are assigned weights based on the ratio of the population of the region to the total population of the Nation. Degree-day readings for each region are multiplied by the corresponding population weight for each region and those products are then summed to arrive at the national population-weighted degree-day figure.

Design Electrical Rating, Net: The nominal net electrical output of a nuclear unit as specified by the electric utility for the purpose of plant design.

Development Well: A well drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

Distillate Fuel Oil: A general classification for one of the petroleum fractions produced in conventional distillation operations. Included are products known as No. 1, No. 2, and No. 4 fuel oils and No. 1, No. 2, and No. 4 diesel fuels. It is used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.

Dry Hole: An exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

Dry Natural Gas Production (as a decrement from gas reserves): The volume of natural gas withdrawn from reservoirs during the report year less (1) the volume returned to such reservoirs in cycling, repressuring of oil reservoirs, and conservation operations; (2) shrinkage resulting from the removal of lease condensate and plant liquids; and (3) nonhydrocarbon gases, where they occur in sufficient quantity to render the gas unmarketable. Volumes of gas withdrawn from gas storage reservoirs and native gas that has been transferred to the storage category are not considered production. This is not the same as marketed production, since the latter also excludes vented and flared gas but contains liquids.

Dry Natural Gas Production (as an increment to gas supply): Gross withdrawals from production reservoirs less gas used in reservoir repressuring, amounts vented and flared, nonhydrocarbons removed, and various natural gas constituents, such as ethane, propane, and butane, removed at natural gas processing plants. The parameters for measurement are 60° F and 14.73 pounds standard per square inch absolute.

Electrical System Energy Losses: The amount of energy lost during generation, transmission, and distribution of electricity, including plant and unaccounted-for uses.

Electricity Generation: The process of producing electric energy or transforming other forms of energy into electric energy. Also the amount of electric energy produced or expressed in watthours (Wh).

Electricity Generation, Gross: The total amount of electric energy produced by the generating station or stations, measured at the generator terminals.

Electricity Generation, Net: Gross generation less electricity consumed at the generating plant for station use. Electricity required for pumping at pumped-storage plants is regarded as plant use and is deducted from gross generation.

Electricity Production: Net electricity (gross electricity output measured at generator terminals minus power plant use) generated by publicly and privately owned electric utilities. Excludes industrial electricity generation (except autogeneration of hydroelectric power).

Electricity Sales: The amount of kilowatthours sold in a given period of time; usually grouped by classes of service, such as residential, commercial, industrial, and other. "Other" sales include sales for public street and highway lighting and other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Electric Power Plant: A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

Electric Utility: A corporation, person, agency, authority, or other legal entity or instrumentality that owns and/or operates facilities for the generation, transmission, distribution, or sale of electric energy, primarily for use by the public, and that files forms listed in the *Code of Federal Regulations*, Title 18, Part 141. Facilities that qualify as cogenerators or small power producers under the Public Utility Regulatory Policies Act are not considered electric utilities.

Electric Utility Sector: The electric utility sector consists of privately and publicly owned establishments that generate, transmit, distribute, or sell electricity primarily for use by the public and that meet the definition of an electric utility. Nonutility power producers are not included in the electric utility sector.

End-Use Sectors: The residential, commercial, industrial, and transportation sectors of the economy.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units.

Energy Consumption: The use of energy as a source of heat or power or as an input in the manufacturing process.

Energy Consumption, End-Use: *Primary end-use energy consumption* is the sum of fossil fuel consumption by the four end-use sectors (residential, commercial, industrial, and transportation) and generation of hydroelectric power by nonelectric utilities. *Net end-use energy consumption* includes

electric utility sales to those sectors but excludes electrical system energy losses. *Total end-use energy consumption* includes both electric utility sales to the four end-use sectors *and* electrical system energy losses.

Energy Consumption, Total: The sum of fossil fuel consumption by the five sectors (residential, commercial, industrial, transportation, and electric utility) plus hydroelectric power, nuclear electric power, net imports of coal coke, and electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

Energy Source: A substance, such as petroleum, natural gas, or coal, that supplies heat or power. In Energy Information Administration reports, electricity and renewable forms of energy, such as biomass, geothermal, wind, and solar, are considered to be energy sources.

Ethane: A normally gaseous straight-chain hydrocarbon (C_2H_6). It is a colorless, paraffinic gas that boils at a temperature of -127.48° F. It is extracted from natural gas and refinery gas streams.

Ethylene: An olefinic hydrocarbon (C_2H_4) recovered from refinery processes or petrochemical processes.

Exploratory Well: A well drilled to find and produce oil or gas in an unproved area, to find a new reservoir in a field previously found to be productive of oil or gas in another reservoir, or to extend the limit of a known oil or gas reservoir.

Exports: Shipments of goods from the 50 States and the District of Columbia to foreign countries and to Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

f.a.s.: See **Free Alongside Ship.**

Federal Energy Regulatory Commission (FERC): The Federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy and is the successor to the Federal Power Commission.

Federal Power Commission (FPC): The predecessor agency of the Federal Energy Regulatory Commission. The Federal Power Commission was created by an Act of Congress under the Federal Water Power Act on June 10, 1920. It was charged originally with regulating the electric power and natural gas industries. It was abolished on September 30, 1977, when the Department of Energy was created. Its functions were divided between the Department of Energy and the Federal Energy Regulatory Commission, an independent regulatory agency.

First Purchase Price: The marketed first sales price of domestic crude oil, consistent with the removal price defined by the provisions of the Windfall Profits Tax on Domestic Crude Oil (Public Law 96-223, Sec. 4998 (c)).

Flared Natural Gas: Natural gas burned in flares on the base site or at gas processing plants.

f.o.b.: See **Free on Board.**

Footage Drilled: Total footage for wells in various categories, as reported for any specified period, includes (1) the deepest total depth (length of well bores) of all wells drilled from the surface, (2) the total of all bypassed footage drilled in connection with reported wells, and (3) all new footage drilled for directional sidetrack wells. Footage reported for directional sidetrack wells does not include footage in the common bore, which is reported as footage for the original well. In the case of old wells drilled deeper, the reported footage is that which was drilled below the total depth of the old well.

Former U.S.S.R.: See **U.S.S.R.**

Fossil Fuel: Any naturally occurring organic fuel, such as petroleum, coal, and natural gas.

Fossil Fuel Steam-Electric Power Plant: An electricity generation plant in which the prime mover is a turbine rotated by high-pressure steam produced in a boiler by heat from burning fossil fuels.

Free Alongside Ship (f.a.s.): The value of a commodity at the port of exportation, generally including the purchase price, plus all charges incurred in placing the commodity alongside the carrier at the port of exportation.

Free on Board (f.o.b.): A transaction whereby the seller makes the product available within an agreed-on period at a given port at a given price. It is the responsibility of the buyer to arrange for the transportation and insurance.

Fuel Ethanol: An anhydrous, denatured aliphatic alcohol (C_2H_5OH) intended for motor gasoline blending. See **Oxygenates.**

Full-Power Operation: Operation of a nuclear generating unit at 100 percent of its design capacity. Full-power operation precedes commercial operation.

Gasohol: A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) limited to 10 percent by volume

of alcohol. Gasohol is included in finished leaded and unleaded motor gasoline.

Gas-Turbine Electric Power Plant: A plant in which the prime mover is a gas turbine. A gas turbine typically consists of an axial-flow air compressor, one or more combustion chambers where liquid or gaseous fuel is burned and the hot gases expand to drive the generator and then are used to run the compressor.

Gas Well: A well completed for the production of natural gas from one or more gas zones or reservoirs. (Wells producing both crude oil and natural gas are classified as oil wells.)

Geothermal Energy: Energy from the internal heat of the Earth, which may be residual heat, friction heat, or a result of radioactive decay. The heat is found in rocks and fluids at various depths and can be extracted by drilling and/or pumping.

Geothermal Energy (as used at electric utilities): Hot water or steam extracted from geothermal reservoirs in the Earth's crust and supplied to steam turbines at electric utilities that drive generators to produce electricity.

Gross Domestic Product (GDP): The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (that is, the workers and, for property, the owners) may be either U.S. residents or residents of foreign countries.

Heat Content of a Quantity of Fuel, Gross: The total amount of heat released when a fuel is burned. Coal, crude oil, and natural gas all include chemical compounds of carbon and hydrogen. When those fuels are burned, the carbon and hydrogen combine with oxygen in the air to produce carbon dioxide and water. Some of the energy released in burning goes into transforming the water into steam and is usually lost. The amount of heat spent in transforming the water into steam is counted as part of gross heat content but is not counted as part of net heat content. Also referred to as the higher heating value. Btu conversion factors typically used in EIA represent gross heat content.

Heat Content of a Quantity of Fuel, Net: The amount of usable heat energy released when a fuel is burned under conditions similar to those in which it is normally used. Also referred to as the lower heating value. Btu conversion factors typically used in EIA represent gross heat content.

Heavy Oil: The fuel oils remaining after the lighter oils have been distilled off during the refining process. Except for start-up and flame stabilization, virtually all petroleum used in steam-electric power plants is heavy oil.

Hydrocarbon: An organic chemical compound of hydrogen and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, the primary constituent of natural gas) to the very heavy and very complex.

Hydroelectric Power: The production of electricity from the kinetic energy of falling water.

Hydroelectric Power Plant: A plant in which the turbine generators are driven by falling water.

Imports: Receipts of goods into the 50 States and the District of Columbia from foreign countries and from Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Industrial Sector: The industrial sector comprises manufacturing industries, which make up the largest part of the sector, along with mining, construction, agriculture, fisheries, and forestry. Establishments in this sector range from steel mills, to small farms, to companies assembling electronic components.

Internal Combustion Electric Power Plant: A power plant in which the prime mover is an internal combustion engine. Diesel or gas-fired engines are the principal types used in electric power plants. The plant is usually operated during periods of high demand for electricity.

Jet Fuel: The term includes kerosene-type jet fuel and naphtha-type jet fuel. Kerosene-type jet fuel is a kerosene-quality product used primarily for commercial turbojet and turboprop aircraft engines. Naphtha-type jet fuel is a fuel in the heavy naphthas range used primarily for military turbojet and turboprop aircraft engines.

Kerosene: A petroleum distillate that has a maximum distillation temperature of 401° F at the 10-percent recovery point, a final boiling point of 572° F, and a minimum flash point of 100° F. Included are the two grades designated in ASTM D3699 (No. 1-K and No. 2-K) and all grades of kerosene called range or stove oil. Kerosene is used in space heaters, cook stoves, and water heaters; it is suitable for use as an illuminant when burned in wick lamps.

Lease and Plant Fuel: Natural gas used in well, field, and lease operations (such as gas used in drilling operations, heaters, dehydrators, and field compressors), and as fuel in natural gas processing plants.

Lease Condensate: A natural gas liquid recovered from gas well gas (associated and non-associated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons.

Light Oil: Lighter fuel oils distilled off during the refining process. Virtually all petroleum used in internal combustion and gas-turbine engines is light oil.

Lignite: A brownish-black coal of low rank with a high content of moisture and volatile matter. Often referred to as brown coal. It is used almost exclusively for electric power generation. It conforms to ASTM Specification D388-84 for lignite.

Liquefied Natural Gas (LNG): Natural gas (primarily methane) that has been liquefied by reducing its temperature to -260° F at atmospheric pressure.

Liquefied Petroleum Gases (LPG): Ethane, ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plant liquids.

Low-Power Testing: The period of time between a nuclear generating unit's initial fuel loading date and the issuance of its operating (full-power) license. The maximum level of operation during that period is 5 percent of the unit's design thermal rating.

Lubricants: Substances used to reduce friction between bearing surfaces or as process materials either incorporated into other materials used as processing aids in the manufacturing of other products or as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. Excluded are byproducts of lubricating oil refining, such as aromatic extracts derived from solvent extraction or tars derived from deasphalting. Included are all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. Lubricant categories are paraffinic and naphthenic.

Marketed Production: Gross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations. Includes all quantities of gas used in field and processing operations.

Methanol: A light, volatile alcohol (CH_3OH) eligible for motor gasoline blending. See **Oxygenates.**

Miscellaneous Petroleum Products: All finished petroleum products not classified elsewhere—for example, petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils.

Motor Gasoline Blending Components: Naphthas that will be used for blending or compounding into finished motor gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and zylene). Excluded are oxygenates (alcohols and ethers), butane, and pentanes plus.

Motor Gasoline, Finished: A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that has been blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as given in ASTM Specification D439 or Federal Specification VV-G-1690B, includes a range in distillation temperatures from 122 to 158° F at the 10-percent recovery point and from 365 to 374° F at the 90-percent recovery point. Motor gasoline includes reformulated motor gasoline, oxygenated motor gasoline, and other finished motor gasoline. Blendstock is excluded until blending has been completed.

- *Reformulated Motor Gasoline*: Motor gasoline, formulated for use in motor vehicles, the composition and properties of which are certified as "reformulated motor gasoline" by the Environmental Protection Agency.
- *Oxygenated Motor Gasoline*: Motor gasoline, formulated for use in motor vehicles, that has an oxygen content of 1.8 percent or higher by weight.
- *Other Finished Motor Gasoline:* Motor gasoline that is not included in the reformulated or oxygenated categories.

Motor Gasoline, Finished Gasohol: A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol, but sometimes methanol) in which 10 percent or more of the product is alcohol.

Motor Gasoline, Finished Leaded: Motor gasoline that contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Motor Gasoline, Finished Leaded Premium: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than 90 and containing more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon.

Motor Gasoline, Finished Leaded Regular: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than or equal to 87 and less than or equal to 90 and containing more than 0.05 gram of lead or 0.005 gram of phosphorus per gallon.

Motor Gasoline, Finished Unleaded: Motor gasoline containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blendstock is excluded until blending has

been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Motor Gasoline, Finished Unleaded Midgrade: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than or equal to 88 and less than or equal to 90 and containing not more than 0.05 gram of phosphorus per gallon.

Motor Gasoline, Finished Unleaded Premium: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than 90 and containing not more than 0.05 gram of lead or 0.005 gram of phosphorus per gallon.

Motor Gasoline, Finished Unleaded Regular: Motor gasoline having an antiknock index, calculated as (R+M)/2, of 87 containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon.

Motor Gasoline Retail Prices: Motor gasoline prices calculated each month by the Bureau of Labor Statistics (BLS) in conjunction with the construction of the Consumer Price Index (CPI). Those prices are collected in 85 urban areas selected to represent all urban consumers—about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-service).

Motor Gasoline, Total: Includes finished leaded motor gasoline (premium and regular), finished unleaded motor gasoline (premium, midgrade, and regular), motor gasoline blending components, and gasohol.

MTBE (Methyl Tertiary Butyl Ether): An ether, $(CH_3)_3COCH_3$, intended for motor gasoline blending. See **Oxygenates.**

Naphtha: A genetic term applied to a petroleum fraction with an approximate boiling range between 122 and 400° F.

Natural Gas: A mixture of hydrocarbons (principally methane) and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in underground reservoirs.

Natural Gas, Dry: The marketable portion of natural gas production, which is obtained by subtracting extraction losses, including natural gas liquids removed at natural gas processing plants, from total production.

Natural Gas Marketed Production: Gross withdrawals of natural gas from production reservoirs, less gas used for reservoir repressuring; nonhydrocarbon gases removed in treating and processing operations; and quantities vented and flared.

Natural Gas Plant Liquids (NGPL): Natural gas liquids recovered from natural gas in processing plants and, in some situations, from natural gas field facilities, as well as those extracted by fractionators. Natural gas plant liquids are defined according to the published specifications of the Gas Processors Association and the American Society for Testing and Materials as follows: ethane, propane, normal butane, isobutane, pentanes plus, and other products from natural gas processing plants (i.e., products meeting the standards for finished petroleum products produced at natural gas processing plants, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, distillate fuel oil, and miscellaneous products).

Natural Gas Wellhead Price: The wellhead price of natural gas is calculated by dividing the total reported value at the wellhead by the total quantity produced as reported by the appropriate agencies of individual producing States and the U.S. Minerals Management Service. The price includes all costs prior to shipment from the lease, including gathering and compression costs, in addition to State production, severance, and similar charges.

Natural Gas, Wet: Natural gas prior to the extraction of liquids and other miscellaneous products.

Net Consumption: See **Energy Consumption, End-Use.**

Nonhydrocarbon Gases: Typical nonhydrocarbon gases that may be present in reservoir natural gas are carbon dioxide, helium, hydrogen sulfide, and nitrogen.

Nuclear Electric Power: Electricity generated by an electric power plant whose turbines are driven by steam generated in a reactor by heat from the fissioning of nuclear fuel.

Nuclear Electric Power Plant: A single-unit or multiunit facility in which heat produced in one or more reactors by the fissioning of nuclear fuel is used to drive one or more steam turbines.

Nuclear Reactor: An apparatus in which the nuclear fission chain can be initiated, maintained, and controlled so that energy is released at a specific rate. The reactor includes fissionable material (fuel), such as uranium or plutonium; fertile material; moderating material (unless it is a fast reactor); a heavy-walled pressure vessel; shielding to protect personnel; provision for heat removal; and control elements and instrumentation.

Offshore: That geographic area that lies seaward of the coastline. In general, the coastline is the line of ordinary low water along with that portion of the coast that is in direct contact with the open sea or the line marking the seaward limit of inland water.

Oil: See **Crude Oil (Including Lease Condensate).**

Oil Well: A well completed for the production of crude oil from one or more oil zones or reservoirs. Wells producing both crude oil and natural gas are classified as oil wells.

Operable (nuclear): A U.S. nuclear generating unit is considered operable after it completes low-power testing and is issued a full-power operating license by the Nuclear Regulatory Commission. A foreign nuclear generating unit is considered operable once it has generated electricity to the grid.

Organization for Economic Cooperation and Development (OECD): Current members are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States and its territories (Guam, Puerto Rico, and the Virgin Islands), and Germany.

Organization of Petroleum Exporting Countries (OPEC): Countries that have organized for the purpose of negotiating with oil companies on matters of oil production, prices, and future concession rights. Current members are Algeria, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

Oxygenated Motor Gasoline: See **Motor Gasoline, Finished.**

Oxygenates: Any substance which, when added to motor gasoline, increases the amount of oxygen in that motor gasoline blend. Through a series of waivers and interpretive rules, the Environmental Protection Agency (EPA) has determined the allowable limits for oxygenates in unleaded gasoline. The "Substantially Similar" Interpretive Rules (56 FR [February 11, 1991]) allows blends of aliphatic alcohols other than methanol and aliphatic ethers, provided the oxygen content does not exceed 2.7 percent by weight. The "Substantially Similar" Interpretive Rules also provide for blends of methanol up to 0.3 percent by volume exclusive of other oxygenates, and butanol or alcohols of a higher molecular weight up to 2.75 percent by weight. Individual waivers pertaining to the use of oxygenates in unleaded motor gasoline have been issued by the EPA. They include:

- *Fuel Ethanol.* Blends of up to 10 percent by volume anhydrous ethanol (200 proof).
- *Methanol.* Blends of methanol and gasoline-grade tertiary butyl alcohol (GTBA) such that the total oxygen content does not exceed 3.5 percent by weight and the ratio of methanol to GTBA is less than or equal to 1. It is also specified that this blended fuel must meet ASTM volatility specifications.
  Blends of up to 5.0 percent by volume methanol with a minimum of 2.5 percent by volume co-solvent alcohols having carbon number of 4 or less (i.e., ethanol, propanol, butanol, and/or GTBA). The total oxygen must not exceed 3.7 percent by weight, and the blend must meet ASTM volatility specifications as well as phase separation and alcohol purity specifications.
- *MTBE (Methyl tertiary butyl ether).* Blends up to 15.0 percent by volume MTBE that must meet the ASTM D4814 specifications. Blenders must take precautions that the blends are not used as base gasolines for other oxygenated blends.

Pentanes Plus: A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline, and plant condensate.

Petrochemical Feedstocks: Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics.

Petroleum: A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products.

Petroleum Coke: A residue that is the final product of the condensation process in cracking. The product is either marketable petroleum coke or catalyst petroleum coke.

Petroleum Coke, Catalyst: The carbonaceous residue that is deposited on and deactivates the catalyst used in many catalytic operations (e.g., catalytic cracking). Carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. That carbon or coke is not recoverable in a concentrated form.

Petroleum Coke, Marketable: Those grades of coke produced in delayed or fluid cokers that may be recovered as relatively pure carbon. Marketable petroleum coke may be sold as is or further purified by calcining.

Petroleum Consumption: The sum of all refined petroleum products supplied. For each refined petroleum product, the amount supplied is calculated by adding production and imports, then subtracting changes in primary stocks (net withdrawals are a plus

quantity and net additions are a minus quantity) and exports.

Petroleum Imports: Imports of petroleum into the 50 States and the District of Columbia from foreign countries and from Puerto Rico, the Virgin Islands, and other U.S. territories and possessions. Included are imports for the Strategic Petroleum Reserve and withdrawals from bonded warehouses for onshore consumption, offshore bunker use, and military use. Excluded are receipts of foreign petroleum into bonded warehouses and into U.S. territories and U.S. Foreign Trade Zones.

Petroleum Products: Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Products Supplied: See **Petroleum Consumption.**

Petroleum Stocks, Primary: For individual products, quantities that are held at refineries, in pipelines, and at bulk terminals that have a capacity of 50,000 barrels or more, or that are in transit thereto. Stocks held by product retailers and resellers, as well as tertiary stocks held at the point of consumption, are excluded. Stocks of individual products held at gas processing plants are excluded from individual product estimates but are included in other oils estimates and total.

Photovoltaic and Solar Thermal Energy (as used at electric utilities): Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors.

Pipeline Fuel: Gas consumed in the operation of pipelines, primarily in compressors.

Primary Consumption: See **Energy Consumption, End-Use.**

Propane: A normally gaseous straight-chain hydrocarbon (C_3H_8). It is a colorless paraffinic gas that boils at a temperature of -43.67° F. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

Propylene: An olefinic hydrocarbon (C_3H_6) recovered from refinery or petrochemical processes.

Refiner Acquisition Cost of Crude Oil: The cost of crude oil to the refiner, including transportation and fees. The composite cost is the weighted average of domestic and imported crude oil costs.

Refinery (petroleum): An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Renewable Energy: Energy obtained from sources that are essentially inexhaustible (unlike, for example, the fossil fuels, of which there is a finite supply). Renewable sources of energy include wood, waste, photovoltaic, and solar thermal energy.

Repressuring: The injection of a pressurized fluid (such as air, gas, or water) into oil and gas reservoir formations to effect greater ultimate recovery.

Residential Sector: The residential sector is considered to consist of all private residences, whether occupied or vacant, owned or rented, including single-family homes, multifamily housing units, and mobile homes. Secondary homes, such as summer homes, are also included. Institutional housing, such as school dormitories, hospitals, and military barracks, generally are not included in the residential sector; they are included in the commercial sector.

Residual Fuel Oil: The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations and that conform to ASTM Specifications D396 and 975. Included are No. 5, a residual fuel oil of medium viscosity; Navy Special, for use in steam-powered vessels in government service and in shore power plants; and No. 6, which includes Bunker C fuel oil and is used for commercial and industrial heating, electricity generation, and to power ships. Imports of residual fuel oil include imported crude oil burned as fuel.

Road Oil: Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades, from 0, the most liquid, to 5, the most viscous.

Rotary Rig: A machine used for drilling wells that employs a rotating tube attached to a bit for boring holes through rock.

Short Ton (coal): A unit of weight equal to 2,000 pounds.

SIC: See **Standard Industrial Classification.**

Solar Energy: The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.

Standard Industrial Classification (SIC): A set of codes developed by the Office of Management and Budget which categorizes industries into groups with similar economic activities.

Startup Test Phase of Nuclear Power Plant: A nuclear power plant that has been licensed by the Nuclear Regulatory Commission to operate but is still in the initial testing phase, during which the production of electricity may not be continuous. In general, when the electric utility is satisfied with the plant's performance, it formally accepts the plant from the manufacturer and places it in commercial operation status. A request is then submitted to the appropriate utility rate commission to include the power plant in the rate base calculation.

Steam-Electric Power Plant: A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

Strategic Petroleum Reserve (SPR): Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

Supplemental Gaseous Fuels: Any gaseous substance that, introduced into or commingled with natural gas, increases the volume available for disposition. Such substances include, but are not limited to, propane-air, refinery gas, coke oven gas, still gas, manufactured gas, biomass gas, or air or inert gases added for Btu stabilization.

Synthetic Natural Gas (SNG): A manufactured product chemically similar in most respects to natural gas, resulting from the conversion or reforming of petroleum hydrocarbons. It may easily be substituted for, or interchanged with, pipeline quality natural gas. Also referred to as substitute natural gas.

Total Consumption: See **Energy Consumption, End-Use.**

Transportation Sector: The transportation sector consists of private and public vehicles that move people and commodities. Included are automobiles, trucks, buses, motorcycles, railroads and railways (including streetcars), aircraft, ships, barges, and natural gas pipelines.

Unaccounted-for Crude Oil: Arithmetic difference between the calculated supply and the calculated disposition of crude oil. The calculated supply is the sum of crude oil production and imports, less changes in crude oil stocks. The calculated disposition of crude oil is the sum of crude oil input to refineries, crude oil exports, crude oil burned as fuel, and crude oil losses.

Underground Storage: The storage of natural gas in underground reservoirs at a different location from which it was produced.

United States: Unless otherwise noted, "United States" in this publication means the 50 States and the District of Columbia. U.S. exports include shipments to U.S. territories, and imports include receipts from U.S. territories.

U.S.S.R.: The Union of Soviet Socialist Republics consisted of 15 constituent republics: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. As a political entity, the U.S.S.R. ceased to exist as of December 31, 1991.

Vented Natural Gas: Gas released into the air on the base site or at processing plants.

Wellhead Price: The value of crude oil or natural gas at the mouth of the well.

Well Servicing Unit: Truck-mounted equipment generally used for downhole services after a well is drilled. Services include well completions and recompletions, maintenance, repairs, workovers, and well plugging and abandonments. Jobs range from minor operations, such as pulling the rods and rod pumps out of an oil well, replacing the pump and rerunning the assemblage into the well, to major workovers, such as milling out and repairing collapsed casing. Well depth and characteristics determine the type of equipment used.

Wind Energy (as used at electric utilities): The kinetic energy of wind converted at electric utilities into mechanical energy by wind turbines (i.e., blades rotating from a hub) that drive generators to produce electricity for distribution.

Wood and Waste (as used at electric utilities): Wood energy, garbage, bagasse, sewerage gas, and other industrial, agricultural, and urban refuse used to generate electricity for distribution.

Wood Energy: Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.

Working Gas: The gas in a reservoir that is in addition to the base (cushion) gas. It may or may not be completely withdrawn during any particular withdrawal season. Conditions permitting, the total working capacity could be used more than once during any given season.

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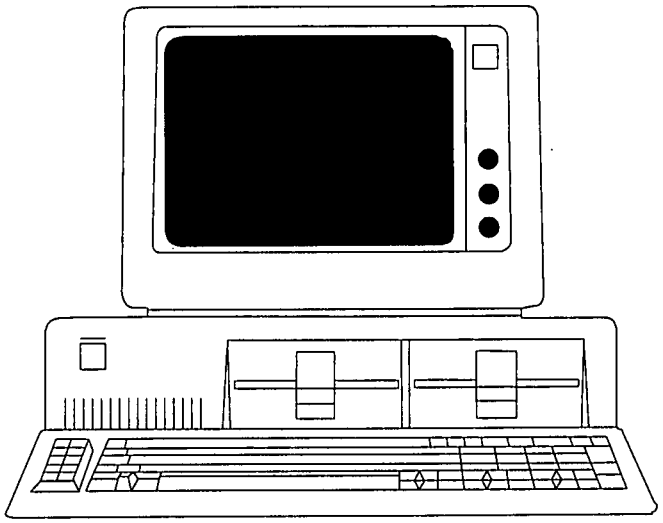

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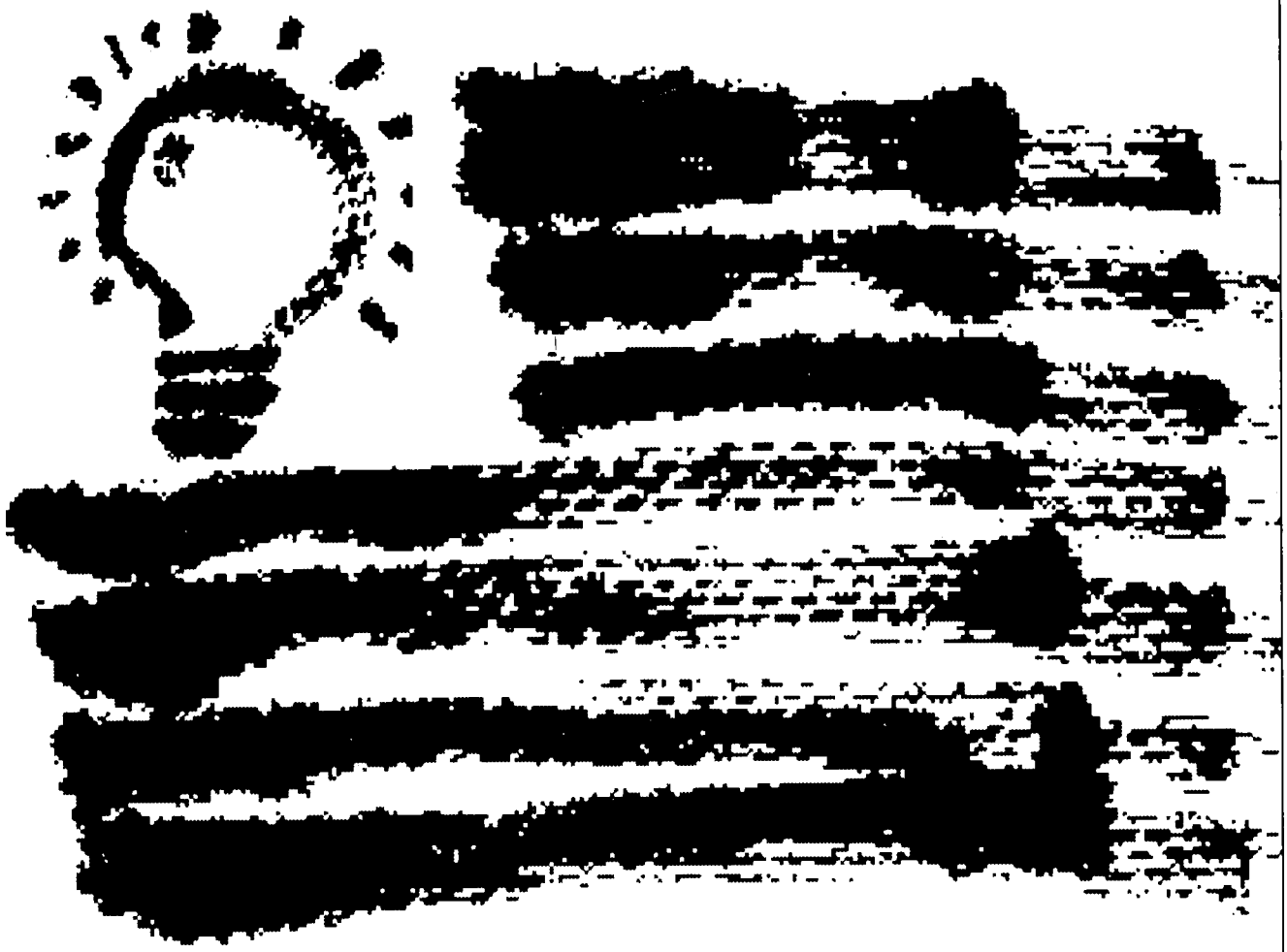

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