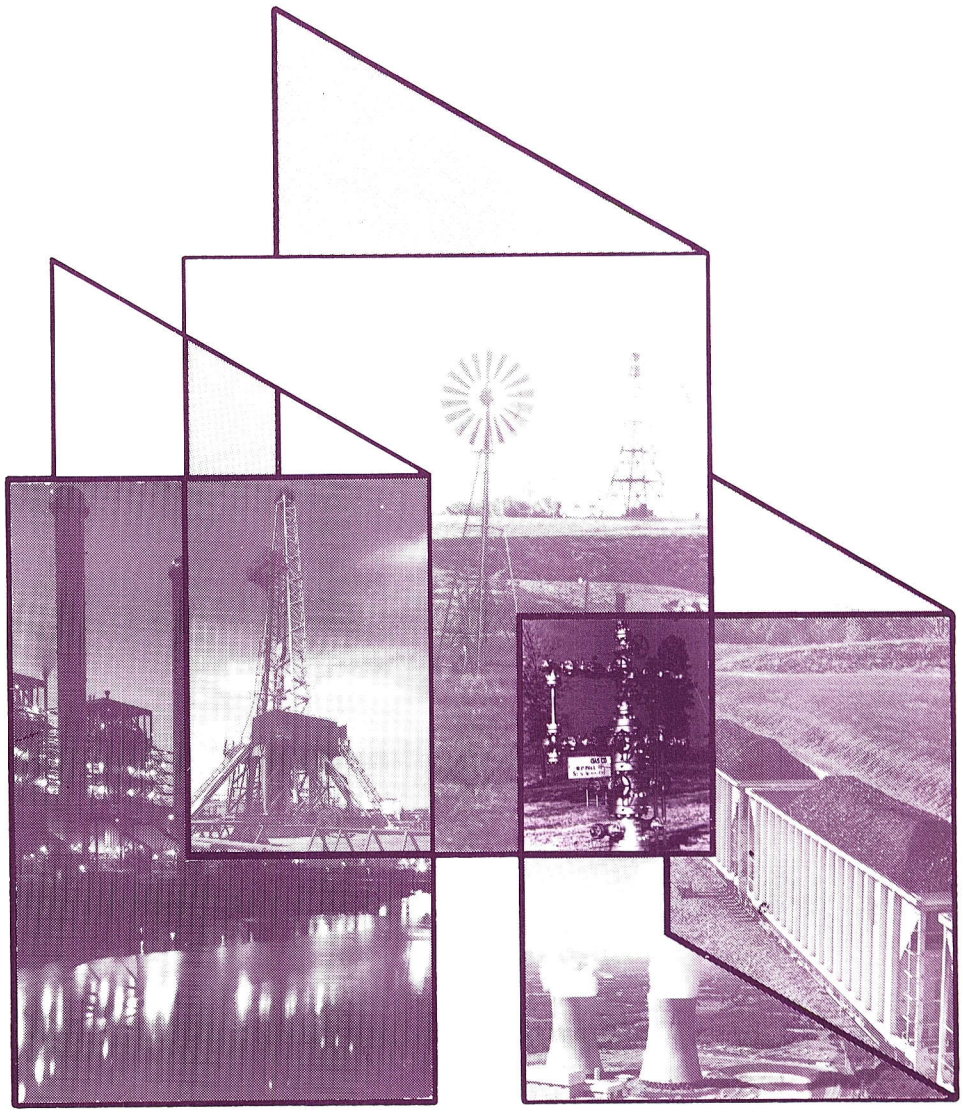
DOE/EIA-0035(90/06)

First Half 1990 Summary

Monthly Energy Review

June 1990



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Monthly Energy Review

The *Monthly Energy Review* presents current data on production, consumption, stocks, imports, exports, and prices of the principal energy commodities in the United States. Also included are data on international production of crude oil, consumption of petroleum products, petroleum stocks, and production of electricity from nuclear-powered facilities.

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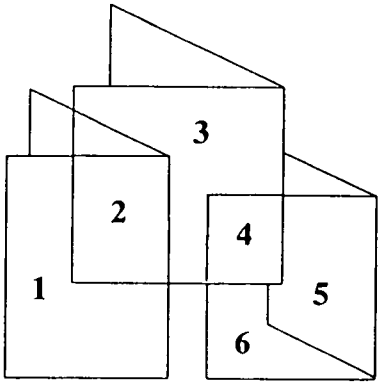

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1. The Haynes Generating Station provides power in the Los Angeles area. Photograph courtesy of the Department of Water and Power, City of Los Angeles, California.
2. This is a drilling rig typical of those used by the oil industry.
3. An innovative wind turbine can be used to generate power more efficiently than the old-fashioned windmill.
4. A gas wellhead is referred to as a Christmas tree by the industry. Photograph courtesy of the Arkansas Louisiana Gas Company.
5. Unit trains are a primary transporter of coal. Photograph courtesy of the National Coal Association.
6. The cooling towers of the Susquehanna steam electric nuclear power plant. Photograph courtesy of Pennsylvania Power and Light Co./Allegheny Electric Cooperative, Inc.

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Feature articles on energy-related subjects are occasionally included in this publication. The following is a complete list of all the feature articles that have been published to date.

Highlights

"Highlights"--special features that summarize the most important information presented in selected Energy Information Administration reports--are occasionally included in this publication. The following is a complete list of all the reports that have been summarized to date.

U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1981 Annual Report	September 1982
Energy Company Development Patterns in the Postembargo Era, Volume One	November 1982
Residential Energy Consumption Survey: Consumption and Expenditures	January 1983
Residential Energy Consumption Survey: Housing Characteristics	February 1983
Energy Price and Expenditure Data Report, 1970-1980	July 1983
Railroad Deregulation: Impact on Coal	August 1983
Port Deepening and User Fees: Impact on U.S. Coal Exports	August 1983
U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1982 Annual Report	September 1983
Annual Energy Review 1983	February 1984
State Energy Data Report, Consumption Estimates, 1960-1982	March 1984
Annual Energy Outlook 1983	March 1984
State Energy Price and Expenditure Report, 1970-1981	May 1984
Solar Collector Manufacturing Activity 1983	June 1984
Estimates of U.S. Wood Energy Consumption, 1980-1983	September 1984
International Energy Annual 1983	September 1984
Energy Conservation Indicators 1983 Annual Report	November 1984
Annual Energy Outlook 1984	December 1984
Annual Energy Review 1984	January 1985
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Uranium Industry Annual 1986	September 1987
Potential Oil Production from the Coastal Plain of the Arctic National Wildlife Refuge (Revised Edition)	October 1987
Profiles of Foreign Direct Investment in U.S. Energy 1986	November 1987
Characteristics of Commercial Buildings 1986	June 1988
Manufacturing Energy Consumption Survey: Consumption of Energy, 1985	September 1988
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Manufacturing Energy Consumption Survey: Fuel Switching, 1985	November 1988
Commercial Buildings Consumption and Expenditures 1986	May 1989
Potential Costs of Restricting Chlorofluorocarbon Use	September 1989
Manufacturing Energy Consumption Survey: Changes in Energy Efficiency, 1980-1985	October 1989
Household Energy Consumption and Expenditures 1987, Part 1: National Data	November 1989

Refining Results Highlight Energy Companies' First-Half Profit Performance

by Kevin Lillis [1]

Abstract. This article traces key financial trends in the U.S. energy industry as a whole and in several of the industry's major segments for the second quarter and the first 6 months of 1990. Financial data for companies are included for two broad groups--fossil fuel producers and rate-regulated utilities. Data are from published information provided by publicly traded companies. Sources include The Wall Street Journal, corporate reports, and energy trade publications.

Introduction

Corporate profits are an important measure of the health of the Nation's energy industries. Profitable industries attract new entrants and increased investment, while unprofitable industries decline, as firms exit. Low profits may also lead to changes in the way firms do business, stimulating restructuring and cost-cutting.

The income measure shown in this article is net income from continuing operations, excluding extraordinary gains or losses that a company may report from sale or valuation change of a major asset or for reserve provisions for future adverse legal judgments. In this article, second-quarter 1990 net income of publicly traded companies in the energy industry is examined and compared with second-quarter 1989 net income. Comparisons of year-to-date results are also included. Those intertemporal comparisons reflect actual operating results rather than accounting changes.

Several major petroleum companies disclose income disaggregated by line of business and geographic area. Where possible, disaggregated information is used to shed light on industry financial trends. Although the disaggregated income concept varies by company and is not strictly comparable to corporate net income, relative movements in income by line of business and geographic area are useful indicators of short-term changes in profitability.

Financial and Energy Overview

A number of energy market developments led to mixed financial results among segments of the energy industry in the first half of 1990. The most important of these developments was the record level of second-quarter 1990 refining profits. Unusually high levels of crude oil inventories and higher crude oil production rates by some Organization of Petroleum Exporting Countries (OPEC) members put downward pressure on crude oil prices in the second quarter after prices had risen to a 4-year high in the first quarter. The crude oil price of $15.89 in the second-quarter 1990 (as measured by the refiner acquisition cost of imported crude oil) was down $3 per barrel (15 percent), from the second-quarter 1989 level, and down $4 per barrel from the first quarter of 1990.[2] Refined product prices did not reflect the drop in crude oil prices. Heightened demand for unleaded gasoline and tightness in refinery capacity kept motor gasoline prices from falling measurably during the second quarter of 1990.

Other developments that affected the financial performance of the energy companies included a continuation of the modest upswing in U.S. drilling activity in the second quarter of 1990 and an absence of coal mine work stoppages.

[1]The author is an economist in the Office of Energy Markets and End Use of the Energy Information Administration.

[2]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Table 9.1.

Table FE1. Energy Industry Net Income Summaries, Second Quarter and Year-to-Date 1990

Energy Industries	Second Quarter 1990	Year-to-Date 1990	Change From	
			Second Quarter 1989	Year-to-Date 1989
	Million Dollars		Percent	
Fossil Fuel Industries (86)	**5,874.5**	**11,723.2**	**-4.4**	**-4.5**
Petroleum (79)	5,813.9	11,637.9	-4.8	-4.6
Major Petroleum Companies (20)	5,241.9	10,603.2	-8.0	-7.0
Independent Oil and Gas Producers (21)	31.2	213.9	-62.3	-26.1
Independent Refiner/Marketers (9)	263.8	305.5	54.4	38.6
Oil Field Companies (29)	277.0	515.3	78.9	83.0
Coal Producers (7)	60.6	85.3	58.6	4.4
Rate-Regulated Energy Industries (124)	**3,425.8**	**8,726.9**	**2.5**	**-0.1**
Natural Gas Transmission (17)	87.9	706.1	11.8	7.0
Natural Gas Distribution (25)	70.1	637.9	-6.5	-5.3
Electric Utilities (82)	3,267.8	7,382.9	2.4	-0.2
Total Energy Industries (210)	**9,300.3**	**20,450.1**	**-2.0**	**-2.6**
Nonenergy Industrial Companies (265)	**20,393.9**	**NA**	**-6.8**	**NA**

NA = Not available.
Notes: The number of companies is in parentheses. Components may not sum to totals due to independent rounding.
Sources: Energy Information Administration compilation of data from company quarterly reports to stockholders and "Earnings Digest," *The Wall Street Journal*, various issues, July and August 1990. Data for the nonenergy group were calculated from data presented in *The Wall Street Journal*, August 6, 1990, p. A6. *The Wall Street Journal* group was adjusted to exclude energy and nonmanufacturing companies.

Highlights for the major energy segments during the second quarter and first half of 1990 include the following:

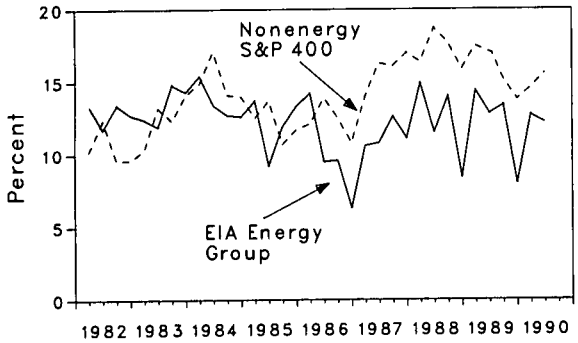
- Net income of major petroleum companies fell 8 percent in the second quarter and 7 percent for the first half of 1990 compared with 1989 as declines in earnings from oil and gas production and chemical operations more than offset sizable growth in income from refining/marketing operations (Table FE1).
- Overall, for the first half of 1990, independent oil and gas producers registered a 26-percent decline in net income. Largely as a result of the decline in crude oil prices, the 21 independent oil and gas producers recorded a 62-percent fall in net income to $31 million in the second quarter of 1990. By contrast, producers' net income rose 50 percent in the first quarter.[3]
- The fall in crude oil prices, together with relatively stable gasoline prices, proved most beneficial to independent refining/marketing companies, which experienced income gains of 54 percent in the second quarter of 1990. Net income for the first half of 1990 rose at a lesser pace of 39 percent reflecting a relatively weak first quarter.
- Lower crude oil prices had yet to dampen the ongoing recovery of the oil field segment of the energy industry in 1990. These firms reported income gains of 79 percent in the second quarter and 83 percent in the first 6 months of 1990.
- Independent coal producers exhibited improved net income of 59 percent during the second quarter of 1990, as increased production and the absence of work stoppages boosted earnings. First-half 1990 independent coal producer earnings rose less than 4 percent as first quarter 1990 earnings were affected by mining strikes.
- For the first half of 1990, net income of rate-regulated energy companies was essentially unchanged. The rate-regulated energy companies included in this report registered a 3-percent rise in income for the second quarter of 1990. Natural gas transmission companies' and electric utilities' earnings improved but natural gas distribution companies' earnings fell.

On balance, 210 energy companies' net income of $9.3 billion fell 2 percent between the second quarter of 1989 and the second quarter of 1990. Net income for 265 nonenergy industrial companies fell 7 percent from the second quarter of 1989 to the second quarter of 1990. Consequently, the gap in profitability between

[3]Energy Information Administration, *U.S. Energy Industry Financial Development's 1990 First Quarter*, (Washington, DC, June 1990), Table 2.

U.S. nonenergy and energy companies, as measured by return on equity, narrowed in the second quarter of 1990 compared with the same period one year earlier (Figure FE1). For the first 6 months of 1990, net income declined 3 percent for energy companies.

Figure FE1. Energy and Nonenergy Return on Equity, 1982-1990



Note: The data for the second quarter of 1990 are Energy Information Administration estimates.
Sources: Companies' reports to stockholders; "Earnings Digest," *The Wall Street Journal* (various issues, July and August 1990); and Standard and Poor's Compustat Services, Inc., COMPUSTAT II Quarterly Data Item 8 (Income Before Extraordinary Items) and Data Item 60 (Total Equity), August 1990.

Refining Margins Reach Record Levels on Falling Crude Oil Prices

During the second quarter of 1990, the prices of petroleum products held relatively steady in the face of declining crude oil prices. As a result, gross refining margins (Figure FE2) increased to their highest level since at least 1982 (the first year these data are available). In particular, motor gasoline prices fell less than 1 percent relative to the second quarter of 1989 despite a 15-percent decline in crude oil input costs.[4]

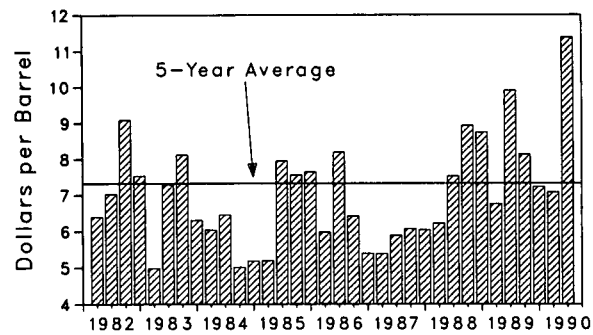
Several factors prevented gasoline prices from falling even though crude oil prices were falling. The accelerating shift to unleaded gasoline appeared to be an important factor. Demand for unleaded gasoline, a more expensive product to produce, increased approximately 350 thousand barrels per day (5 percent), compared with the second quarter of 1989, even though overall motor gasoline consumption was relatively constant.[5] Refinery gasoline yields have fallen as a result of increased unleaded motor gasoline production as well as stricter vapor pressure regulations. These events have added to refining costs and have contributed to keeping gasoline prices firm.

Also during the second quarter, several refineries experienced problems with their catalytic cracking units, which are used to produce gasoline blending components.[6] Consequently, gasoline production during May fell to 6.6 million barrels per day, the lowest monthly level since March 1987. This shortfall was made up by a surge in motor gasoline imports to an all-time May high of over a half-million barrels per day.[7]

As a result, gross refining margins increased to their highest level since at least 1982, the first year these data are available (Figure FE2). For major petroleum companies, U.S. refining/marketing income rose 59 percent (Table FE2).

Independent refiners recorded a 54-percent rise in net income over the second quarter of 1989 (Table FE1). Ashland Oil, which is primarily a refining/marketing independent, reported record net income during the second quarter of 1990.[8] The independent refiners also experienced significantly higher profitability in the second quarter of 1990 compared with earlier periods (Figure FE3). While these profit gains were substantial for refining/marketing operations, on a year-to-date basis those results were not high relative to other lines of business. For the first 6 months of 1990, the return on equity for independent refiners was 14.7 percent compared to 15.1 percent for the Standard and Poor's (S&P) 400 (excluding energy companies).

Figure FE2. Gross Refining Margins, 1982-1990



Note: The data for the second quarter of 1990 are Energy Information Administration estimates. The 5-year average refining margin covers the most recent 5-year period.
Source: Energy Information Administration, *Petroleum Marketing Monthly* June 1990, DOE/EIA-0380(90/06) (Washington, DC, September 1990), Tables 1, 4, and 5.

[4]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Tables 9.1 and 9.4.
[5]Energy Information Administration, *Petroleum Supply Monthly* May 1990, DOE/EIA-0109(90/05) (Washington, DC, July 1990), Table S4.
[6]For examples, see *Oil Marketing Bulletin* April 1990, pp. 4, 7.
[7]Energy Information Administration, *Petroleum Supply Monthly* May 1990, DOE/EIA-0109(90/05) (Washington, DC, July 1990), p. xv.
[8]Based on the April-June quarter financial press release for Ashland Oil.

Table FE2. Income and Expenditures for Major Petroleum Companies,[1] Second Quarter and Year-to-Date 1990

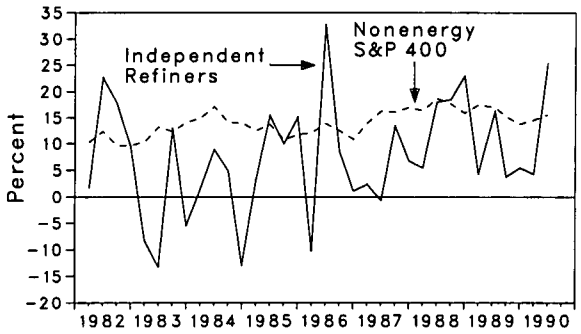
Category	Second Quarter 1990	Year-to-Date 1990	Change From	
			Second Quarter 1989	Year-to-Date 1989
	Million Dollars		Percent	
Income by Line of Business				
Petroleum (14)	3,851	7,990	-0.1	12.5
Chemicals (12)	1,309	2,619	-35.8	-38.4
Coal (6)	117	248	3.1	0.2
Other Businesses (9)	301	660	-3.9	11.0
Petroleum Income by Geographic Area				
Domestic (8)	1,451	2,870	-5.3	9.9
Foreign (8)	1,664	3,300	33.2	32.2
Domestic Income by Function				
Oil and Gas Production (8)	373	1,799	-64.3	-9.1
Refining/Marketing (11)	1,276	1,487	59.1	26.1
Foreign Income by Function				
Oil and Gas Production (9)	690	1,939	-16.6	-0.5
Refining/Marketing (6)	922	1,378	98.9	98.7
Capital and Exploratory Expenditures (10)				
By Function (5)				
Domestic Oil and Gas Production	1,174	2,247	-6.1	-4.3
Foreign Oil and Gas Production	1,562	3,072	15.4	20.7
Refining/Marketing	1,107	2,033	-9.9	-3.6
Other Functions	1,051	1,732	4.4	-0.6
Functional Total	4,894	9,084	1.2	3.9
Other Companies (5)	1,993	3,707	17.2	22.9
Total Capital and Exploratory Expenditures	6,887	12,791	5.3	8.8

[1] Many major petroleum companies have several lines of business and are therefore represented in more than one line of business in this table. The 20 companies considered "major" for this report are Amerada Hess, American Petrofina, Amoco, Atlantic Richfield, Chevron, Coastal, DuPont, Exxon, Kerr-McGee, Mobil, Murphy, Occidental, Pennzoil, Phillips, Shell, Sun, Texaco, Union Pacific, Unocal, and USX.

Notes: The number of companies is in parentheses. Components may not sum to totals due to independent rounding.

Source: Energy Information Administration compilation of data from company quarterly reports to stockholders.

Figure FE3. Quarterly Return on Equity, 1982-1990



Note: The data for the second quarter of 1990 are Energy Information Administration estimates.

Sources: Companies' reports to stockholders; "Earnings Digest," *The Wall Street Journal* (various issues, July and August 1990); and Standard and Poor's Compustat Services, Inc., COMPUSTAT II Quarterly Data Item 8 (Income Before Extraordinary Items) and Data Item 60 (Total Equity), August 1990.

Majors See Lower Income on Poor Production Results

During the second quarter of 1990, net income for the 20 major petroleum companies was $5.2 billion, down 8 percent from the second quarter of 1989 (Table FE1). However, performance across the majors' business segments was mixed. Higher unleaded gasoline sales along with tight operating capacity helped lift refining margins during the second quarter of 1990. The strong margin resulted in a 59-percent increase in the majors' domestic refining/marketing earnings in the second quarter of 1990 (Table FE2). Chevron, the nation's largest refiner, posted a 225-percent gain in refining/marketing income during the second quarter of 1990 on record earnings of $370 million. Atlantic Richfield and Sun also reported record refining/marketing earnings. Only two majors included in Table FE2 showed declines in refining/marketing earnings. Exxon and Shell reported lower income due to maintenance-related refinery costs.

Because of strong European demand for motor gasoline, the foreign refining/marketing gains for major petroleum companies exceeded domestic gains. Exxon, for instance, reported that foreign refining/marketing earnings during the second quarter of 1990 were the highest in 10 years.[9] Overall, foreign refining/marketing profits of the majors were nearly double the second-quarter 1989 level.

In contrast, due to the $3 fall in crude oil prices, the oil and gas production operations of major petroleum companies performed poorly during the second quarter of 1990. Income from domestic oil and gas production operations for the major petroleum producers was off 64 percent from 1 year ago, while income from foreign operations fell a lesser 17 percent (Table FE2). The larger decline in profits for domestic oil and gas operations was partly a manifestation of the 7-percent decline in U.S. oil production.[10]

During the second quarter of 1990, the chemical operations of major petroleum companies were influenced by the same weak margins affecting the overall chemical industry. Profits from the majors' chemical operations were 36 percent lower in the second quarter of 1990 (Table FE2), while the chemical industry as a whole reported a 19-percent decline in net income.[11] It should be noted that chemical operations were very profitable in the second quarter of 1989.

Foreign oil and gas exploration was the only segment of the petroleum business to record an increase in investment expenditures by the major petroleum companies during the first half of 1990. This was also true for the second quarter of 1990. During the second quarter of 1990, foreign oil and gas capital expenditures posted a 15-percent gain over the previous year's second quarter. U.S. exploration and development expenditures were down 6 percent for the quarter and 4 percent for the first 6 months (Table FE2).

The income measures reported in Tables FE1 and FE2 exclude special charges and gains. However, in the second quarter of 1990, a number of major petroleum companies recorded substantial charges against income for environmental matters. Amoco, Mobil, and Shell took a combined $675 million in such charges during the second quarter of 1990.[12] Amoco set aside $477 million for environmental remediation efforts in the second quarter of 1990. Over the same period, Mobil incurred charges of $122 million for future environmental cleanup costs. Shell incurred a $76 million writedown on the value of offshore California and Alaskan properties, as drilling prospects in these areas faded in the face of environmental opposition.

U.S. Oil and Gas Producers Hurt Most by Falling Crude Oil Prices

For the first 6 months of 1990, the independents' income fell 26 percent and the majors' oil and gas income fell 9 percent. The combined impact of lower crude oil prices and decreased U.S. crude oil production sharply reduced oil and gas producers' income. Further, natural gas production, which had been increasing compared with year-earlier quarters, showed a slight decrease in the second quarter of 1990.[13] The independents sustained a 62-percent fall in income to $31 million (Table FE1), while the majors' U.S. oil and gas income fell 64 percent to $373 million (Table FE2). Particularly strong first-quarter earnings resulted from a rise in crude oil prices from the first quarter of 1989. A majority of the independents (12 of 21) reported higher 6-month incomes in 1990.

Upstream profits for both groups are expected to increase in the third quarter of 1990 due to the sharp increases in crude oil prices following the Iraqi invasion of Kuwait.

Drilling Increase Helps Oil Field Companies

Financial performance of oil field companies continued to improve in spite of weakening crude oil prices in the first half of 1990. During the first half of 1990, 29 drilling service and equipment companies reported a 83-percent increase in income (Table FE1). For the second quarter of 1990, these same companies saw a 79-percent increase in income over the previous year's second quarter. The number of domestic rotary rigs in operation during the first half of 1990 was 952, a 22 percent higher than the number of rigs during the corresponding period one year earlier. Further, domestic footage drilled climbed 18 percent in the first half of 1990.[14]

The increasing effort to exploit domestic natural gas reserves was evident again during the second half of 1990. In the first half of 1990, the 22-percent increase

[9]Based on the second quarter financial press releases from Atlantic Richfield Company, Chevron Corporation, Exxon Corporation, and Sun Company Inc.

[10]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Table 3.2a.

[11] *The Wall Street Journal*, August 6, 1990, p. A6.

[12]Based on the second quarter financial press releases from Amoco Corp., Mobil Corp., and Shell Oil Company.

[13]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Table 4.1.

[14]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Tables 5.1 and 5.2.

in the number of domestic gas wells completed exceeded the 18-percent growth in oil well completions.[15]

Coal Producers See Increased Output

The absence of work stoppages, increased consumption, and rebuilding of inventory stocks all helped boost independent coal companies' income 59 percent during the second quarter of 1990 (Table FE1). For the first half of 1990, independent coal companies' income rose 4 percent over the same period in 1989. During the second quarter of 1990, coal stocks at electric utilities rose 8 percent from the second quarter of 1989.[16] Coal production increased by 7 percent to meet that demand. Much of the increase in income can be attributed to the financial performances of Pittston Company and Westmoreland Coal Company, both of which suffered from labor-related work stoppages during the second quarter of 1989. In the second quarter of 1990, income at Pittston grew 371 percent to $19.3 million, while Westmoreland realized positive earnings of $5.2 million as compared to the second quarter of 1989's loss of $0.8 million. Excluding these two companies, coal producers registered a 4-percent increase in net income during the second quarter of 1990, which was close to the 3-percent increase in coal-segment income reported by the major petroleum companies (Table FE2).

Natural Gas and Electric Utilities

The 124 rate-regulated energy companies included in this study registered a 3-percent rise in income for the second quarter of 1990 (Table FE1). During the first quarter of 1990, utility income was off due to unseasonably warm weather. Hence, for all of the first half of 1990 rate-regulated utility income declined slightly.

The performance of natural gas transmission companies and natural gas distribution companies differed. While transmission companies showed a 12-percent rise in income during the second quarter of 1990, income for distribution companies fell 7 percent. In total, natural gas consumption during the second quarter of 1990 fell slightly due primarily to a decline in electric utility usage. Decline in consumption occurred at electric utilities, whose natural gas usage declined 7 percent in the second quarter of 1990.[17] Much of this shortfall in petroleum and natural gas usage was made up by an increase in coal consumption at electric utilities. Although real gross national product (GNP) grew 1.0 percent between the second quarter of 1989 and the second quarter of 1990, net electricity generation rose 2.9 percent over the same period. Between the second quarter of 1989 and the second quarter of 1990, growth in utility electricity prices was less than the rate of general inflation. Hence, the greater growth in electricity consumption was, in part, traceable to the lower real electricity prices. As a whole, electric utilities saw 2-percent growth in income during the second quarter of 1990 as compared to the second quarter of 1989 (Table FE1).

[15]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Table 5.2.

[16]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Table 6.3.

[17]Energy Information Administration, *Monthly Energy Review* June 1990, DOE/EIA-0035(90/06) (Washington, DC, September 1990), Table 7.3.

Section 1. Energy Summary

First Half 1990 Review

U.S. energy production during the first half of 1990 reached 34 quadrillion Btu (Table 1.1), up 3 percent from first-half 1989 production. U.S. energy consumption decreased slightly during the first half of 1990 to 40 quadrillion Btu, due in part to warmer weather and a slowdown in the economy, compared with the first half of 1989. Energy net imports rose 8 percent in the first half of 1990 compared with the level in the first half of 1989.

Production of petroleum declined to 8.7 quadrillion Btu in the first half of 1990, 6 percent lower than during the same period in 1989. However, increases in the production of other forms of energy offset that decrease. First-half 1990 production of coal, natural gas, hydroelectric, and nuclear electric power boosted overall energy production 0.8 quadrillion Btu compared to the first-half 1989 level.

Energy consumption declined 0.3 quadrillion Btu in the first half of 1990 from the level 1 year ago. The 2-percent decrease in fossil fuel consumption was partially offset by increases in nuclear electric power and hydroelectric power of 16 percent and 2 percent, respectively.

Energy net imports reached 7.4 quadrillion Btu in the first half of 1990. Petroleum net imports, which rose 8 percent, continued to account for most of that increase.

Table 1.1 Energy Summary for June 1990
(Quadrillion Btu)

	June			Cumulative January Through June				
	1990	1989	Percent Change[a]	1990	1990 Daily Rate	1989	1989 Daily Rate	Percent Change[a]
Total Production[b]	**5.464**	**5.388**	**1.4**	**33.788**	**0.187**	**32.917**	**0.182**	**2.6**
Petroleum[c]	1.398	1.500	-6.8	8.749	.048	9.261	.051	-5.5
Natural Gas (Dry)	1.413	1.426	-.9	9.011	.050	8.944	.049	.7
Coal	1.852	1.714	8.1	11.320	.063	10.577	.058	7.0
Other[d]	.801	.748	7.1	4.708	.026	4.135	.023	13.9
Total Consumption[b]	**6.453**	**6.403**	**.8**	**40.407**	**.223**	**40.750**	**.225**	**-.8**
Petroleum	2.777	2.840	-2.2	16.596	.092	16.940	.094	-2.0
Natural Gas[e]	1.289	1.235	4.4	10.065	.056	10.397	.057	-3.2
Coal	1.590	1.560	1.9	9.082	.050	9.170	.051	-1.0
Other[f]	.797	.768	3.7	4.663	.026	4.242	.023	9.9
Net Imports	**1.245**	**1.093**	**13.9**	**7.429**	**.041**	**6.906**	**.038**	**7.6**
Petroleum[g]	1.381	1.227	12.6	8.082	.045	7.470	.041	8.2
Natural Gas	.105	.095	10.5	.676	.004	.611	.003	10.5
Coal[h]	-.236	-.249	-4.9	-1.283	-.007	-1.282	-.007	.1
Other[i]	-.004	.020	-120.9	-.045	.000	.107	.001	-142.1

[a]Based on daily rates prior to rounding.
[b]Production and consumption totals exclude wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
[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]Includes crude oil, lease condensate, petroleum products, pentanes plus, unfinished oils, gasoline blending components, and imports of crude oil for the Strategic Petroleum Reserve.
[h]Minus sign indicates exports are greater than imports.
[i]Other is net imports of electricity and coal coke.
Note: Totals may not equal sum of components due to independent rounding.
Sources: Energy Information Administration (EIA), *Monthly Energy Review* Section 1 and EIA calculations.

Energy Production Increases

U.S. energy production in the first half of 1990 totaled 33.8 quadrillion Btu, an increase of 3 percent from production in the first half of 1989. Of that total, coal accounted for 11.3 quadrillion Btu, (34 percent) natural gas accounted for 9.0 quadrillion Btu (27 percent), while petroleum (crude oil, lease condensate, and natural gas plant liquids) accounted for 8.7 quadrillion Btu (26 percent).

In physical units, first-half 1990 crude oil production averaged 7.3 million barrels per day. In the Lower 48 States, production of crude oil and lease condensate continued to decline, falling 5 percent to 5.6 million barrels per day. Production of crude oil and lease condensate in Alaska fell to 1.8 million barrels per day, 104,000 barrels per day less than in the first half of 1989, and accounted for a quarter of the total reduction in domestic output.

In contrast to petroleum, production of natural gas rose to nearly 9 trillion cubic feet in the first half of 1990. Coal production continued to increase, reaching nearly 520 million short tons, a record level, in the first half of 1990. A portion of that production increase is due to the absence of work stoppages in 1990 compared with the first half of 1989.

In the first half of 1990, demand for electricity remained relatively stable compared with first-half 1989 demand. Net electricity generation from all sources totaled 1,358 billion kilowatthours in the first half of 1990, an increase of 1.2 percent from the previous year's first half. Growth in nuclear-based power and hydroelectric power offset decreases in net generation from fossil fuels in the first half of 1990 compared with the first half of 1989.

Coal-fired net generation of electricity decreased 1.5 percent, to 740.6 billion kilowatthours, still over half of total net generation, in the first half of 1990 compared with the first half of 1989. Nuclear-based generation in the first half of 1990 reached a record level of 279 billion kilowatthours. The increase from the first half of 1989 equaled 39 billion kilowatthours, up 16 percent. Hydroelectric generation in the first half of 1990 rose to 156 billion kilowatthours, up 11 percent from the level in the first half of 1989.

Net generation from natural gas, at 113.4 billion kilowatthours in the first half of 1990, was the lowest first-half net generation from that source in 18 years. Some of that 6-percent decrease in the first half of 1990 was due to supply problems following the cold snap in December 1989, when natural gas primarily went to residential customers. Net generation of electricity from petroleum was 63.9 billion kilowatthours in the first 6 months of 1990, 24 percent less than during the first 6 months of 1989.

Energy Consumption Decreases

All of the major fuels registered first-half decreases in consumption comparing first-half 1989 and first-half 1990 data. Petroleum consumption, at 16.6 quadrillion Btu in the first-half 1990, dropped the most in volume (344 million Btu), yet still accounted for the largest share (41 percent) of U.S. total energy consumption. Natural gas consumption, at 10.1 quadrillion Btu in the first half of 1990 (a 25-percent share), decreased 332 million Btu. Coal consumption, at 9.1 quadrillion Btu in the first half of 1990 (a 22-percent share), decreased 88 million Btu. Those fossil fuels dropped 2.0 percent, 3.2 percent, and 1.0 percent, respectively, in the first half of 1990 compared to 1 year earlier.

In the first half of 1990, the ratio of total energy consumption to the 1982-dollar gross national product (a measure of the energy intensity of the economy) was 19.4, 2 percent below the ratio in the first half of 1989. By comparison, the ratio in the year 1973 was 27.1.

Continued Growth in Imports

U.S. net imports of all forms of energy combined rose 8 percent in the first half of 1990 compared with the level in the first half of 1989. The volume of net imports--7.4 quadrillion Btu--continued to generate concern about dependence on foreign sources of supply.

Net imports of all major fuels (except coal) increased in the first half of 1990 compared with net imports in the first half of 1989. Petroleum net imports increased 612 trillion Btu (8 percent) in the first half of 1990 compared with first-half 1989 net imports. Natural gas imports increased 11 percent, while coal net exports increased 0.1 percent.

Reliance on Foreign Oil

In the first half of 1990, net imports of petroleum reached 7.7 million barrels per day, equal to 45 percent of U.S. petroleum products supplied. U.S. dependence on foreign sources of oil has continued to increase over the last few years.

The Organization of Petroleum Exporting Countries (OPEC) continued to expand its U.S. markets. In the first half of 1990, OPEC supplied over half of the total petroleum imports--4.5 million barrels per day--an increase of 13 percent from OPEC imports in the first half of 1989. Non-OPEC total imports declined 0.5 percent. Total imports from the United Kingdom increased 27 percent, while imports from Mexico and Canada declined 5 percent and 4 percent, respectively.

The Energy Trade Deficit

Higher volumes of imported crude oil contributed to an increase in the first half of 1990 energy trade deficit, which rose to $24 billion, up over $3 billion from the first half of 1989 deficit. Energy net imports continued to account for a sizable share of the total U.S. merchandise trade deficit--57 cents out of every dollar.

Energy Prices Mixed

Crude oil prices, which had been buoyed by the unusually harsh winter, fell precipitously in the early months of 1990 as the weather turned unusually mild, production from OPEC remained high, and inventories increased. In January 1990, the composite refiner acquisition cost of crude oil reached $20.64 but by June it had decreased to $15.01, a 27 percent decline. Despite lower crude oil prices in the second quarter of 1990 (as compared with prices 1 year earlier), some petroleum product prices increased. Prices of distillate fuel oil, kerosene, and propane increased. Whereas, prices of finished motor gasoline and residual fuel oil, in contrast, decreased. The price of natural gas to the commercial sector registered an increase, as did prices of electricity to end users.

Selected Petroleum Products

The price (excluding taxes) of **finished motor gasoline** to end users averaged 81 cents per gallon in June 1990, 4 percent lower than the price in June 1989.

The price (excluding taxes) of **No. 2 distillate fuel oil** to end users increased in June 1990 compared with the price in the June 1989, rising 3 percent to 52 cents per gallon.

The average price (excluding taxes) of **residual fuel oil** to end users declined to 30 cents per gallon in June 1990, a decrease of 23 percent compared with the price in June 1989. The January 1990 price of 52 cents per gallon was the highest monthly price recorded in 4 years.

Natural Gas

The city-gate price of natural gas averaged $3.00 per thousand cubic feet in June 1990, 0.7 percent higher than the average price in June 1989. That modest price increase was not passed through to all end-use sectors. The price to the commercial sector rose 0.4 percent, whereas the price to the industrial and residential sectors declined 5.2 percent and 0.5 percent, respectively.

Electricity

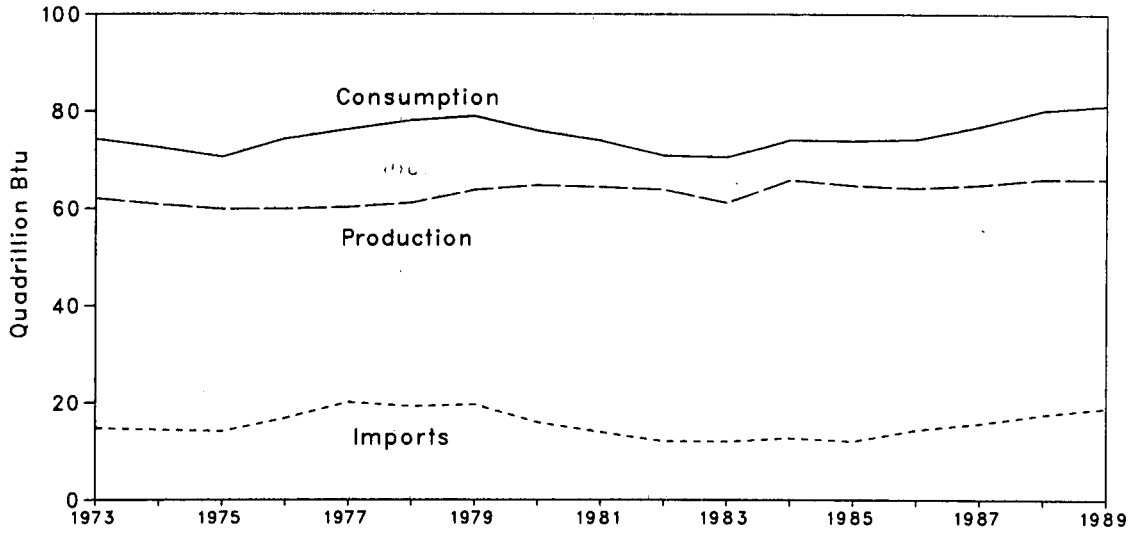
At 6.7 cents per kilowatthour, the average retail price of electricity to all consumers in June 1990 was up 2 percent from the average for the same month of 1989. On a dollar-per-Btu basis, electricity remained one of the most expensive sources of energy.

A Note on Sources and Calculations

Historical energy data from 1973 forward are from tables elsewhere in this issue of the *Monthly Energy Review* and from EIA calculations based on data in the tables. Calculations of percent changes are based on daily rates prior to rounding.

Figure 1.1 Energy Overview

Yearly



Monthly

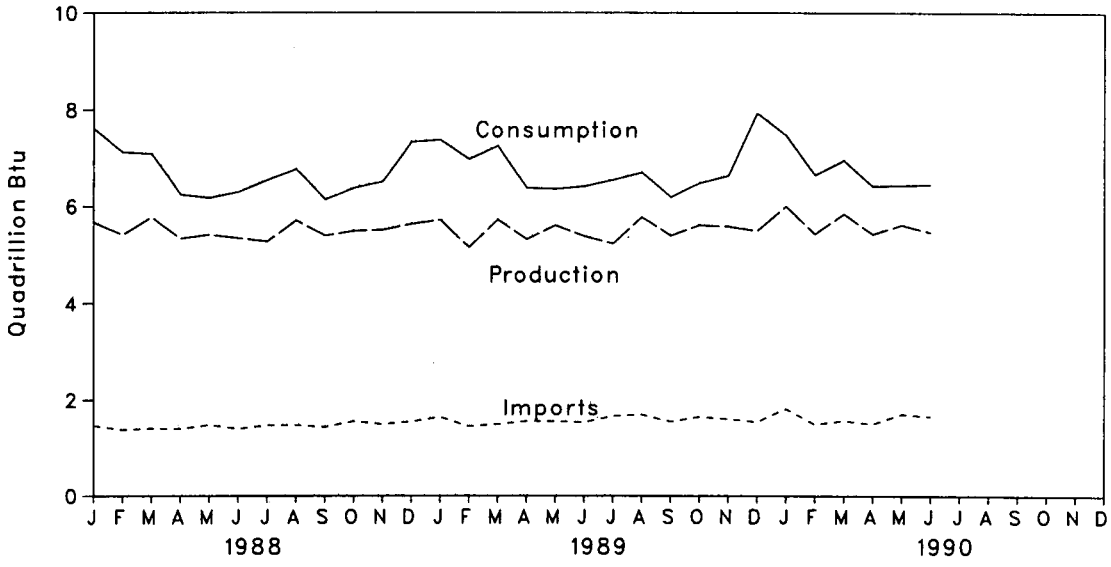


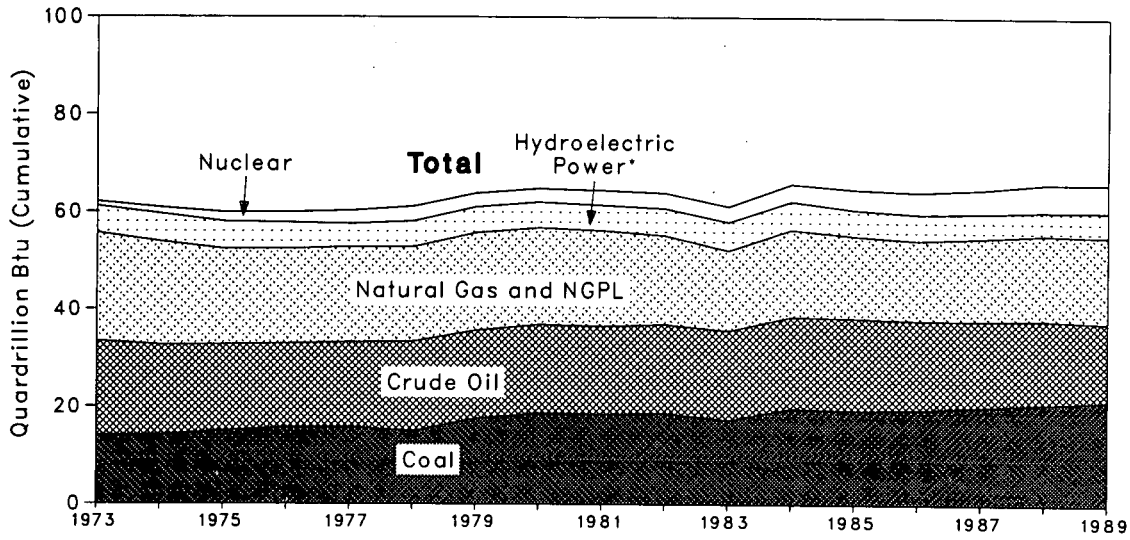
Table 1.2 Energy Overview[a]
(Quadrillion Btu)

	Production[b]	Consumption[b] [c]	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	**63.898**	**70.848**	**12.092**	**4.633**	**7.460**
1983 Total	**61.215**	**70.524**	**12.028**	**3.717**	**8.311**
1984 Total	**65.847**	**74.101**	**12.763**	**3.804**	**8.959**
1985 Total	**64.765**	**73.945**	**12.099**	**4.230**	**7.868**
1986 Total	**64.225**	**74.237**	**14.430**	**4.055**	**10.375**
1987 Total	**64.823**	**76.845**	**15.756**	**3.852**	**11.904**
1988 January	R 5.674	R 7.618	1.478	.289	1.189
February	R 5.417	R 7.128	1.384	.276	1.107
March	R 5.776	R 7.094	1.413	.349	1.064
April	R 5.338	R 6.241	1.402	.363	1.038
May	R 5.416	R 6.172	1.482	.373	1.109
June	R 5.346	R 6.295	1.405	.393	1.012
July	R 5.278	R 6.534	1.471	.382	1.089
August	R 5.708	R 6.768	1.480	.407	1.073
September	R 5.403	R 6.137	1.439	.396	1.043
October	R 5.495	R 6.376	1.559	.383	1.176
November	R 5.517	R 6.503	1.497	.362	1.136
December	R 5.635	R 7.338	1.551	.440	1.111
Total	**R 66.006**	**R 80.202**	**17.561**	**4.415**	**13.146**
1989 January	R 5.720	R 7.381	1.643	.320	1.322
February	R 5.156	R 6.985	1.453	.338	1.115
March	R 5.723	R 7.255	1.495	.406	1.089
April	R 5.324	R 6.374	1.558	.407	1.151
May	R 5.606	R 6.352	1.556	.421	1.135
June	R 5.388	R 6.403	1.535	.442	1.093
July	R 5.237	R 6.549	1.666	.329	1.337
August	R 5.776	6.705	1.697	.410	1.287
September	R 5.400	R 6.186	1.550	.391	1.159
October	R 5.610	R 6.482	1.649	.421	1.228
November	R 5.582	R 6.636	1.605	.462	1.144
December	R 5.494	R 7.937	1.544	.437	1.107
Total	**R 66.017**	**R 81.244**	**18.953**	**4.784**	**14.169**
1990 January	R 6.002	R 7.474	1.822	R .352	R 1.469
February	R 5.431	R 6.658	1.491	R .329	R 1.162
March	R 5.846	R 6.965	1.571	R .424	R 1.147
April	R 5.427	R 6.419	1.498	.388	1.110
May	R 5.618	R 6.438	1.708	R .413	R 1.295
June	5.464	6.453	1.662	.417	1.245
6-Month Total	**33.788**	**40.407**	**9.752**	**2.323**	**7.429**
1989 6-Month Total	**32.917**	**40.750**	**9.241**	**2.334**	**6.906**
1988 6-Month Total	**32.968**	**40.546**	**8.564**	**2.045**	**6.519**

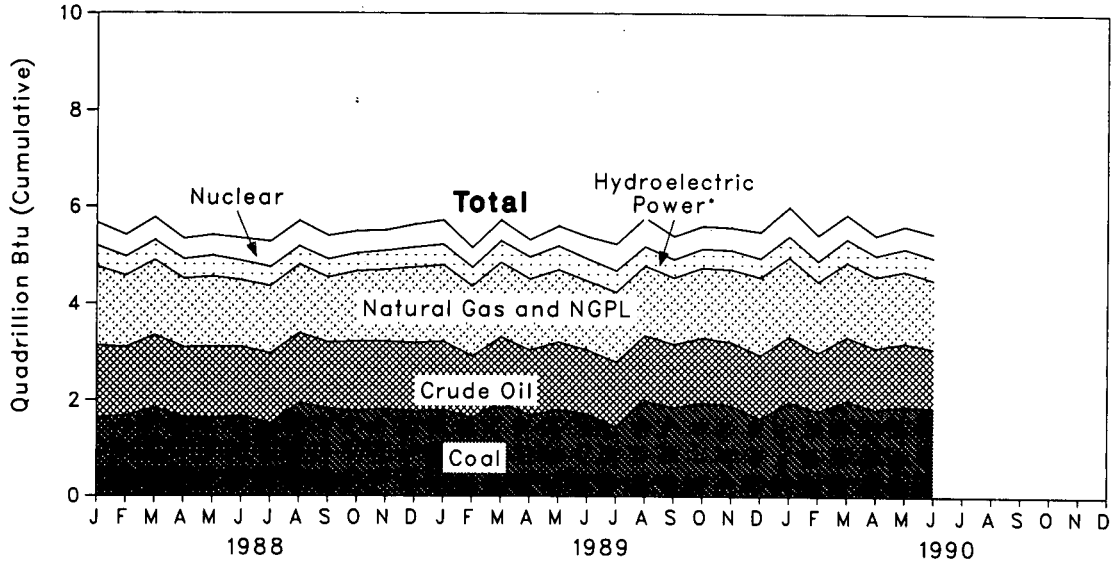
[a]For definitions, see Notes at end of section.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
[c]The sum of domestic energy production and net imports of energy does not 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: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration calculations based on data appearing elsewhere in this publication.

Figure 1.2 Production of Energy by Source

Yearly



Monthly



*Includes other.

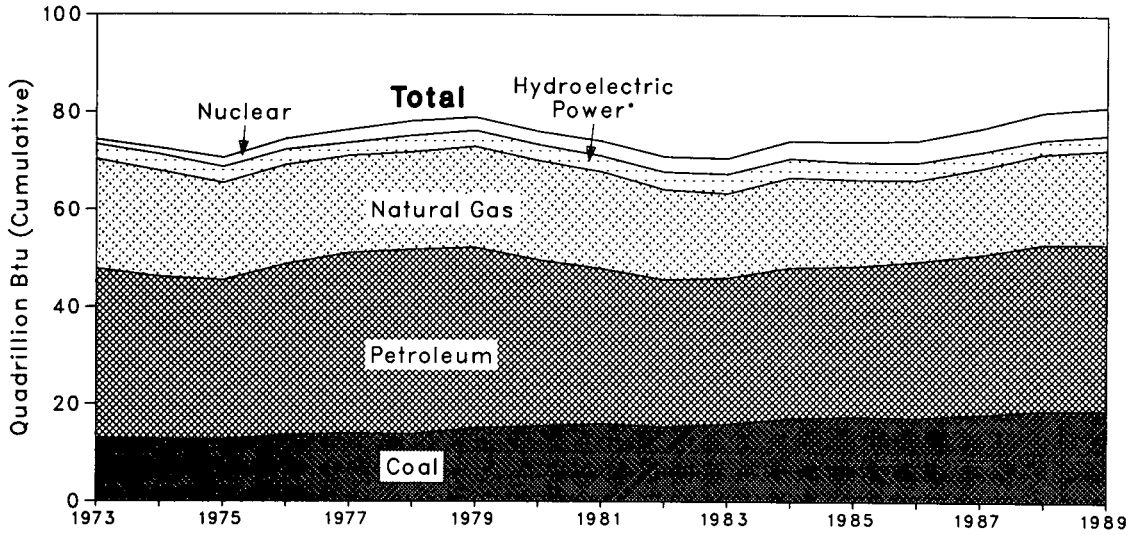
Table 1.3 Production of Energy by Source
(Quadrillion Btu)

	Coal	Crude Oil[a]	NGPL[b]	Natural Gas (Dry)	Hydro-electric Power[c]	Nuclear Electric Power	Other[d]	Total[e]	Year to Date
1973 Total	**13.993**	**19.493**	**2.569**	**22.187**	**2.861**	**0.910**	**0.046**	**62.060**	
1974 Total	**14.074**	**18.575**	**2.471**	**21.210**	**3.177**	**1.272**	**.056**	**60.835**	
1975 Total	**14.990**	**17.729**	**2.374**	**19.640**	**3.155**	**1.900**	**.072**	**59.860**	
1976 Total	**15.654**	**17.262**	**2.327**	**19.480**	**2.976**	**2.111**	**.081**	**59.892**	
1977 Total	**15.755**	**17.454**	**2.327**	**19.565**	**2.333**	**2.702**	**.082**	**60.219**	
1978 Total	**14.910**	**18.434**	**2.245**	**19.485**	**2.937**	**3.024**	**.068**	**61.103**	
1979 Total	**17.539**	**18.104**	**2.286**	**20.076**	**2.931**	**2.776**	**.089**	**63.801**	
1980 Total	**18.597**	**18.249**	**2.254**	**19.908**	**2.900**	**2.739**	**.114**	**64.761**	
1981 Total	**18.376**	**18.146**	**2.307**	**19.699**	**2.758**	**3.008**	**.127**	**64.421**	
1982 Total	**18.639**	**18.309**	**2.191**	**18.255**	**3.266**	**3.131**	**.108**	**63.898**	
1983 Total	**17.246**	**18.392**	**2.184**	**16.530**	**3.527**	**3.203**	**.133**	**61.215**	
1984 Total	**19.719**	**18.848**	**2.274**	**17.931**	**3.348**	**3.553**	**.174**	**65.847**	
1985 Total	**19.325**	**18.992**	**2.241**	**16.906**	**2.939**	**4.149**	**.213**	**64.765**	
1986 Total	**19.510**	**18.376**	**2.149**	**16.471**	**3.017**	**4.471**	**.231**	**64.225**	
1987 Total	**20.142**	**17.675**	**2.215**	**17.049**	**2.593**	**4.906**	**.244**	**64.823**	
1988 January	1.649	1.483	.186	R 1.627	.228	.480	.020	R 5.674	R 5.674
February	1.681	1.409	.177	R 1.481	.198	.454	.018	R 5.417	R 11.091
March	1.839	1.506	.193	R 1.545	.203	.472	.020	R 5.776	R 16.867
April	1.650	1.442	.184	R 1.414	.199	.430	.019	R 5.338	R 22.206
May	1.621	1.480	.192	R 1.448	.221	.437	.018	R 5.416	R 27.622
June	1.675	1.422	.184	R 1.377	.196	.474	.020	R 5.346	R 32.968
July	1.516	1.446	.191	R 1.394	.176	.535	.021	R 5.278	R 38.246
August	1.933	1.453	.190	R 1.414	.171	.527	.021	R 5.708	R 43.954
September	1.824	1.374	.185	R 1.335	.169	.497	.019	R 5.403	R 49.357
October	1.773	1.442	.196	R 1.450	.157	.458	.020	R 5.495	R 54.852
November	1.817	1.396	.190	R 1.478	.191	.425	.019	R 5.517	R 60.369
December	1.758	1.428	.193	R 1.557	.206	.473	.019	R 5.635	R 66.003
Total	**20.737**	**17.279**	**2.260**	**R 17.520**	**2.314**	**5.661**	**.235**	**R 66.006**	
1989 January	1.791	1.427	.197	R 1.571	.217	.498	.019	R 5.720	R 5.720
February	1.640	1.265	.172	R 1.453	.193	.416	.017	R 5.156	R 10.877
March	1.946	1.362	.196	R 1.539	.235	.426	.020	R 5.723	R 16.599
April	1.686	1.352	.192	R 1.467	.249	.360	.017	R 5.324	R 21.924
May	1.801	1.405	.192	R 1.487	.290	.412	.018	R 5.606	R 27.530
June	1.714	1.327	.173	R 1.426	.268	.462	.018	R 5.388	R 32.917
July	1.449	1.338	.183	R 1.451	.235	.562	.019	R 5.237	R 38.154
August	1.986	1.356	.178	R 1.438	.209	.590	.018	R 5.776	R 43.930
September	1.851	1.313	.170	R 1.372	.196	.482	.017	R 5.400	R 49.331
October	1.956	1.340	.175	R 1.446	.208	.468	.018	R 5.610	R 54.941
November	1.896	1.311	.170	R 1.501	.219	.466	.017	R 5.582	R 60.523
December	1.617	1.319	.159	R 1.608	.226	.546	.018	R 5.494	R 66.016
Total	**21.332**	**16.117**	**2.158**	**R 17.761**	**2.745**	**5.687**	**.217**	**R 66.017**	
1990 January	1.972	1.352	.181	R 1.644	.243	.592	.018	R 6.002	R 6.002
February	1.786	1.212	.167	R 1.463	.250	.537	.016	R 5.431	R 11.433
March	1.995	1.330	.180	R 1.538	.290	.495	.018	R 5.846	R 17.279
April	1.822	1.276	.170	R 1.468	.263	.414	.014	R 5.427	R 22.706
May	1.893	1.305	.178	R 1.484	.280	.461	.017	R 5.618	R 28.324
June	1.852	1.231	.167	1.413	.286	.498	.017	5.464	33.788
6-Month Total	**11.320**	**7.706**	**1.042**	**9.011**	**1.611**	**2.997**	**.100**	**33.788**	
1989 6-Month Total	**10.577**	**8.138**	**1.123**	**8.944**	**1.453**	**2.573**	**.109**	**32.917**	
1988 6-Month Total	**10.115**	**8.741**	**1.116**	**8.891**	**1.245**	**2.746**	**.115**	**32.968**	

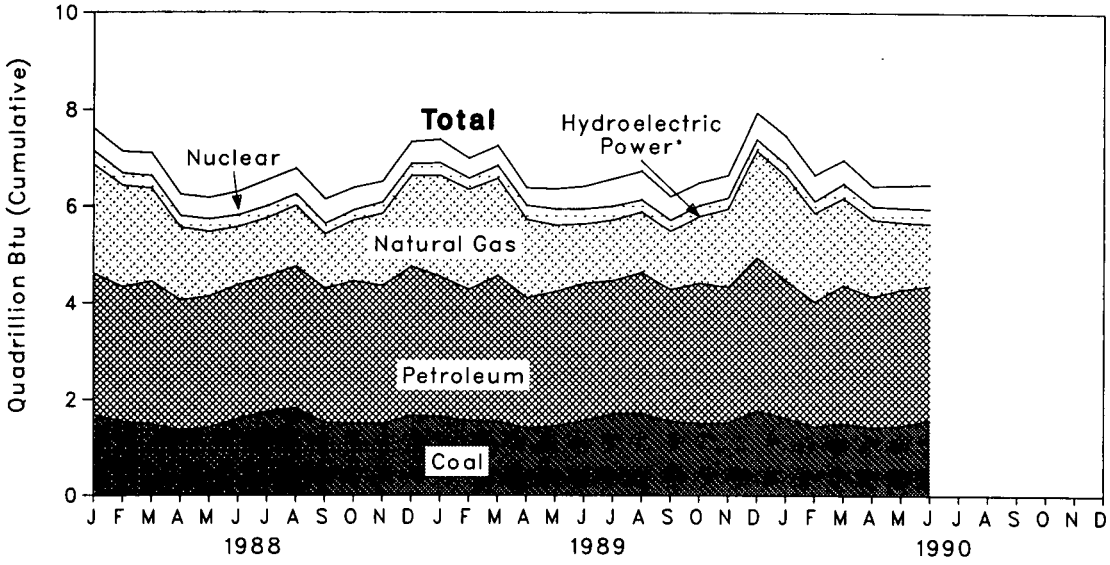
[a]Includes lease condensate.
[b]Natural gas plant liquids.
[c]Includes industrial and utility production of hydroelectric power.
[d]Other is electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.
[e]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
R=Revised data.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration calculations based on data appearing elsewhere in this publication.

Figure 1.3 Consumption of Energy by Source

Yearly



Monthly



*Includes other.

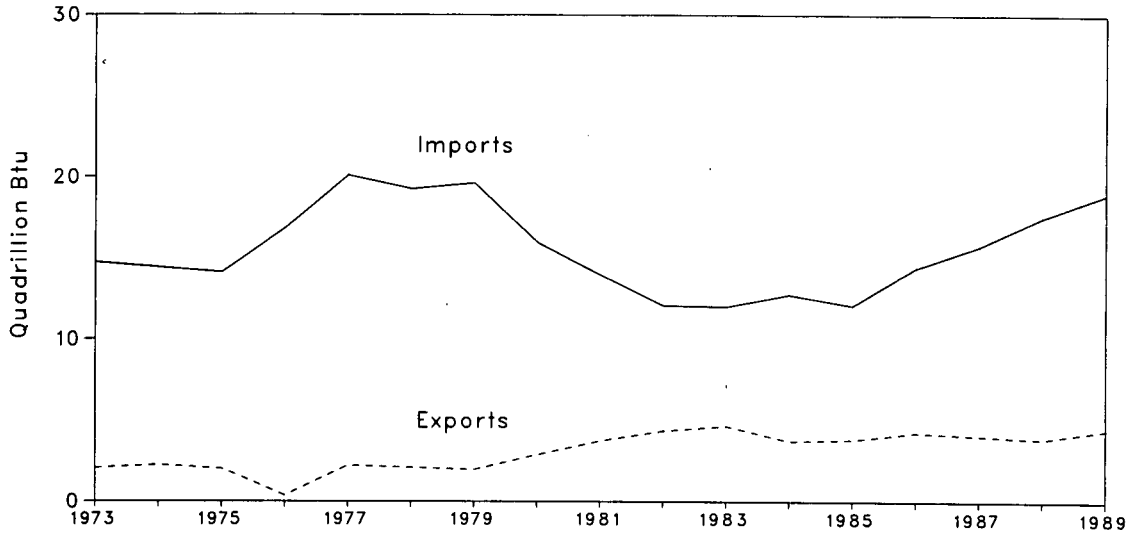
Table 1.4 Consumption of Energy by Source
(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Hydroelectric Power[b]	Nuclear Electric Power	Other[c]	Total[d]	Year to Date
1973 Total	**12.971**	**22.512**	**34.840**	**3.010**	**0.910**	**0.039**	**74.282**	
1974 Total	**12.663**	**21.732**	**33.455**	**3.309**	**1.272**	**.112**	**72.543**	
1975 Total	**12.663**	**19.948**	**32.731**	**3.219**	**1.900**	**.086**	**70.546**	
1976 Total	**13.584**	**20.345**	**35.175**	**3.066**	**2.111**	**.081**	**74.362**	
1977 Total	**13.922**	**19.931**	**37.122**	**2.515**	**2.702**	**.097**	**76.288**	
1978 Total	**13.765**	**20.000**	**37.965**	**3.141**	**3.024**	**.193**	**78.089**	
1979 Total	**15.039**	**20.666**	**37.123**	**3.141**	**2.776**	**.152**	**78.898**	
1980 Total	**15.423**	**20.394**	**34.202**	**3.118**	**2.739**	**.079**	**75.955**	
1981 Total	**15.907**	**19.928**	**31.931**	**3.105**	**3.008**	**.111**	**73.990**	
1982 Total	**15.322**	**18.505**	**30.231**	**3.572**	**3.131**	**.086**	**70.848**	
1983 Total	**15.894**	**17.357**	**30.054**	**3.899**	**3.203**	**.118**	**70.524**	
1984 Total	**17.070**	**18.507**	**31.051**	**3.757**	**3.553**	**.163**	**74.101**	
1985 Total	**17.478**	**17.834**	**30.922**	**3.363**	**4.149**	**.199**	**73.945**	
1986 Total	**17.262**	**16.708**	**32.196**	**3.385**	**4.471**	**.215**	**74.237**	
1987 Total	**18.008**	**17.745**	**32.865**	**3.068**	**4.906**	**.253**	**76.845**	
1988 January	1.684	R 2.250	2.919	.261	.480	.024	R 7.618	R 7.618
February	1.539	R 2.097	2.787	.231	.454	.019	R 7.128	R 14.746
March	1.486	R 1.921	2.954	.235	.472	.026	R 7.094	R 21.839
April	1.368	R 1.506	2.688	.224	.430	.023	R 6.241	R 28.080
May	1.418	R 1.340	2.717	.243	.437	.017	R 6.172	R 34.252
June	1.601	R 1.204	2.769	.223	.474	.024	R 6.295	R 40.546
July	1.749	R 1.211	2.800	.211	.535	.028	R 6.534	R 47.081
August	1.819	R 1.257	2.933	.209	.527	.024	R 6.768	R 53.849
September	1.522	R 1.131	2.771	.194	.497	.023	R 6.137	R 59.986
October	1.498	R 1.268	2.949	.179	.458	.024	R 6.376	R 66.362
November	1.493	R 1.495	2.860	.209	.425	.020	R 6.503	R 72.865
December	1.668	R 1.873	3.081	.221	.473	.022	R 7.338	R 80.203
Total	**18.846**	**R 18.553**	**34.228**	**2.639**	**5.661**	**.274**	**R 80.202**	
1989 January	1.648	R 2.082	2.896	.231	.498	.026	R 7.381	R 7.381
February	1.557	R 2.066	2.714	.212	.416	.019	R 6.985	R 14.366
March	1.547	R 2.001	3.017	.241	.426	.023	R 7.255	R 21.621
April	1.407	R 1.626	2.698	.259	.360	.024	R 6.374	R 27.994
May	1.452	R 1.387	2.775	.303	.412	.024	R 6.352	R 34.347
June	1.560	R 1.235	2.840	.284	.462	.022	R 6.403	R 40.750
July	1.693	R 1.255	2.759	.257	.562	.022	R 6.549	R 47.299
August	1.704	1.251	2.912	.227	.590	.021	6.705	R 54.004
September	1.539	R 1.215	2.726	.205	.482	.019	R 6.186	R 60.190
October	1.514	R 1.376	2.902	.208	.468	.014	R 6.482	R 66.671
November	1.521	R 1.612	2.810	.210	.466	.016	R 6.636	R 73.307
December	1.774	R 2.219	3.163	.220	.546	.016	R 7.937	R 81.245
Total	**18.916**	**R 19.325**	**34.211**	**2.858**	**5.687**	**.248**	**R 81.244**	
1990 January	1.630	R 2.149	2.846	.240	.592	.018	R 7.474	R 7.474
February	1.451	R 1.836	2.579	.238	.537	.016	R 6.658	R 14.132
March	1.511	R 1.800	2.865	.276	.495	.018	R 6.965	R 21.097
April	1.436	R 1.595	2.705	.256	.414	.014	R 6.419	R 27.516
May	1.465	R 1.396	2.825	.274	.461	.017	R 6.438	R 33.954
June	1.590	1.289	2.777	.281	.498	.018	6.453	40.407
6-Month Total	**9.082**	**10.065**	**16.596**	**1.565**	**2.997**	**.101**	**40.407**	
1989 6-Month Total	**9.170**	**10.397**	**16.940**	**1.531**	**2.573**	**.139**	**40.750**	
1988 6-Month Total	**9.097**	**10.319**	**16.835**	**1.417**	**2.746**	**.133**	**40.546**	

[a]Includes supplemental gaseous fuels.
[b]Includes industrial and utility production and net imports of electricity.
[c]Other is net imports of coal coke and electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.
[d]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: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration calculations based on data appearing elsewhere in this publication.

Figure 1.4 Energy Imports and Exports

Yearly



Monthly

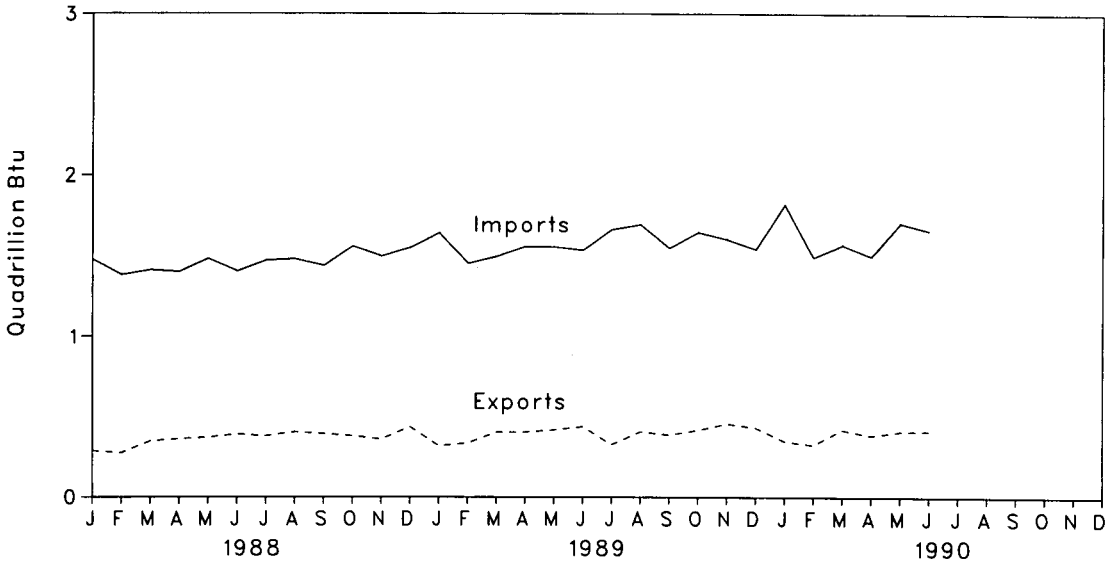


Table 1.5 Net Imports[a] of Energy by Source
(Quadrillion Btu)

	Coal	Crude Oil[b]	Petroleum Products[c]	Natural Gas	Electricity[d]	Coal Coke	Total	Year to Date
1973 Total	**-1.422**	**6.883**	**6.097**	**0.981**	**0.148**	**-0.007**	**12.680**	
1974 Total	**-1.566**	**7.389**	**5.273**	**.907**	**.133**	**.056**	**12.190**	
1975 Total	**-1.738**	**8.708**	**3.800**	**.904**	**.064**	**.014**	**11.752**	
1976 Total	**-1.567**	**11.221**	**3.982**	**.922**	**.089**	**.000**	**14.648**	
1977 Total	**-1.401**	**13.921**	**4.321**	**.981**	**.182**	**.015**	**18.019**	
1978 Total	**-1.004**	**13.125**	**3.932**	**.941**	**.204**	**.125**	**17.323**	
1979 Total	**-1.702**	**13.328**	**3.603**	**1.243**	**.211**	**.063**	**16.746**	
1980 Total	**-2.391**	**10.586**	**2.912**	**.957**	**.217**	**-.035**	**12.247**	
1981 Total	**-2.918**	**8.654**	**2.522**	**.857**	**.347**	**-.016**	**9.646**	
1982 Total	**-2.768**	**6.917**	**2.128**	**.898**	**.306**	**-.022**	**7.460**	
1983 Total	**-2.013**	**6.731**	**2.351**	**.887**	**.372**	**-.016**	**8.311**	
1984 Total	**-2.119**	**6.918**	**2.970**	**.792**	**.409**	**-.011**	**8.959**	
1985 Total	**-2.389**	**6.381**	**2.570**	**.896**	**.423**	**-.013**	**7.868**	
1986 Total	**-2.193**	**8.676**	**2.855**	**.686**	**.368**	**-.017**	**10.375**	
1987 Total	**-2.049**	**9.748**	**2.784**	**.937**	**.475**	**.009**	**11.904**	
1988 January	-.113	.816	.316	.134	.032	.003	1.189	1.189
February	-.114	.771	.303	.112	.033	.002	1.107	2.296
March	-.182	.852	.249	.107	.032	.006	1.064	3.360
April	-.233	.895	.256	.090	.026	.004	1.038	4.398
May	-.202	.952	.249	.090	.022	-.002	1.109	5.507
June	-.205	.918	.183	.085	.027	.005	1.012	6.519
July	-.213	.899	.267	.095	.035	.007	1.089	7.608
August	-.240	.903	.280	.088	.038	.003	1.073	8.681
September	-.264	.902	.290	.088	.025	.003	1.043	9.724
October	-.231	.985	.294	.100	.023	.004	1.176	10.900
November	-.214	.872	.346	.114	.017	.001	1.136	12.036
December	-.234	.933	.276	.118	.015	.003	1.111	13.147
Total	**-2.446**	**10.698**	**3.308**	**1.221**	**.325**	**.040**	**13.146**	
1989 January	-.164	1.011	.342	.112	.014	.007	1.322	1.322
February	-.174	.843	.323	.103	.019	.002	1.115	2.437
March	-.212	.893	.297	.102	.006	.003	1.089	3.527
April	-.236	.994	.277	.099	.010	.007	1.151	4.678
May	-.247	1.025	.239	.100	.012	.006	1.135	5.813
June	-.249	1.016	.211	.095	.016	.004	1.093	6.906
July	-.154	1.124	.249	.092	.022	.004	1.337	8.243
August	-.208	1.172	.204	.099	.018	.003	1.287	9.530
September	-.247	1.062	.226	.108	.009	.002	1.159	10.690
October	-.241	1.121	.238	.113	.000	-.004	1.228	11.918
November	-.251	1.072	.218	.115	-.009	-.001	1.144	13.062
December	-.200	.955	.222	.137	-.005	-.002	1.107	14.169
Total	**-2.581**	**12.286**	**3.046**	**1.276**	**.112**	**.030**	**14.169**	
1990 January	-.192	1.111	.411	R .141	E -.003	.000	R 1.469	R 1.469
February	-.158	.951	.270	R .110	E -.011	.000	R 1.162	R 2.632
March	-.221	1.097	.180	R .105	E -.014	.001	R 1.147	R 3.778
April	-.221	.997	.228	.114	E -.007	-.001	1.110	R 4.889
May	-.255	1.158	.299	R .100	E -.006	.000	R 1.295	R 6.184
June	-.236	1.120	.261	R .105	E -.005	.001	1.245	7.429
6-Month Total	**-1.283**	**6.434**	**1.648**	**.676**	E **-.046**	**.000**	**7.429**	
1989 6-Month Total	**-1.282**	**5.760**	**1.689**	**.611**	**.078**	**.029**	**6.906**	
1988 6-Month Total	**-1.049**	**5.203**	**1.555**	**.619**	**.173**	**.018**	**6.519**	

[a]Net imports equals imports minus exports. Minus sign indicates exports are greater than imports.
[b]Includes crude oil, lease condensate, and imports of crude oil for the Strategic Petroleum Reserve.
[c]Includes petroleum products, unfinished oils, pentanes plus, and gasoline blending components.
[d]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 to 10.5 thousand Btu per kilowatthour since 1973. Actual rates applied in converting kilowatthour to Btu are listed by year in Table A9.

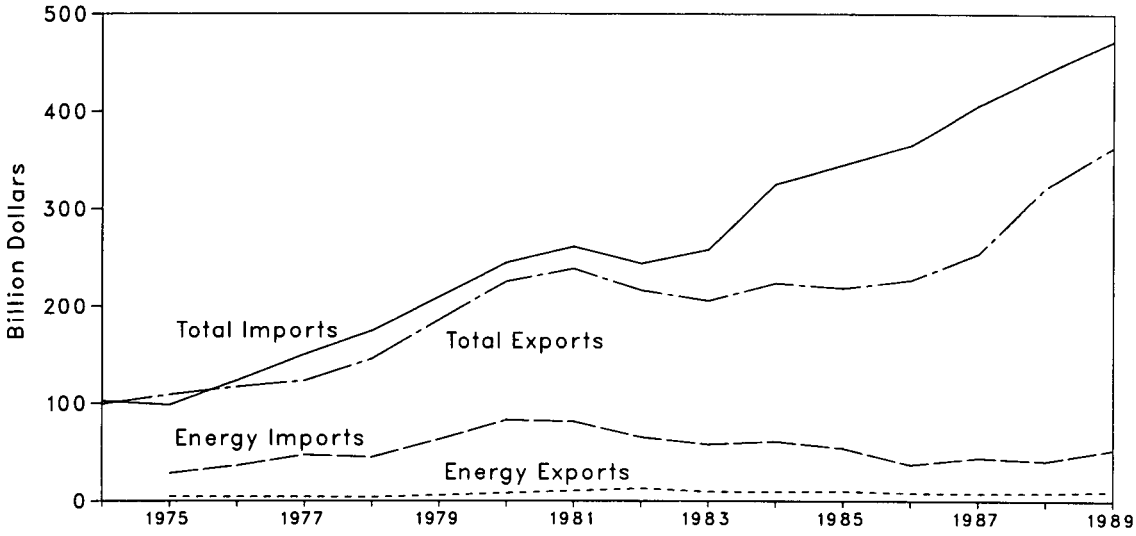
R=Revised data. E=Estimate.

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

Source: Energy Information Administration calculations based on data appearing elsewhere in this publication.

Figure 1.5 Merchandise Trade Value

Yearly



Monthly

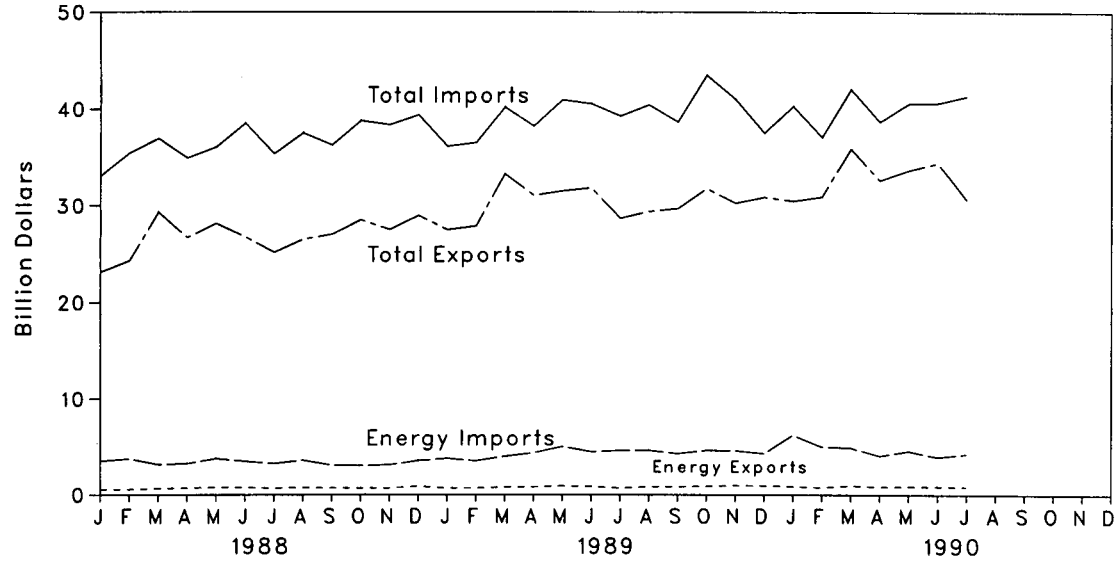


Table 1.6 Merchandise Trade Value
(Million Dollars)

	Exports			Imports			Trade Balance		
	Energy	All Other	Total	Energy	All Other	Total	Energy	All Other	Total
1974 Total	**NA**	**NA**	**99,437**	**NA**	**NA**	**102,559**	**NA**	**NA**	**-3,122**
1975 Total	**4,470**	**104,386**	**108,856**	**28,325**	**70,178**	**98,503**	**-23,855**	**34,208**	**10,353**
1976 Total	**4,226**	**112,568**	**116,794**	**36,384**	**87,093**	**123,477**	**-32,158**	**25,475**	**-6,683**
1977 Total	**4,184**	**118,998**	**123,182**	**47,153**	**103,237**	**150,390**	**-42,969**	**15,761**	**-27,208**
1978 Total	**3,882**	**141,965**	**145,847**	**44,763**	**129,994**	**174,757**	**-40,881**	**11,971**	**-28,910**
1979 Total	**5,675**	**180,688**	**186,363**	**63,077**	**146,381**	**209,458**	**-57,402**	**34,307**	**-23,095**
1980 Total	**7,982**	**217,584**	**225,566**	**82,924**	**161,947**	**244,871**	**-74,942**	**55,637**	**-19,305**
1981 Total	**10,279**	**228,436**	**238,715**	**81,360**	**179,622**	**260,982**	**-71,081**	**48,814**	**-22,267**
1982 Total	**12,729**	**203,713**	**216,442**	**65,409**	**178,543**	**243,952**	**-52,680**	**25,170**	**-27,510**
1983 Total	**9,500**	**196,139**	**205,639**	**57,952**	**200,096**	**258,048**	**-48,452**	**-3,957**	**-52,409**
1984 Total	**9,311**	**214,665**	**223,976**	**60,980**	**264,746**	**325,726**	**-51,669**	**-50,081**	**-101,750**
1985 Total	**9,971**	**208,844**	**218,815**	**53,917**	**291,359**	**345,276**	**-43,946**	**-82,515**	**-126,461**
1986 Total	**8,115**	**219,044**	**227,159**	**37,310**	**328,128**	**365,438**	**-29,195**	**-109,084**	**-138,279**
1987 Total	**7,713**	**246,409**	**254,122**	**44,220**	**362,021**	**406,241**	**-36,507**	**-115,612**	**-152,119**
1988 January	560	22,602	23,162	3,576	29,459	33,035	-3,016	-6,858	-9,874
February	548	23,768	24,316	3,795	31,699	35,494	-3,247	-7,932	-11,179
March	645	28,698	29,343	3,190	33,809	36,999	-2,545	-5,111	-7,656
April	678	26,050	26,728	3,281	31,680	34,961	-2,603	-5,630	-8,233
May	763	27,430	28,193	3,800	32,308	36,108	-3,037	-4,878	-7,915
June	728	26,075	26,803	3,525	35,016	38,541	-2,797	-8,941	-11,738
July	677	24,509	25,186	3,293	32,104	35,397	-2,616	-7,595	-10,211
August	731	25,808	26,539	3,636	33,909	37,545	-2,905	-8,101	-11,006
September	691	26,376	27,067	3,124	33,180	36,304	-2,433	-6,804	-9,237
October	676	27,868	28,544	3,072	35,723	38,795	-2,396	-7,855	-10,251
November	674	26,891	27,565	3,162	35,227	38,389	-2,488	-8,336	-10,824
December	863	28,119	28,982	3,605	35,779	39,384	-2,742	-7,660	-10,402
Total	**8,235**	**314,191**	**322,426**	**41,042** *	**399,910**	**440,952**	**-32,807** *	**-85,719**	**-118,526**
1989 January	678	26,863	27,541	3,816	32,363	36,179	-3,138	-5,500	-8,638
February	673	27,254	27,927	3,567	32,982	36,549	-2,894	-5,728	-8,622
March	783	32,460	33,243	4,024	36,173	40,197	-3,241	-3,713	-6,954
April	814	30,238	31,052	4,392	33,851	38,243	-3,578	-3,613	-7,191
May	905	30,591	31,496	5,057	35,902	40,959	-4,152	-5,311	-9,463
June	854	30,966	31,820	4,523	36,021	40,544	-3,669	-5,055	-8,724
July	R 676	R 28,032	28,708	R 4,629	R 34,661	39,290	R -3,953	R -6,629	-10,582
August	843	28,563	29,406	4,658	35,782	40,440	-3,815	-7,219	-11,034
September	841	28,869	29,710	4,327	34,353	38,680	-3,486	-5,485	-8,971
October	887	30,869	31,756	4,652	38,884	43,536	-3,765	-8,015	-11,780
November	981	29,298	30,279	4,636	36,397	41,033	-3,655	-7,099	-10,754
December	946	29,928	30,874	4,326	33,235	37,561	-3,380	-3,307	-6,687
Total	**R 9,881**	**R 353,931**	**363,812**	**R 52,607**	**R 420,604**	**473,211**	**R -42,726**	**R -66,673**	**-109,399**
1990 January	886	29,610	30,496	6,286	34,024	40,310	-5,400	-4,414	-9,814
February	766	30,155	30,921	5,042	32,088	37,130	-4,276	-1,933	-6,209
March	964	34,991	35,955	4,943	37,139	42,082	-3,979	-2,147	-6,126
April	849	31,751	32,600	4,099	34,613	38,712	-3,250	-2,862	-6,112
May	866	32,812	33,678	4,593	36,010	40,603	-3,727	-3,198	-6,925
June	869	R 33,588	R 34,457	3,976	R 36,677	R 40,653	-3,107	R -3,089	R -6,196
July	831	29,798	30,629	4,287	37,069	41,356	-3,456	-7,271	-10,727
7-Month Total	**6,032**	**222,703**	**228,735**	**33,226**	**247,619**	**280,845**	**-27,194**	**-24,916**	**-52,110**

* Annual value is not equal to the sum of the months because some monthly revisions are not available for publication.
R=Revised data. NA=Not available.
Notes: • Monthly data are not adjusted for seasonal variations. • 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, and Puerto Rico) and the Virgin Islands.
Additional Notes and Sources: See end of section.

Figure 1.6 Energy Consumption per Dollar of Gross National Product

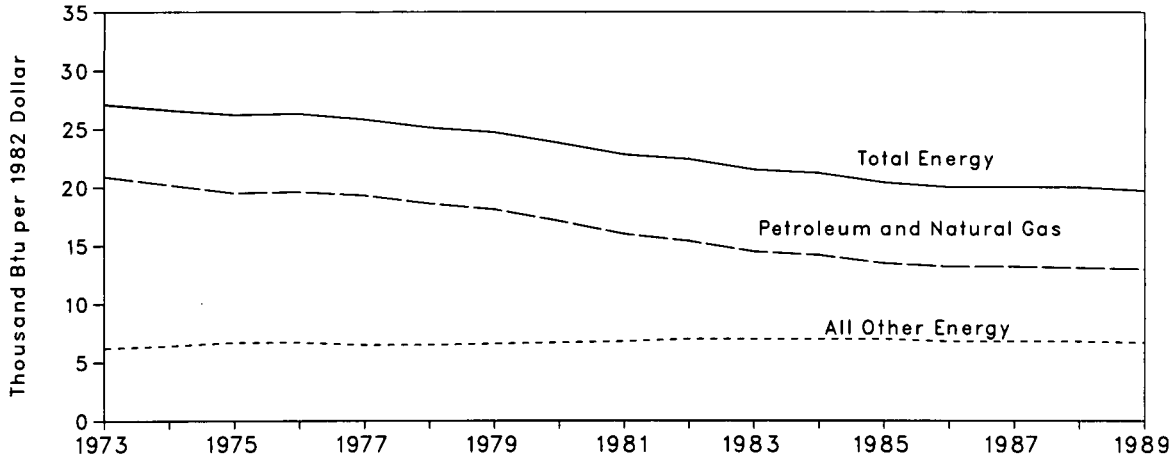


Table 1.7 Energy Consumption per Dollar of Gross National Product (Seasonally Adjusted at Annual Rates)

	Energy Consumption			Gross National Product (GNP)	Energy Consumption per Dollar of GNP		
	Petroleum and Natural Gas	Other Energy	Total[a]		Petroleum and Natural Gas	Other Energy	Total
	Quadrillion Btu			Trillion 1982 Dollars	Thousand Btu per 1982 Dollar		
1973 Year	**57.352**	**16.930**	**74.282**	**2.744**	**20.9**	**6.2**	**27.1**
1974 Year	**55.187**	**17.356**	**72.543**	**2.729**	**20.2**	**6.4**	**26.6**
1975 Year	**52.678**	**17.868**	**70.546**	**2.695**	**19.5**	**6.6**	**26.2**
1976 Year	**55.520**	**18.842**	**74.362**	**2.827**	**19.6**	**6.7**	**26.3**
1977 Year	**57.053**	**19.235**	**76.288**	**2.959**	**19.3**	**6.5**	**25.8**
1978 Year	**57.966**	**20.123**	**78.089**	**3.115**	**18.6**	**6.5**	**25.1**
1979 Year	**57.789**	**21.109**	**78.898**	**3.192**	**18.1**	**6.6**	**24.7**
1980 Year	**54.596**	**21.359**	**75.955**	**3.187**	**17.1**	**6.7**	**23.8**
1981 Year	**51.859**	**22.131**	**73.990**	**3.249**	**16.0**	**6.8**	**22.8**
1982 Year	**48.736**	**22.112**	**70.848**	**3.166**	**15.4**	**7.0**	**22.4**
1983 Year	**47.411**	**23.113**	**70.524**	**3.279**	**14.5**	**7.0**	**21.5**
1984 Year	**49.558**	**24.543**	**74.101**	**3.501**	**14.2**	**7.0**	**21.2**
1985 Year	**48.756**	**25.189**	**73.945**	**3.619**	**13.5**	**7.0**	**20.4**
1986 Year	**48.904**	**25.333**	**74.237**	**3.718**	**13.2**	**6.8**	**20.0**
1987 Year	**50.610**	**26.235**	**76.845**	**3.845**	**13.2**	**6.8**	**20.0**
1988 1st Quarter[b]	R 53.693	R 27.487	R 81.180	3.970	R 13.5	6.9	R 20.4
2nd Quarter[b]	R 52.237	R 27.241	R 79.478	4.006	13.0	6.8	19.8
3rd Quarter[b]	R 52.561	R 27.824	R 80.385	4.032	13.0	6.9	19.9
4th Quarter[b]	R 52.640	R 27.128	R 79.768	4.059	13.0	6.7	19.7
Year	**R 52.781**	**27.421**	**R 80.202**	**4.017**	**13.1**	**6.8**	**20.0**
1989 1st Quarter[b]	R 53.700	27.541	R 81.164	4.096	R 13.1	6.7	19.8
2nd Quarter[b]	R 53.491	R 27.523	R 81.014	4.112	R 13.0	6.7	R 19.7
3rd Quarter[b]	R 52.477	R 27.644	R 80.121	4.130	12.7	6.7	19.4
4th Quarter[b]	R 54.484	R 28.192	R 82.676	4.133	13.2	6.8	20.0
Year	**R 53.536**	**R 27.708**	**R 81.244**	**4.118**	**13.0**	**6.7**	**19.7**
1990 1st Quarter[b]	R 51.031	R 28.060	R 79.091	4.151	12.3	6.8	19.1
2nd Quarter[b]	53.571	28.193	81.764	4.155	12.9	6.8	19.7

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

[b]Quarterly data are seasonally adjusted and shown at annual rates.

R=Revised data.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Yearly data may not equal average of quarters due to seasonality adjustments and independent rounding.

Sources: See end of section.

Figure 1.7 U.S. Dependence on Petroleum Net Imports

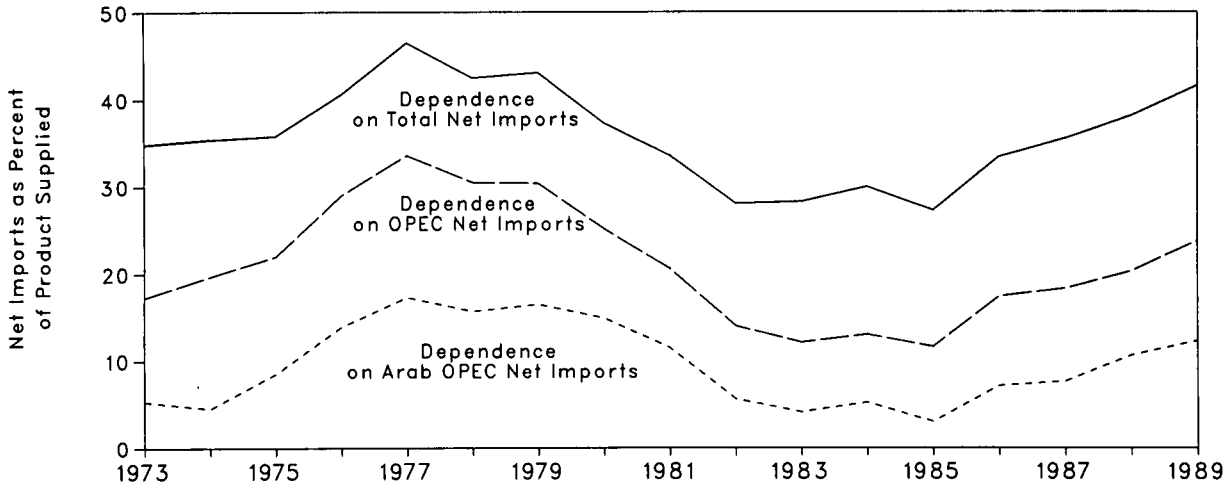


Table 1.8 U.S. Dependence on Petroleum Net Imports[a]

Annual Rate	Net Imports[b]			Petroleum Products Supplied	Net Imports as Percent of U.S. Petroleum Products Supplied		
	From Arab OPEC[c]	From OPEC[d]	From All Countries		From Arab OPEC[c]	From OPEC[d]	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	**3,054**	**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 1st Quarter	1,676	3,210	6,263	17,588	9.5	18.3	35.6
2nd Quarter	1,655	3,507	6,518	16,601	10.0	21.1	39.3
3rd Quarter	1,995	3,655	6,623	17,083	11.7	21.4	38.8
4th Quarter	2,020	3,675	6,937	17,857	11.3	20.6	38.8
Average	**1,837**	**3,513**	**6,587**	**17,283**	**10.6**	**20.3**	**38.1**
1989 1st Quarter	2,046	3,911	7,080	17,719	11.5	22.1	40.0
2nd Quarter	2,055	4,015	7,084	16,885	12.2	23.8	42.0
3rd Quarter	2,318	4,383	7,512	16,870	13.7	26.0	44.5
4th Quarter	2,091	4,180	7,127	17,830	11.7	23.4	40.0
Average	**2,128**	**4,124**	**7,202**	**17,325**	**12.3**	**23.8**	**41.6**
1990 1st Quarter	2,399	4,578	7,661	17,025	14.1	26.9	45.0
2nd Quarter	2,233	4,382	7,648	16,873	13.2	26.0	45.3

[a]Beginning in October 1977, Strategic Petroleum Reserves are included.

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

[c]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."

[d]OPEC consists of Ecuador, Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Annual averages may not equal average of quarters due to independent rounding.

Sources: See end of section.

Figure 1.8 Cost of Fuels to End Users in Constant (1982-84) Dollars

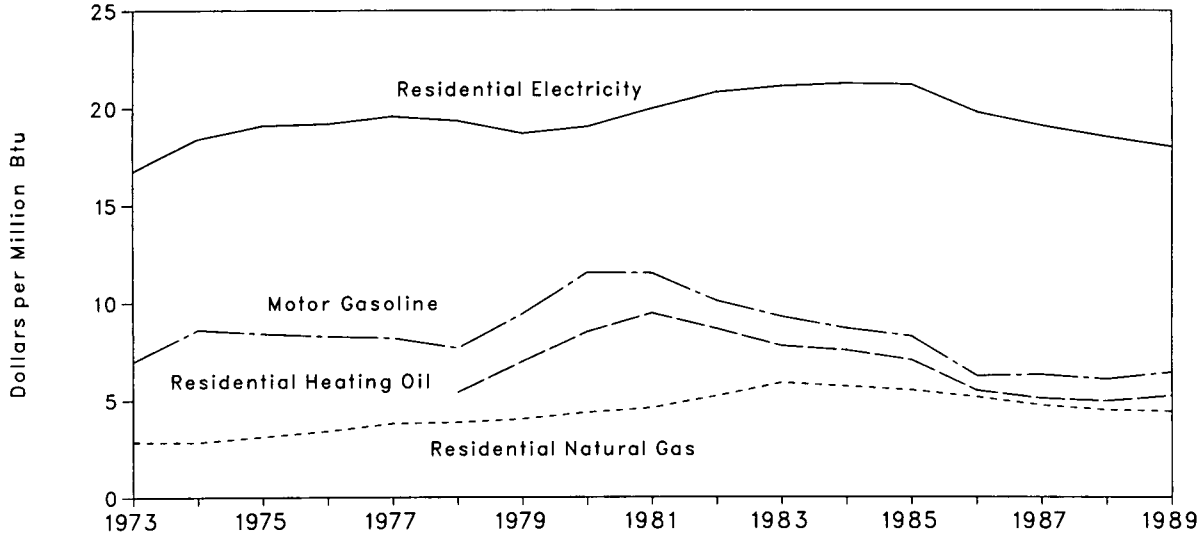


Table 1.9 Cost of Fuels to End Users in Constant (1982-84) Dollars[a]

	Leaded Regular Motor Gasoline		Residential Heating Oil		Residential Natural Gas		Residential Electricity	
	Cents/Gal	$/MMBtu	Cents/Gal	$/MMBtu	Cents/Mcf	$/MMBtu	Cents/kWh	$/MMBtu
1973 Average	**87.4**	**6.99**	**NA**	**NA**	**290.5**	**2.85**	**5.72**	**16.77**
1974 Average	**107.9**	**8.63**	**NA**	**NA**	**290.1**	**2.83**	**6.29**	**18.43**
1975 Average	**105.4**	**8.43**	**NA**	**NA**	**317.8**	**3.12**	**6.52**	**19.12**
1976 Average	**103.7**	**8.29**	**NA**	**NA**	**348.0**	**3.41**	**6.56**	**19.21**
1977 Average	**102.6**	**8.21**	**NA**	**NA**	**387.8**	**3.81**	**6.68**	**19.59**
1978 Average	**96.0**	**7.68**	**75.2**	**5.42**	**392.6**	**3.86**	**6.61**	**19.37**
1979 Average	**118.0**	**9.44**	**97.0**	**6.99**	**410.5**	**4.03**	**6.39**	**18.73**
1980 Average	**144.5**	**11.56**	**118.2**	**8.52**	**446.6**	**4.36**	**6.50**	**19.06**
1981 Average	**144.2**	**11.53**	**131.4**	**9.47**	**471.9**	**4.60**	**6.82**	**19.99**
1982 Average	**126.6**	**10.12**	**120.2**	**8.67**	**535.8**	**5.22**	**7.11**	**20.83**
1983 Average	**116.2**	**9.29**	**108.2**	**7.80**	**608.4**	**5.90**	**7.21**	**21.13**
1984 Average	**108.7**	**8.69**	**105.0**	**7.57**	**589.0**	**5.72**	**7.26**	**21.27**
1985 Average	**103.6**	**8.29**	**97.9**	**7.06**	**568.8**	**5.52**	**7.24**	**21.22**
1986 Average	**78.2**	**6.25**	**76.3**	**5.50**	**531.9**	**5.17**	**6.76**	**19.82**
1987 Average	**79.0**	**6.31**	**70.7**	**5.10**	**487.7**	**4.73**	**6.52**	**19.12**
1988 1st Quarter	74.3	5.94	72.3	5.21	R 441.0	R 4.29	6.05	17.72
2nd Quarter	76.7	6.13	69.3	5.00	503.0	4.89	6.44	18.88
3rd Quarter	78.4	6.27	63.3	4.56	572.6	5.56	6.62	19.42
4th Quarter	74.8	5.98	64.8	4.68	468.0	4.55	6.22	18.22
Average	**76.0**	**6.08**	**68.7**	**4.96**	**462.4**	**4.49**	**6.33**	**18.56**
1989 1st Quarter	73.1	5.85	70.6	5.09	444.5	4.32	5.91	17.32
2nd Quarter	87.2	6.97	69.7	5.02	R 486.7	4.73	6.27	18.39
3rd Quarter	83.3	6.66	65.5	4.72	R 555.7	5.40	6.47	18.97
4th Quarter	77.8	6.22	74.5	5.37	448.0	4.35	6.00	17.60
Average	**80.4**	**6.43**	**72.6**	**5.23**	**R 454.8**	**R 4.42**	**6.16**	**18.06**
1990 1st Quarter	78.5	6.28	79.5	5.73	432.8	4.21	5.80	16.99
2nd Quarter	81.1	6.49	69.7	5.02	467.9	4.55	6.14	18.00

[a]Fuel costs shown on this page are calculated using the Urban Consumer Price Index (CPI) developed by the Bureau of Labor Statistics. See Note 6 at end of section.

R=Revised data. NA=Not available.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Annual averages may not equal average of quarters due to independent rounding. • Quarterly values are simple averages of the monthly data shown in Tables 9.4, 9.8c, 9.11, and 9.9 (Monthly Series), adjusted by the CPI. The annual values are from the four source tables, adjusted by the CPI.

Sources: See end of section.

Figure 1.9 Passenger Car Efficiency

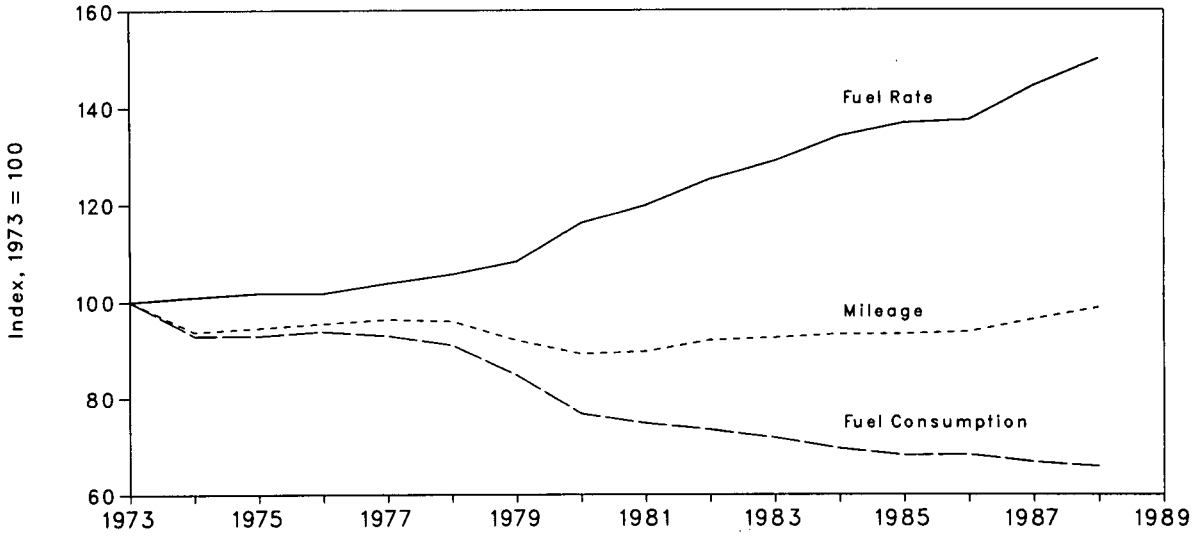


Table 1.10 Passenger Car Efficiency

	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[a]	10,119	98.7	507	65.8	19.95	150.0

[a]Preliminary data.
Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: See end of section.

Table 1.11 Population-Weighted Cooling Degree-Days[a]

Census Divisions	August 1 through August 31					Cumulative January 1 through August 31				
				Percent Change					Percent Change	
	Normal[b]	1989	1990	Normal to 1990	1989 to 1990	Normal[b]	1989	1990	Normal to 1990	1989 to 1990
New England										
CT, ME, MA, NH, RI, VT	143	145	184	28.7	26.9	398	389	448	12.6	15.2
Middle Atlantic										
NJ, NY, PA	217	205	219	.9	6.8	625	631	644	3.0	2.1
East North Central										
IL, IN, MI, OH, WI	210	184	192	-8.6	4.3	667	636	617	-7.5	-3.0
West North Central										
IA, KS, MN, MO, NE, ND, SD	262	243	273	4.2	12.3	883	813	832	-5.8	2.3
South Atlantic										
DE, FL, GA, MD and DC, NC, SC, VA, WV	391	385	407	4.1	5.7	1,431	1,539	1,606	12.2	4.4
East South Central										
AL, KY, MS, TN	385	385	423	9.9	9.9	1,310	1,275	1,364	4.1	7.0
West South Central										
AR, LA, OK, TX	537	505	554	3.2	9.7	1,943	1,943	2,051	5.6	5.6
Mountain										
AZ, CO, ID, MT, NV, NM, UT, WY	266	264	256	-3.8	-3.0	869	1,032	963	10.8	-6.7
Pacific										
CA, OR, WA	189	133	183	-3.2	37.6	467	415	510	9.2	22.9
U.S. Average[c]	**287**	**267**	**293**	**2.1**	**9.7**	**947**	**953**	**994**	**5.0**	**4.3**

[a]See Note 7 at end of section.
[b]Normal is based on calculations of data from 1951 through 1980.
[c]Excludes Alaska and Hawaii.
Source: See end of section.

Energy Summary Notes and Sources

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. The volumetric data are converted to approximate heat contents (Btu values) of these energy sources using the conversion factors provided in the Appendix.

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 using the conversion factors provided in the Appendix.

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 using the conversion factors provided in the Appendix. For further information on electricity, see "Note for imports and exports of electricity" under Note 7 of the Notes and Sources for the 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 using the conversion factors provided in the Appendix. For more information on electricity, see "Note for imports and exports of electricity" under Note 7 of the Notes and Sources for the 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.

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

"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.

6. The Consumer Price Index: The values for the Consumer Price Index, All Urban Consumers, All Items, 1982-84 = 100, are as follows:

1973	44.4	1988:	1st Quarter	116.1
1974	49.3		2nd Quarter	117.5
1975	53.8		3rd Quarter	119.1
1976	56.9		4th Quarter	120.3
1977	60.6		Year	118.3
1978	65.2	1989:	1st Quarter	121.7
1979	72.6		2nd Quarter	123.7
1980	82.4		3rd Quarter	124.7
1981	90.9		4th Quarter	125.9
1982	96.5		Year	124.0
1983	99.6	1990:	1st Quarter	128.0
1984	103.9		2nd Quarter	129.3
1985	107.6			
1986	109.6			
1987	113.6			

7. Degree-Days: Degree-days are relative measurements of outdoor air temperature. Cooling degree-days are defined as deviations of the mean daily temperature at a sampling station above a base temperature equal to 65 °F by convention. Heating degree-days are deviations of the mean daily temperature below 65 °F. For example, if a weather station recorded a mean daily temperature of 78 °F, cooling degree-days for that station would be 13 (and heating degree-days, 0). A weather station recording a mean daily temperature of 40 °F would report 25 heating degree-days (and 0 cooling degree-days).

There are several degree-day data bases maintained by the National Oceanic and Atmospheric Administration. The information published in the *Monthly Energy Review (MER)* 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 1980 by the U.S. Department of Commerce, Bureau of the Census. The data shown in the *MER* are available sooner than the Historical Climatology Series 5-1 and 5-2 developed by the National Climatic Center, Asheville, NC, which compiles data from some 8,000 weather stations.

Sources

Merchandise Trade Value: 1974 through 1980: U.S. Department of Commerce (DOC), Bureau of the Census, "Highlights of U.S. Export and Import Trade," FT990 (January 1982), Appendix for total imports and exports. Energy imports and exports from DOC, Bureau of the Census, "Summary of U.S. Export and Import Merchandise Trade," December issues, plus Bureau of the Census reports EA691 "Exports from the Virgin Islands to Foreign Countries," and IA245V "U.S. Imports for Consumption and General Imports into the Virgin Islands." 1981 forward: DOC, Bureau of the Census, "Summary of U.S. Export and Import Merchandise Trade," most recent monthly issue.

Gross National Product: 1973 through 1988: *Economic Report of the President,* February 1990, Table C-2; 1989 forward: DOC, Bureau of Economic Analysis, *United States Department of Commerce News,* July 27,1990, Table 2.

U.S. Dependence on Petroleum Net Imports: Imports and Products Supplied--Section 3 of this publication. Exports--1973 through 1976: U.S. Department of the Interior, Bureau of Mines, *Mineral Industry Surveys.* 1977 through 1980: Energy Information Administration (EIA), *Energy Data Reports* , "Petroleum Statement, Annual." 1981-1989: EIA, *Petroleum Supply Annual.* 1990 forward: EIA, *Petroleum Supply Monthly.*

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

- Leaded Regular Motor Gasoline--U.S. Department of Labor (DOL), Bureau of Labor Statistics (BLS), *Consumer Prices: Energy,* monthly.
- Residential Heating Oil--1983 forward: EIA, Form EIA-782-A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report" and Form EIA-782B, "Resellers/Retailers' Monthly Petroleum Product Sales Report." Prices prior to 1983 are EIA estimates using data from Form FEA-P112-M1/EIA-9, "No. 2 Heating Oil Supply/Price Monitoring Report" and Form EIA-9A, "No. 2 Distillate Price Monitoring Report." See Note 6 in the Notes and Sources *Monthly Energy Review* Section 9, Price, for additional information.
- Residential Natural Gas--Annual data from EIA, Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." Monthly data from EIA, Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers."
- Residential Electricity--1973 through February 1980: Federal Energy Regulatory Commission (FERC), Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income"; March 1980 forward: FERC, Form FERC-5, "Electric Utility Company Monthly Statement."
- Deflator--1973 through 1988: *Economic Report of the President,* February 1990, Table C-58; 1989 forward: Council of Economic Advisers, *Economic Indicators,* February 1990, table titled, "Consumer Prices - All Urban Consumers."

Passenger Car Efficiency: Indices are prepared from statistics published by the U.S. Department of Transportation, Federal Highway Administration, Federal Highway Statistics Division. 1967-1985: "Highway Statistics Summary to 1985," Table VM-201A; 1986 forward: *Highway Statistics,* Table VM-1.

Section 2. Consumption

U.S. total energy consumption in June 1990 was 6.5 quadrillion Btu. Petroleum products accounted for 43 percent[18] of the energy consumed in June 1990, while coal accounted for 25 percent and natural gas accounted for 20 percent.

Residential and commercial sector consumption was 2.1 quadrillion Btu in June 1990, up 4 percent from the June 1989 level. The sector accounted for 33 percent of June 1990 total consumption, up 1 percentage point from its 32-percent share in June 1989.

Industrial sector consumption was 2.4 quadrillion Btu in June 1990, up 1 percent from the June 1989 level. The industrial sector accounted for 38 percent of June 1990 total consumption, about the same share as in June 1989.

Transportation sector consumption of energy was 1.9 quadrillion Btu in June 1990, down 3 percent from the June 1989 level. The sector consumed 29 percent of June 1990 total consumption, down 1 percentage point from its 30-percent share in June 1989.

Electric utility consumption of energy totaled 2.6 quadrillion Btu in June 1990, up 4 percent from the June 1989 level. Coal contributed 52 percent of the energy consumed by electric utilities in June 1990, while nuclear electric power contributed 19 percent; natural gas, 12 percent; hydroelectric power, 11 percent; petroleum, 5 percent; and wood, waste, geothermal, wind, photovoltaic, and solar thermal energy, about 1 percent.

Table 2.1 Energy Consumption Summary for June 1990
(Quadrillion Btu)

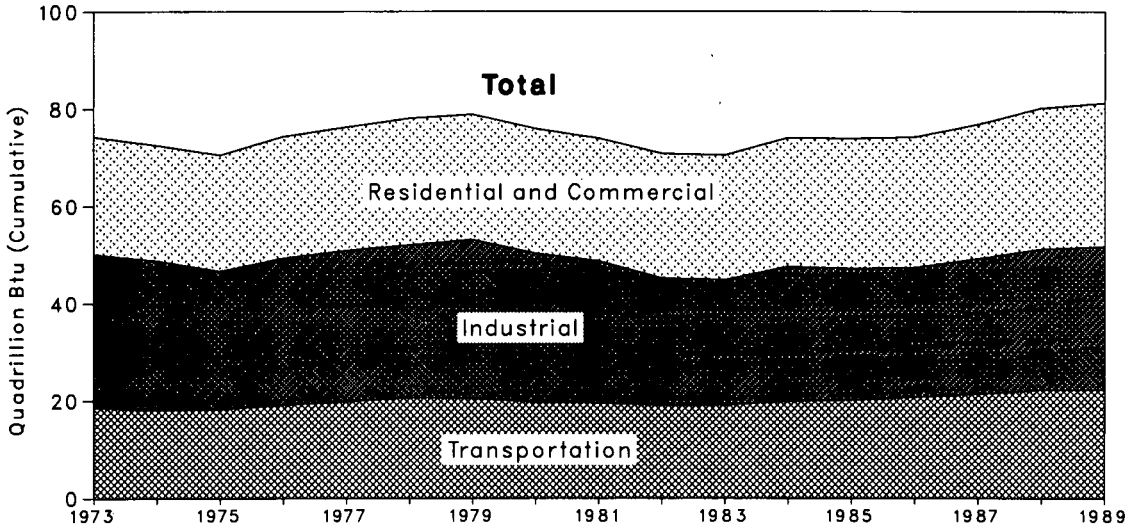
Energy Source	Sector				Total
	Residential and Commercial	Industrial	Transportation	Electric Utilities	
Coal	0.010	0.219	(a)	1.358	1.590
Natural Gas[b]	.292	.648	0.045	.304	1.289
Petroleum Products	.170	.648	1.819	.141	2.777
Hydroelectric Power	-	.003	-	.278	.281
Nuclear Electric Power	-	-	-	.498	.498
Net Imports of Coal Coke	-	.000	-	-	.000
Other[c]	-	-	-	.017	.017
Primary Consumption	**.473**	**1.519**	**1.864**	**2.595**	**6.453**
Electricity	.495	.273	.001		
Net Consumption	**.968**	**1.792**	**1.865**		**4.627**
Electrical System Energy Losses	1.175	.648	.003		1.826
Total Consumption[d]	**2.143**	**2.439**	**1.868**		**6.453**

[a]Small amounts of coal consumed for transportation are reported as industrial sector consumption.
[b]Includes supplemental gaseous fuels. Transportation sector is pipeline fuel only.
[c]Other is electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.
[d]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
Note: Totals may not equal sum of components due to independent rounding and the use of sector-specific conversion factors for natural gas and coal.
Additional Notes and Sources: See end of section.

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

Figure 2.1 Consumption of Energy by End-Use Sector

Yearly



Monthly

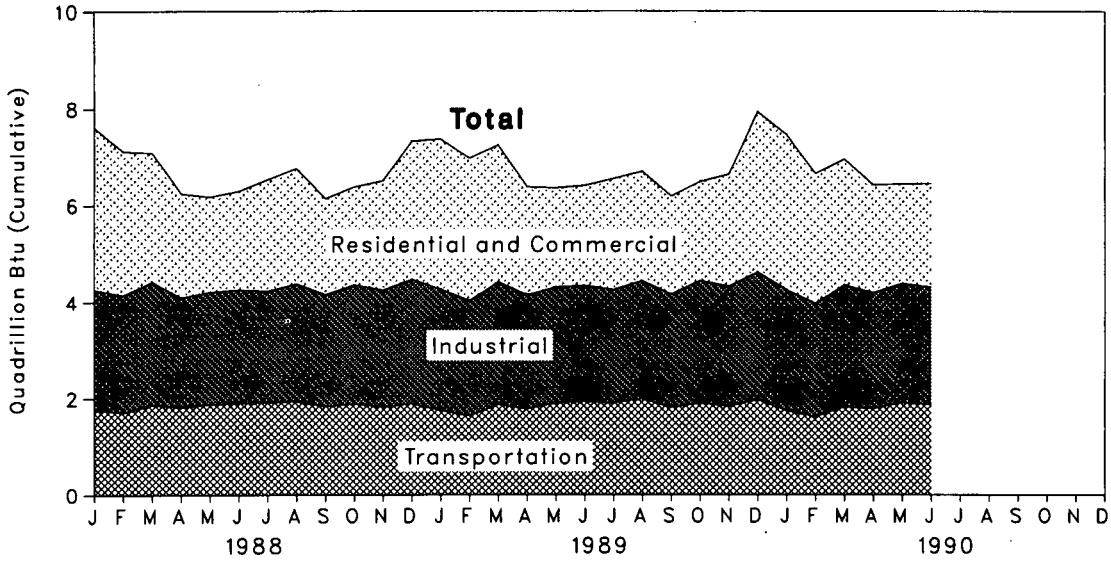


Table 2.2 Consumption of Energy by End-Use Sector
(Quadrillion Btu)

	Residential and Commercial		Industrial		Transportation		Total Net	Total Gross
	Net	Gross	Net	Gross	Net	Gross		
1973 Total	**15.766**	**24.143**	**25.917**	**31.527**	**18.584**	**18.605**	**60.274**	**74.282**
1974 Total	**15.246**	**23.724**	**24.994**	**30.695**	**18.095**	**18.117**	**58.341**	**72.543**
1975 Total	**15.200**	**23.900**	**22.738**	**28.401**	**18.219**	**18.244**	**56.157**	**70.546**
1976 Total	**15.997**	**25.020**	**24.038**	**30.234**	**19.076**	**19.101**	**59.119**	**74.362**
1977 Total	**15.828**	**25.387**	**24.594**	**31.075**	**19.794**	**19.819**	**60.223**	**76.288**
1978 Total	**16.023**	**26.088**	**24.636**	**31.388**	**20.589**	**20.611**	**61.251**	**78.089**
1979 Total	**15.709**	**25.809**	**25.679**	**32.615**	**20.447**	**20.472**	**61.836**	**78.898**
1980 Total	**15.075**	**25.653**	**23.853**	**30.608**	**19.669**	**19.695**	**58.597**	**75.955**
1981 Total	**14.540**	**25.243**	**22.534**	**29.238**	**19.480**	**19.507**	**56.556**	**73.990**
1982 Total	**14.630**	**25.631**	**20.015**	**26.139**	**19.043**	**19.069**	**53.697**	**70.848**
1983 Total	**14.396**	**25.631**	**19.396**	**25.751**	**19.109**	**19.135**	**52.907**	**70.524**
1984 Total	**15.014**	**26.501**	**21.065**	**27.728**	**19.843**	**19.871**	**55.923**	**74.101**
1985 Total	**14.888**	**26.731**	**20.439**	**27.120**	**20.066**	**20.097**	**55.391**	**73.945**
1986 Total	**14.812**	**26.834**	**20.138**	**26.646**	**20.728**	**20.758**	**55.678**	**74.237**
1987 Total	**15.177**	**27.621**	**21.178**	**27.872**	**21.328**	**21.357**	**57.678**	**76.845**
1988 January	R 2.167	R 3.363	R 1.931	R 2.481	1.770	1.773	R 5.870	R 7.618
February	R 1.960	R 2.988	R 1.918	R 2.435	1.702	1.705	R 5.580	R 7.128
March	R 1.670	R 2.678	R 2.003	R 2.556	1.859	1.862	R 5.530	R 7.094
April	R 1.258	R 2.152	1.739	2.272	1.818	1.820	R 4.812	R 6.241
May	R 1.021	R 1.968	R 1.743	R 2.339	1.865	1.867	R 4.626	R 6.172
June	R .920	R 2.037	R 1.728	R 2.353	1.899	1.901	R 4.550	R 6.295
July	R .989	R 2.302	R 1.693	R 2.317	1.909	1.912	R 4.595	R 6.534
August	R 1.025	R 2.383	R 1.813	R 2.448	1.928	1.931	R 4.772	R 6.768
September	R .957	R 1.983	R 1.786	R 2.324	1.828	1.831	R 4.572	R 6.137
October	R 1.068	R 2.021	R 1.910	R 2.478	1.876	1.879	R 4.853	R 6.376
November	R 1.304	R 2.254	1.864	2.430	1.817	1.820	R 4.983	R 6.503
December	R 1.758	R 2.873	R 1.989	R 2.579	1.884	1.886	R 5.631	R 7.338
Total	**16.096**	**28.999**	R **22.119**	R **29.014**	**22.155**	**22.186**	R **60.373**	R **80.202**
1989 January	R 1.982	R 3.116	R 1.978	R 2.517	R 1.745	R 1.748	R 5.705	R 7.381
February	R 1.909	R 2.960	R 1.866	R 2.390	R 1.632	R 1.635	R 5.407	R 6.985
March	R 1.766	R 2.846	R 2.000	R 2.545	R 1.863	R 1.866	R 5.627	R 7.255
April	R 1.307	R 2.234	R 1.821	R 2.366	R 1.776	R 1.778	R 4.899	R 6.374
May	R 1.049	R 2.052	R 1.788	R 2.406	R 1.894	R 1.897	R 4.729	R 6.352
June	R .950	R 2.065	R 1.790	R 2.409	R 1.925	R 1.928	R 4.667	R 6.403
July	R .992	R 2.291	R 1.727	R 2.355	R 1.897	R 1.900	R 4.618	R 6.549
August	R .997	R 2.269	R 1.810	R 2.444	R 1.984	R 1.987	4.795	6.705
September	R .969	R 2.025	R 1.802	R 2.353	R 1.804	R 1.807	R 4.577	R 6.186
October	R 1.067	R 2.048	R 1.947	R 2.543	R 1.890	R 1.892	R 4.901	R 6.482
November	R 1.335	R 2.316	R 1.899	R 2.489	R 1.830	R 1.832	R 5.062	R 6.636
December	R 2.054	R 3.323	R 2.011	R 2.647	R 1.961	R 1.964	R 6.028	R 7.937
Total	R **16.378**	R **29.549**	R **22.439**	R **29.465**	R **22.203**	R **22.234**	R **61.016**	R **81.244**
1990 January	R 2.073	R 3.223	R 1.987	R 2.509	1.738	1.741	R 5.799	R 7.474
February	R 1.712	R 2.690	R 1.826	R 2.352	1.614	1.616	R 5.151	R 6.658
March	R 1.585	R 2.619	R 1.948	R 2.528	1.816	1.819	R 5.348	R 6.965
April	R 1.292	R 2.229	R 1.853	R 2.409	1.781	1.784	R 4.924	R 6.419
May	1.055	2.058	R 1.858	R 2.471	1.909	1.912	R 4.821	R 6.438
June	.968	2.143	1.792	2.439	1.865	1.868	4.627	6.453
6-Month Total	**8.685**	**14.962**	**11.264**	**14.708**	**10.725**	**10.740**	**30.670**	**40.407**
1989 6-Month Total	**8.962**	**15.274**	**11.244**	**14.632**	**10.837**	**10.852**	**31.035**	**40.750**
1988 6-Month Total	**8.997**	**15.186**	**11.063**	**14.437**	**10.913**	**10.928**	**30.969**	**40.546**

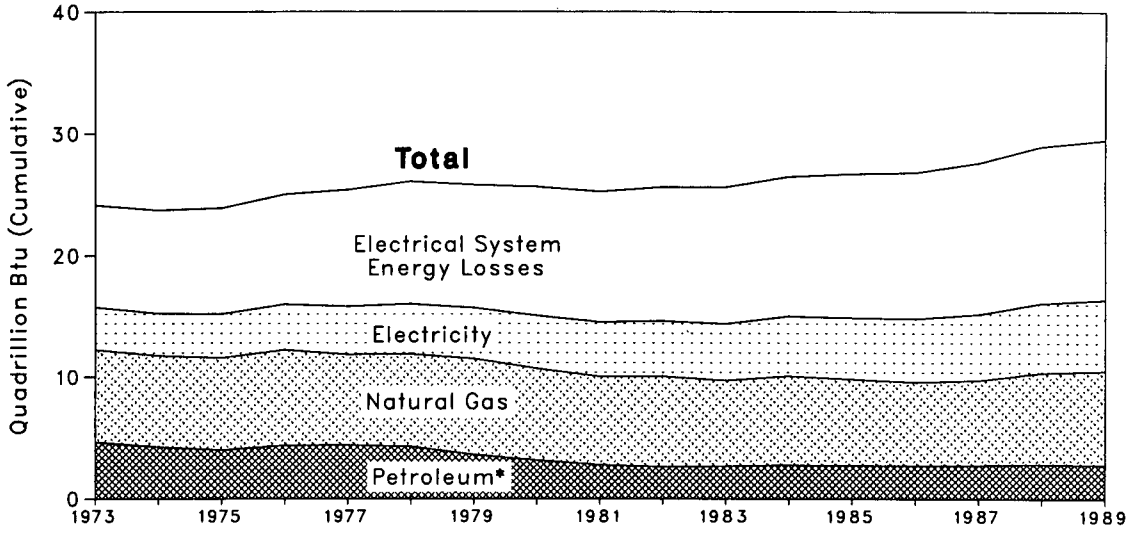
R=Revised data.

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

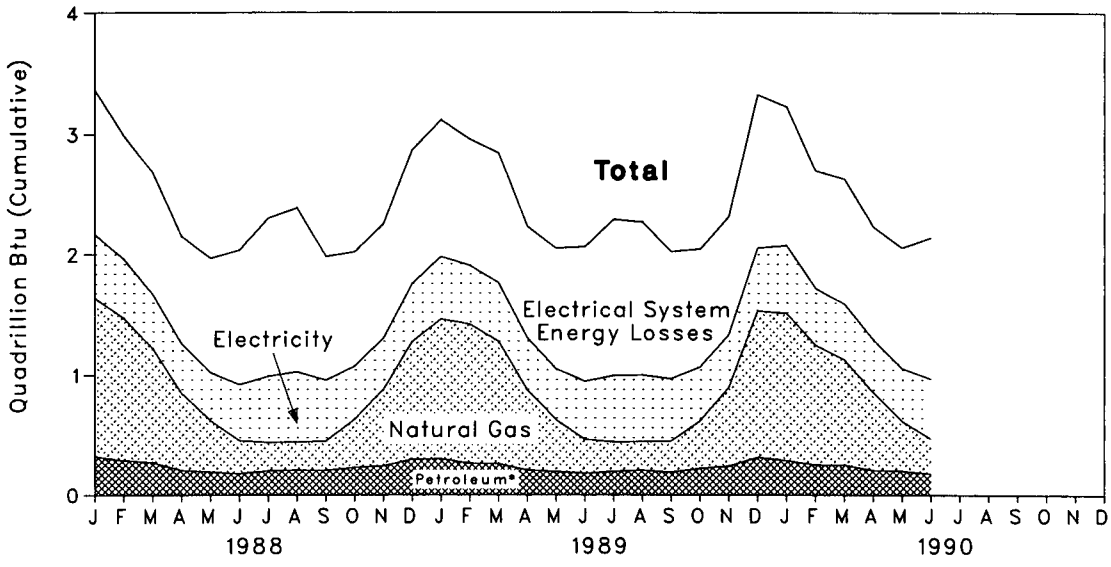
Additional Notes and Sources: See end of section.

Figure 2.2 Consumption of Energy by the Residential and Commercial Sector

Yearly



Monthly



*Includes coal.

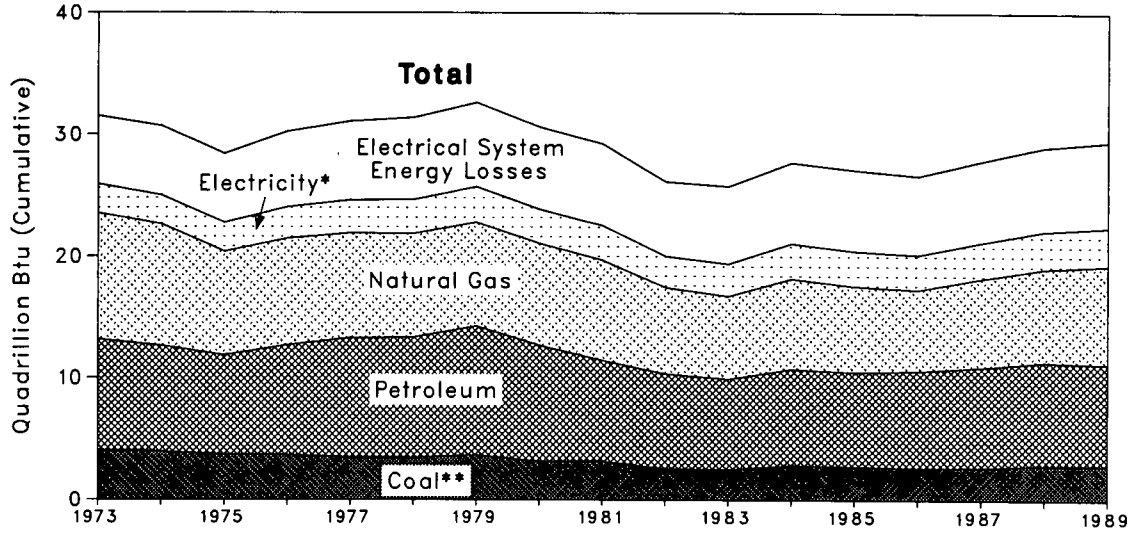
Table 2.3 Consumption of Energy by the Residential and Commercial Sector
(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[b]	Year to Date
1973 Total	**0.254**	**7.626**	**4.391**	**3.495**	**15.766**	**8.377**	**24.143**	
1974 Total	**.257**	**7.518**	**3.996**	**3.475**	**15.246**	**8.478**	**23.724**	
1975 Total	**.209**	**7.581**	**3.805**	**3.604**	**15.200**	**8.700**	**23.900**	
1976 Total	**.203**	**7.866**	**4.181**	**3.747**	**15.997**	**9.023**	**25.020**	
1977 Total	**.205**	**7.461**	**4.206**	**3.955**	**15.828**	**9.559**	**25.387**	
1978 Total	**.214**	**7.624**	**4.070**	**4.116**	**16.023**	**10.065**	**26.088**	
1979 Total	**.187**	**7.891**	**3.448**	**4.184**	**15.709**	**10.101**	**25.809**	
1980 Total	**.145**	**7.540**	**3.035**	**4.355**	**15.075**	**10.578**	**25.653**	
1981 Total	**.167**	**7.243**	**2.634**	**4.497**	**14.540**	**10.703**	**25.243**	
1982 Total	**.187**	**7.427**	**2.449**	**4.566**	**14.630**	**11.001**	**25.631**	
1983 Total	**.192**	**7.025**	**2.498**	**4.680**	**14.396**	**11.235**	**25.631**	
1984 Total	**.209**	**7.291**	**2.585**	**4.928**	**15.014**	**11.487**	**26.501**	
1985 Total	**.176**	**7.078**	**2.573**	**5.061**	**14.888**	**11.843**	**26.731**	
1986 Total	**.176**	**6.824**	**2.576**	**5.235**	**14.812**	**12.022**	**26.834**	
1987 Total	**.162**	**6.954**	**2.618**	**5.443**	**15.177**	**12.443**	**27.621**	
1988 January	.019	R 1.313	.308	.527	R 2.167	1.195	R 3.363	R 3.363
February	.016	R 1.180	.276	.488	R 1.960	1.028	R 2.988	R 6.351
March	.012	R .944	.263	.451	R 1.670	1.008	R 2.678	R 9.029
April	.014	R .641	.192	.411	R 1.258	.893	R 2.152	R 11.181
May	.008	R .428	.185	.400	R 1.021	.947	R 1.968	R 13.149
June	.010	R .278	.167	.465	R .920	1.117	R 2.037	R 15.186
July	.016	R .239	.186	.549	R .989	1.313	R 2.302	R 17.488
August	.015	R .234	.194	.582	R 1.025	1.359	R 2.383	R 19.872
September	.009	R .245	.197	.506	R .957	1.026	R 1.983	R 21.855
October	.011	R .399	.220	.439	R 1.068	.953	R 2.021	R 23.876
November	.014	R .634	.231	.425	R 1.304	.951	R 2.254	R 26.130
December	.023	R .979	.275	.481	R 1.758	1.115	R 2.873	29.003
Total	**.168**	**7.512**	**2.693**	**5.724**	**16.096**	**12.903**	**28.999**	
1989 January	.015	R 1.160	.288	.519	R 1.982	1.134	R 3.116	R 3.116
February	.016	R 1.155	.251	.486	R 1.909	1.052	R 2.960	R 6.077
March	.012	R 1.016	.251	.487	R 1.766	1.080	R 2.846	R 8.923
April	.012	R .666	.198	.431	R 1.307	.927	R 2.234	R 11.157
May	.008	R .427	.191	.423	R 1.049	1.003	R 2.052	R 13.209
June	.007	R .284	.177	.482	R .950	1.115	R 2.065	R 15.274
July	.012	R .246	.186	.548	R .992	1.299	R 2.291	R 17.565
August	.011	R .238	.198	.551	R .997	1.272	R 2.269	R 19.834
September	.007	R .259	.187	.516	R .969	1.056	R 2.025	R 21.860
October	.005	R .391	.223	.448	R 1.067	.981	R 2.048	R 23.908
November	.013	R .654	.231	.437	R 1.335	.981	R 2.316	R 26.224
December	.028	R 1.215	.288	.523	R 2.054	1.270	R 3.323	R 29.547
Total	**.145**	**R 7.713**	**2.668**	**5.851**	**R 16.378**	**13.171**	**R 29.549**	
1990 January	.017	R 1.220	.273	.563	R 2.073	1.150	R 3.223	R 3.223
February	.015	R .987	.239	.472	R 1.712	.978	R 2.690	R 5.914
March	.013	R .867	.239	.466	R 1.585	1.034	R 2.619	R 8.533
April	.010	R .646	.198	.437	R 1.292	.937	R 2.229	R 10.762
May	.010	.413	.193	.439	1.055	1.003	2.058	R 12.819
June	.010	.292	.170	.495	.968	1.175	2.143	14.962
6-Month Total	**.076**	**4.426**	**1.312**	**2.871**	**8.685**	**6.278**	**14.962**	
1989 6-Month Total	**.070**	**4.707**	**1.356**	**2.829**	**8.962**	**6.312**	**15.274**	
1988 6-Month Total	**.080**	**4.784**	**1.391**	**2.742**	**8.997**	**6.189**	**15.186**	

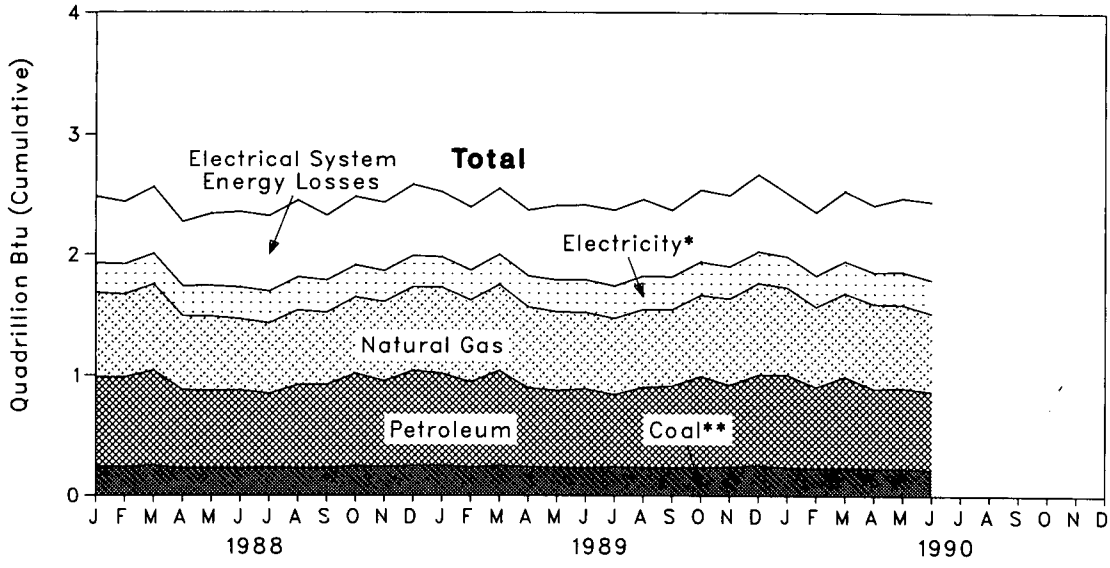
[a]Includes supplemental gaseous fuels.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
R=Revised data.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Additional Notes and Sources: See end of section.

Figure 2.3 Consumption of Energy by the Industrial Sector

Yearly



Monthly



*Includes hydroelectric power.
**Includes net imports of coal coke.

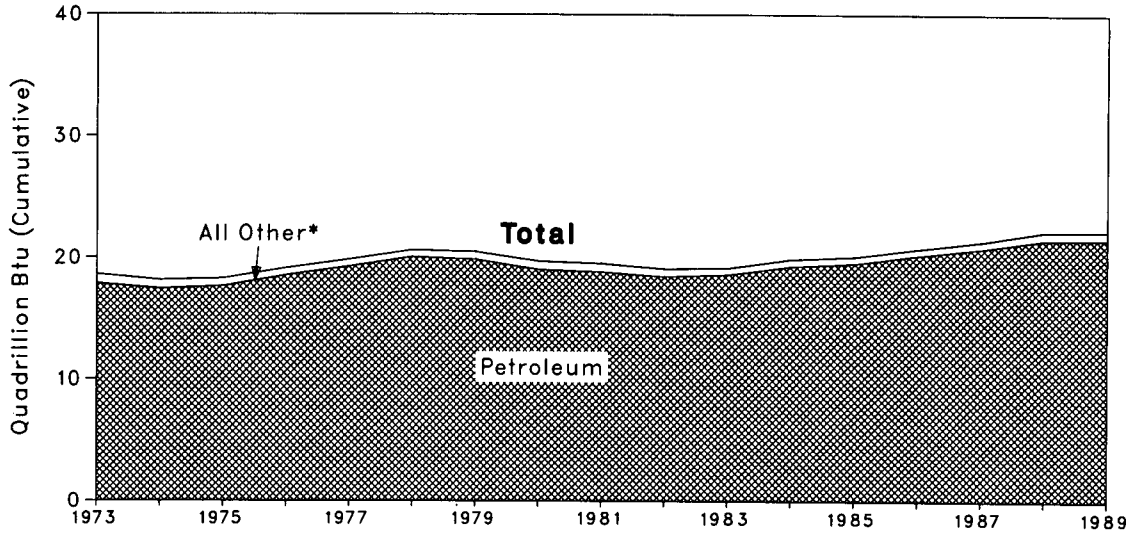
Table 2.4 Consumption of Energy by the Industrial Sector
(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Hydroelectric Power	Net Imports of Coal Coke	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[b]	Year to Date
1973 Total	4.057	10.388	9.104	0.035	-0.007	2.341	25.917	5.611	31.527	
1974 Total	3.870	10.003	8.694	.033	.056	2.337	24.994	5.701	30.695	
1975 Total	3.667	8.532	8.146	.032	.014	2.346	22.738	5.664	28.401	
1976 Total	3.661	8.761	9.010	.033	-.004	2.573	24.038	6.196	30.234	
1977 Total	3.454	8.636	9.774	.033	.015	2.682	24.594	6.481	31.075	
1978 Total	3.314	8.539	9.867	.032	.125	2.761	24.636	6.751	31.388	
1979 Total	3.593	8.549	10.568	.034	.063	2.873	25.679	6.935	32.615	
1980 Total	3.155	8.394	9.525	.033	-.035	2.781	23.853	6.755	30.608	
1981 Total	3.157	8.257	8.285	.033	-.016	2.817	22.534	6.705	29.238	
1982 Total	2.552	7.116	7.794	.033	-.022	2.542	20.015	6.124	26.139	
1983 Total	2.490	6.821	7.420	.033	-.016	2.648	19.396	6.356	25.751	
1984 Total	2.842	7.449	7.894	.033	-.011	2.859	21.065	6.663	27.728	
1985 Total	2.760	7.080	7.725	.033	-.013	2.855	20.439	6.681	27.120	
1986 Total	2.643	6.693	7.953	.032	-.017	2.834	20.138	6.507	26.646	
1987 Total	2.673	7.325	8.210	.032	.009	2.928	21.178	6.694	27.872	
1988 January	.245	R .700	.737	.003	.003	.242	R 1.931	.550	R 2.481	R 2.481
February	.240	R .686	.743	.003	.002	.245	R 1.918	.517	R 2.435	R 4.916
March	.248	R .713	.786	.003	.006	.248	R 2.003	.553	R 2.556	R 7.472
April	.226	.613	.648	.003	.004	.245	1.739	.533	2.272	R 9.745
May	.232	R .614	.643	.003	-.002	.252	R 1.743	.596	R 2.339	R 12.083
June	.223	R .589	.648	.003	.005	.260	R 1.728	.625	R 2.353	R 14.437
July	.230	R .584	.609	.003	.007	.261	R 1.693	.624	R 2.317	R 16.754
August	.225	R .619	.691	.002	.003	.272	R 1.813	.635	R 2.448	R 19.202
September	.227	R .598	.691	.002	.003	.265	R 1.786	.537	R 2.324	R 21.525
October	.245	R .631	.766	.002	.004	.261	R 1.910	.568	R 2.478	R 24.003
November	.241	.654	.712	.002	.001	.253	1.864	.566	2.430	R 26.433
December	.246	R .695	.788	.002	.003	.254	R 1.989	.589	R 2.579	R 29.012
Total	**2.828**	**R 7.697**	**8.463**	**.032**	**.040**	**3.059**	**R 22.119**	**6.895**	**R 29.014**	
1989 January	.245	R .714	.762	.003	.007	.247	R 1.978	.539	R 2.517	R 2.517
February	.237	R .677	.706	.003	.002	.242	R 1.866	.524	R 2.390	R 4.907
March	.248	R .715	.785	.003	.003	.246	R 2.000	.545	R 2.545	R 7.452
April	.233	R .670	.655	.003	.007	.253	R 1.821	.545	R 2.366	R 9.818
May	.230	R .651	.637	.003	.006	.260	R 1.788	.617	R 2.406	R 12.223
June	.226	R .634	.656	.003	.004	.267	R 1.790	.618	R 2.409	R 14.632
July	.226	R .631	.598	.003	.004	.265	R 1.727	.629	R 2.355	R 16.987
August	.221	R .645	.664	.002	.003	.275	R 1.810	.634	R 2.444	R 19.432
September	.220	R .633	.677	.002	.002	.269	R 1.802	.551	R 2.353	R 21.785
October	.250	R .675	.752	.002	-.004	.272	R 1.947	.596	R 2.543	R 24.328
November	.241	R .714	.680	.002	-.001	.263	R 1.899	.590	R 2.489	R 26.816
December	.237	R .761	.750	.002	-.002	.262	R 2.011	.637	R 2.647	R 29.464
Total	**2.815**	**R 8.119**	**8.321**	**.032**	**.030**	**3.121**	**R 22.439**	**7.026**	**R 29.465**	
1990 January	.236	R .726	.767	.003	.000	.255	R 1.987	.522	R 2.509	R 2.509
February	.228	R .664	.677	.003	.000	.254	R 1.826	.526	R 2.352	R 4.861
March	.236	R .695	.752	.003	.001	.261	R 1.948	.580	R 2.528	R 7.389
April	.227	R .701	.664	.003	-.001	.259	R 1.853	.556	R 2.409	R 9.798
May	.227	R .689	.671	.003	.000	.268	R 1.858	.612	R 2.471	R 12.269
June	.219	.648	.648	.003	.001	.273	1.792	.648	2.439	14.708
6-Month Total	**1.373**	**4.123**	**4.178**	**.018**	**.000**	**1.570**	**11.264**	**3.444**	**14.708**	
1989 6-Month Total	**1.419**	**4.060**	**4.201**	**.018**	**.029**	**1.516**	**11.244**	**3.389**	**14.632**	
1988 6-Month Total	**1.414**	**3.915**	**4.205**	**.018**	**.018**	**1.492**	**11.063**	**3.374**	**14.437**	

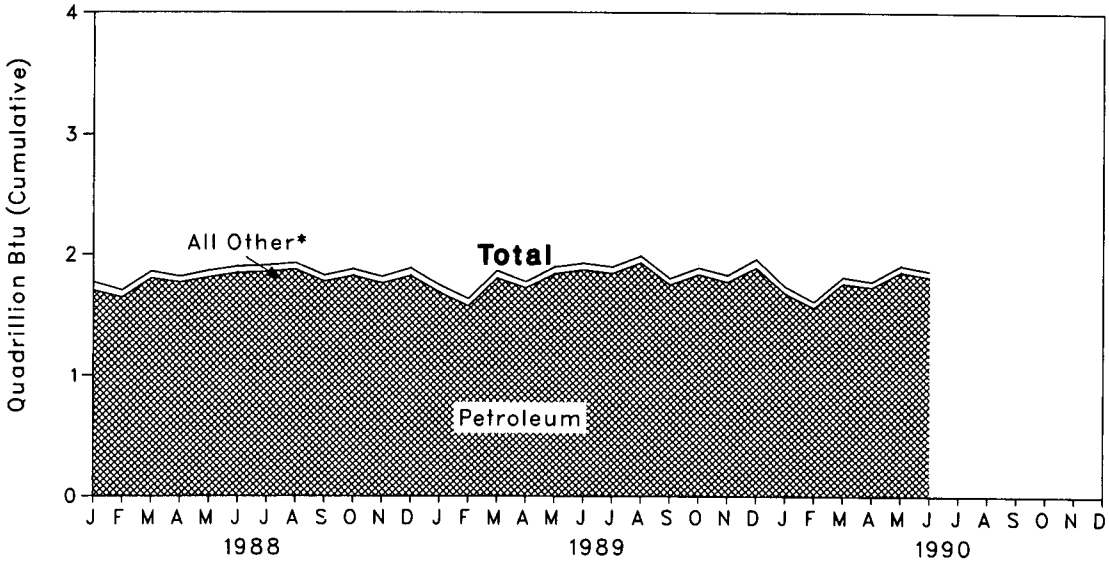
[a]Includes supplemental gaseous fuels.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
R=Revised data.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Additional Notes and Sources: See end of section.

Figure 2.4 Consumption of Energy by the Transportation Sector

Yearly



Monthly



*Includes coal, natural gas, electricity, and electrical system energy losses.

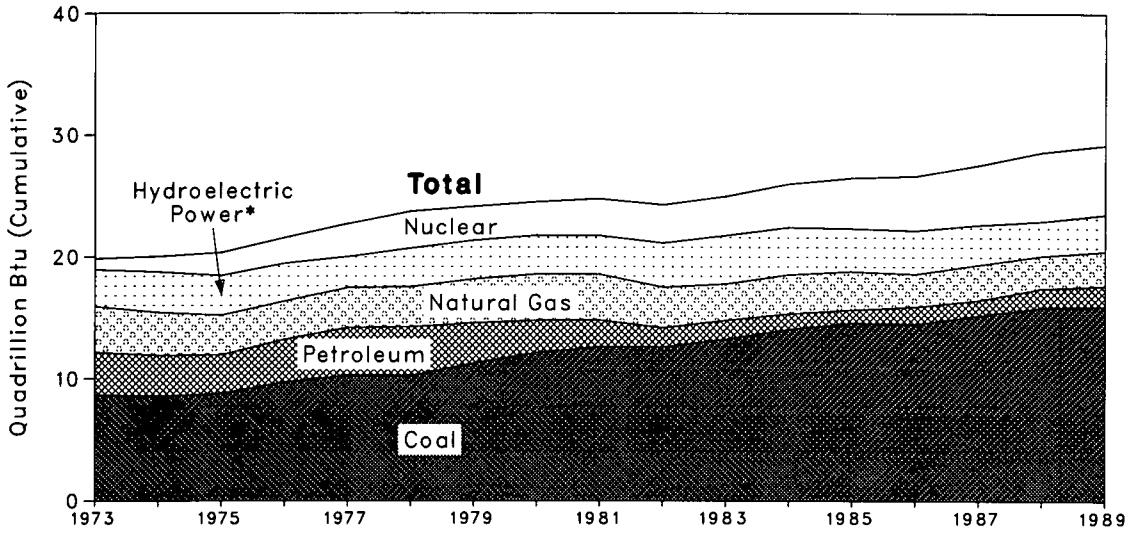
Table 2.5 Consumption of Energy by the Transportation Sector
(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[b]	Year to Date
1973 Total	0.003	0.743	17.831	0.008	18.584	0.020	18.605	
1974 Total	.002	.685	17.399	.009	18.095	.022	18.117	
1975 Total	.001	.595	17.614	.010	18.219	.025	18.244	
1976 Total	[c]	.559	18.506	.010	19.076	.025	19.101	
1977 Total	[c]	.543	19.241	.010	19.794	.025	19.819	
1978 Total	[d]	.539	20.041	.009	20.589	.022	20.611	
1979 Total	[d]	.612	19.825	.010	20.447	.025	20.472	
1980 Total	[d]	.650	19.008	.011	19.669	.026	19.695	
1981 Total	[d]	.658	18.811	.011	19.480	.026	19.507	
1982 Total	[d]	.612	18.420	.011	19.043	.026	19.069	
1983 Total	[d]	.505	18.593	.011	19.109	.026	19.135	
1984 Total	[d]	.545	19.286	.012	19.843	.028	19.871	
1985 Total	[d]	.519	19.534	.013	20.066	.030	20.097	
1986 Total	[d]	.499	20.215	.013	20.728	.030	20.758	
1987 Total	[d]	.535	20.780	.013	21.328	.029	21.357	
1988 January	[d]	.065	1.704	.001	1.770	.003	1.773	1.773
February	[d]	.057	1.645	.001	1.702	.002	1.705	3.478
March	[d]	.055	1.804	.001	1.859	.002	1.862	5.339
April	[d]	.047	1.769	.001	1.818	.002	1.820	7.159
May	[d]	.050	1.813	.001	1.865	.003	1.867	9.027
June	[d]	.048	1.849	.001	1.899	.003	1.901	10.928
July	[d]	.050	1.857	.001	1.909	.003	1.912	12.840
August	[d]	.050	1.876	.001	1.928	.003	1.931	14.770
September	[d]	.048	1.779	.001	1.828	.002	1.831	16.601
October	[d]	.050	1.825	.001	1.876	.003	1.879	18.480
November	[d]	.052	1.764	.001	1.817	.002	1.820	20.300
December	[d]	.058	1.825	.001	1.884	.003	1.886	22.186
Total	[d]	**.632**	**21.510**	**.014**	**22.155**	**.031**	**22.186**	
1989 January	[d]	R .059	1.686	.001	R 1.745	.003	R 1.748	R 1.748
February	[d]	R .059	1.573	.001	R 1.632	.002	R 1.635	R 3.383
March	[d]	R .056	1.807	.001	R 1.863	.003	R 1.866	R 5.249
April	[d]	R .050	1.724	.001	R 1.776	.002	R 1.778	R 7.027
May	[d]	R .052	1.841	.001	R 1.894	.003	R 1.897	R 8.923
June	[d]	R .051	1.873	.001	R 1.925	.003	R 1.928	R 10.852
July	[d]	R .051	1.844	.001	R 1.897	.003	R 1.900	R 12.751
August	[d]	R .051	1.932	.001	R 1.984	.003	R 1.987	R 14.738
September	[d]	R .049	1.754	.001	R 1.804	.002	R 1.807	R 16.545
October	[d]	R .050	1.838	.001	R 1.890	.003	R 1.892	R 18.437
November	[d]	R .051	1.777	.001	R 1.830	.003	R 1.832	R 20.270
December	[d]	R .067	1.893	.001	R 1.961	.003	R 1.964	R 22.234
Total	[d]	R **.648**	**21.541**	**.014**	R **22.203**	**.031**	R **22.234**	
1990 January	[d]	.055	1.683	.001	1.738	.002	1.741	1.741
February	[d]	.049	1.563	.001	1.614	.002	1.616	3.357
March	[d]	.049	1.766	.001	1.816	.003	1.819	5.176
April	[d]	.045	1.735	.001	1.781	.002	1.784	6.960
May	[d]	.048	1.860	.001	1.909	.003	1.912	8.872
June	[d]	.045	1.819	.001	1.865	.003	1.868	10.740
6-Month Total	[d]	**.292**	**10.425**	**.007**	**10.725**	**.015**	**10.740**	
1989 6-Month Total	[d]	**.327**	**10.503**	**.007**	**10.837**	**.015**	**10.852**	
1988 6-Month Total	[d]	**.322**	**10.585**	**.007**	**10.913**	**.015**	**10.928**	

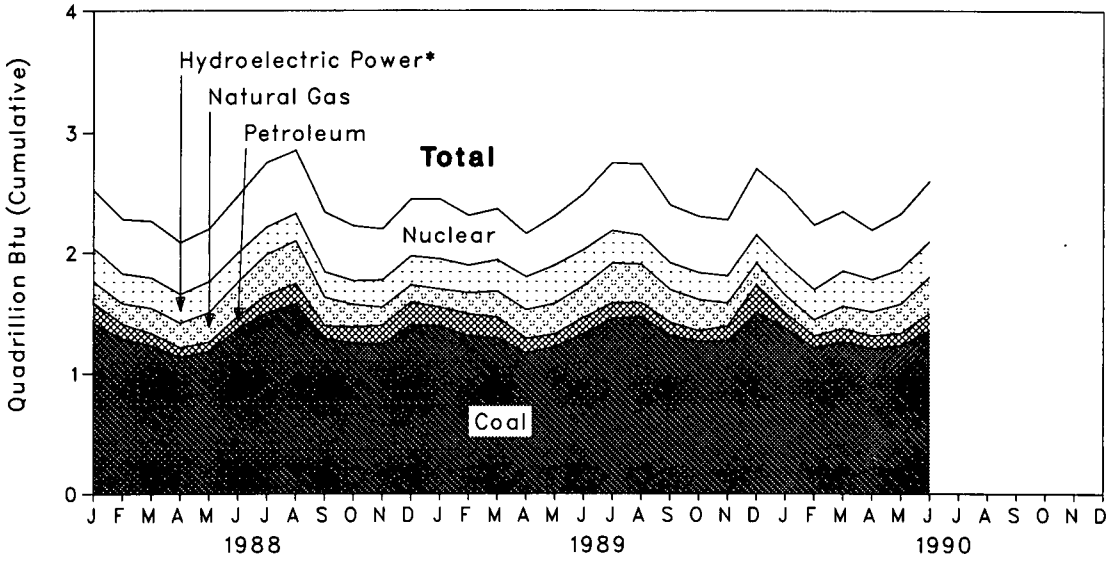
[a]Pipeline fuel only, including supplemental gaseous fuels.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
[c]Less than 0.5 trillion Btu.
[d]Since 1978, the small amounts of coal consumed for transportation have been reported as industrial sector consumption.
R=Revised data.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Additional Notes and Sources: See end of section.

Figure 2.5 Energy Input at Electric Utilities

Yearly



Monthly



*Includes other.

Table 2.6 Energy Input at Electric Utilities
(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum[b]	Hydroelectric Power[c]	Nuclear Electric Power	Other[d]	Total	Year to Date
1973 Total	**8.658**	**3.748**	**3.515**	**2.975**	**0.910**	**0.046**	**19.852**	
1974 Total	**8.534**	**3.519**	**3.365**	**3.276**	**1.272**	**.056**	**20.022**	
1975 Total	**8.786**	**3.240**	**3.166**	**3.187**	**1.900**	**.072**	**20.350**	
1976 Total	**9.720**	**3.152**	**3.477**	**3.032**	**2.111**	**.081**	**21.574**	
1977 Total	**10.262**	**3.284**	**3.901**	**2.482**	**2.702**	**.082**	**22.713**	
1978 Total	**10.238**	**3.297**	**3.987**	**3.110**	**3.024**	**.068**	**23.724**	
1979 Total	**11.260**	**3.613**	**3.283**	**3.107**	**2.776**	**.089**	**24.128**	
1980 Total	**12.123**	**3.810**	**2.634**	**3.085**	**2.739**	**.114**	**24.505**	
1981 Total	**12.583**	**3.768**	**2.202**	**3.072**	**3.008**	**.127**	**24.760**	
1982 Total	**12.582**	**3.342**	**1.568**	**3.539**	**3.131**	**.108**	**24.270**	
1983 Total	**13.213**	**2.998**	**1.544**	**3.866**	**3.203**	**.133**	**24.956**	
1984 Total	**14.020**	**3.220**	**1.286**	**3.725**	**3.553**	**.174**	**25.977**	
1985 Total	**14.542**	**3.160**	**1.090**	**3.330**	**4.149**	**.213**	**26.484**	
1986 Total	**14.444**	**2.691**	**1.452**	**3.353**	**4.471**	**.231**	**26.642**	
1987 Total	**15.173**	**2.935**	**1.257**	**3.035**	**4.906**	**.244**	**27.551**	
1988 January	1.418	.172	.170	.258	.480	.020	2.519	2.519
February	1.283	.174	.123	.229	.454	.018	2.281	4.800
March	1.228	.210	.102	.232	.472	.020	2.263	7.063
April	1.131	.205	.079	.221	.430	.019	2.086	9.149
May	1.181	.247	.076	.240	.437	.018	2.199	11.348
June	1.366	.288	.105	.219	.474	.020	2.472	13.819
July	1.500	.337	.149	.208	.535	.021	2.750	16.569
August	1.573	.354	.171	.206	.527	.021	2.851	19.420
September	1.286	.239	.105	.191	.497	.019	2.338	21.759
October	1.245	.187	.138	.177	.458	.020	2.224	23.983
November	1.239	.155	.154	.206	.425	.019	2.199	26.182
December	1.399	.141	.192	.219	.473	.019	2.444	28.626
Total	**15.850**	**2.709**	**1.563**	**2.607**	**5.661**	**.235**	**28.626**	
1989 January	1.388	.150	.160	.228	.498	.019	2.443	2.443
February	1.305	.176	.185	.209	.416	.017	2.308	4.750
March	1.290	.215	.174	.238	.426	.020	2.363	7.113
April	1.165	.240	.121	.256	.360	.017	2.159	9.272
May	1.216	.256	.106	.299	.412	.018	2.308	11.580
June	1.326	.266	.134	.281	.462	.018	2.487	14.067
July	1.452	.327	.132	.254	.562	.019	2.746	16.813
August	1.468	.316	.118	.224	.590	.018	2.736	19.549
September	1.311	.274	.109	.203	.482	.017	2.395	21.943
October	1.262	.260	.089	.206	.468	.018	2.301	24.245
November	1.269	.193	.121	.208	.466	.017	2.274	26.519
December	1.506	.175	.232	.218	.546	.018	2.695	29.214
Total	**15.958**	**2.845**	**1.681**	**2.825**	**5.687**	**.217**	**29.214**	
1990 January	1.377	.148	.123	.237	.592	.018	2.494	2.494
February	1.209	.135	.100	.236	.537	.016	2.233	4.727
March	1.263	.188	.108	.273	.495	.018	2.345	7.072
April	1.202	.202	.108	.253	.414	.014	2.193	9.265
May	1.230	.246	.101	.270	.461	.017	2.325	11.591
June	1.358	.304	.141	.278	.498	.017	2.595	14.185
6-Month Total	**7.638**	**1.222**	**.681**	**1.547**	**2.997**	**.100**	**14.185**	
1989 6-Month Total	**7.690**	**1.302**	**.880**	**1.513**	**2.573**	**.109**	**14.067**	
1988 6-Month Total	**7.608**	**1.296**	**.655**	**1.399**	**2.746**	**.115**	**13.819**	

[a]Includes supplemental gaseous fuels.
[b]Includes petroleum products reported as "oil consumed in steam plants" through 1979 and "heavy oil" from 1980 forward, which are assumed to be residual fuel oil; petroleum products reported as "oil consumed in gas turbine and internal combustion engine plants" through 1979 and "light oil" from 1980 forward, which are assumed to be distillate fuel oil and kerosene; and petroleum coke.
[c]Includes net imports of electricity.
[d]Other is electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Additional Notes and Sources: See end of section.

Consumption Notes and Sources

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 and Commercial Sector--Private household establishments (which consume energy primarily for space heating, water heating, air conditioning, lighting, refrigeration, cooking, and clothes drying); nonmanufacturing business establishments, including hotels, motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; health, social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included.
- Industrial sector--Manufacturing, construction, mining, agriculture, fishing, and forestry establishments.
- Transportation sector--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 sector--Privately and publicly owned establishments that generate electricity primarily for use by the public.

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

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

- 1973 through 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 through December 1979: EIA, Form EIA-3, "Monthly Coal Consumption Report - Manufacturing Plants"; January 1980 forward: EIA, Form EIA-3, "Quarterly Coal Consumption Report - Manufacturing Plants" and Form EIA-6, "Coal Distribution Report."
- Coke Plants--October 1977 through December 1980: EIA, Form EIA-5/5A, "Coke and Coal Chemicals - Monthly/Annual"; January 1981 through 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 through December 1979: EIA, Form EIA-2, "Monthly Coal Report, Retail Dealers - Upper Lake Docks"; January 1980 forward: EIA, Form EIA-6, "Coal Distribution Report."

5. Natural Gas: Natural gas consumption by end-use sector is based on data presented in Table 4.3 of this report. For Section 2 calculations, lease and plant fuel consumption are added to the industrial sector deliveries, and pipeline fuel represents the transportation sector's use of natural gas. Values in Btu are derived using the conversion factors provided in the Appendix. Sources:

- 1973 through 1975: DOI, BOM, *Minerals Yearbook,* "Natural Gas" chapter.
- 1976 through 1978: EIA, *Energy Data Reports,* "Natural Gas, Annual."
- 1979: EIA, *Natural Gas Production and Consumption 1979.*
- 1980 through 1988: EIA, *Natural Gas Annual.*
- 1989 forward: EIA, Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers," and EIA computations.
- Electric utilities consumption--1973 through 1976: Form FPC-4, "Monthly Power Plant Report." 1977 through 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 sector and commercial sector monthly sales data for 1973 through 1979 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 through 1975: DOI, BOM, *Mineral Industry Surveys,* "Petroleum Statement, Annual."
- 1976 through 1980: EIA, *Energy Data Reports,* "Petroleum Statement, Annual."
- 1981 through 1988: EIA, *Petroleum Supply Annual.*
- 1989 forward: 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**

Electric Utility Sector, All Periods.

Monthly and annual consumption in 1973 through 1979 is assumed to be the amount of oil (minus small amounts of kerosene and kerosene-type jet fuel deliveries) reported as consumed in internal combustion and gas turbine engine plants. From January 1980, electric utility consumption of distillate fuel is assumed to be the petroleum products reported as "light oil" (minus small amounts of kerosene deliveries through 1982) consumed at utilities.
Sources: 1973 through September 1977--FPC, Form FPC-4, "Monthly Power Plant Report;" October 1977 through 1981--FERC, Form FPC-4, "Monthly Power Plant Report;" 1982 forward--EIA, Form EIA-759, "Monthly Power Plant Report."

Non-Electric Utility Sectors, Annual Estimates Through 1988.

The aggregate non-electric utility use of distillate fuel is total distillate 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 distillate fuel delivered to end users, grouped into sectors from EIA's "Deliveries of Fuel Oil and Kerosene" ("Deliveries") reports (based primarily on data collected by Form EIA-821 previously Form EIA-172) as follows:

- Residential sector deliveries are directly from the "Deliveries" reports for 1979 through 1988. Prior to 1979, each year's deliveries subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares;

- Commercial sector deliveries are directly from the "Deliveries" reports for 1979 through 1988. Prior to 1979, each year's deliveries subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares;

- Industrial sector deliveries for 1979 through 1988 are the sum of deliveries for industrial, farm, oil company, off-highway, diesel, and all other uses. Prior to 1979, each year's deliveries 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; and

- Transportation sector deliveries are the sum of deliveries for railroad, vessel bunkering, and on-highway diesel, and military uses for all years.

Non-Electric Utility Sectors, Monthly Estimates Through 1988.

- Residential and commercial sector monthly consumption is estimated by allocating the annual sector estimates described above into months in proportion to each month's share of the year's sales of No. 2 heating oil as reported in the "Monthly Report of Heating Oil Sales" by the Ethyl Corporation from 1973 through 1980 and the American Petroleum Institute for 1981 and 1982, and the EIA, Form EIA-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale, for 1983 through 1988.

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

Non-Electric Utility Sectors, 1989 Forward.

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 1988.

- **Jet Fuel**--Through 1982, small amounts of kerosene-type jet fuel were consumed by the electric utility sector. 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 propor-

tion to annual deliveries grouped into end-use sectors from EIA's "Deliveries of Fuel Oil and Kerosene" ("Deliveries") reports Form EIA-172) as follows:

- Residential sector deliveries are directly from the "Deliveries" reports for 1979 through 1988. Deliveries for 1988 are used as estimates for succeeding periods. Prior to 1979, each year's deliveries category called "heating" is split into residential, commercial, and industrial in proportion to the 1979 shares;
- Commercial sector deliveries are directly from the "Deliveries" reports for 1979 through 1988. Deliveries for 1988 are used as estimates for succeeding periods. Prior to 1979, each year's deliveries category called "heating" is split into residential, commercial, and industrial in proportion to the 1979 shares; and
- Industrial sector deliveries are directly from the "Deliveries" reports for 1979 through 1988. Deliveries for 1988 are used as estimates for succeeding periods. Prior to 1979, each year's deliveries 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 based on 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 33 percent in 1987.
  - LPG consumed annually by the industrial sector is estimated as the difference between LPG's total supplied and the estimated consumption 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 for use 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 through 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 through 1988: American Petroleum Institute (API), "Sales of Natural Gas Liquids and Liquefied Refinery Gases" based on an LPG sales survey jointly sponsored by API, the Gas Processors Association, and the National Liquefied Petroleum Gas Association.
- 1989 forward: The 1988 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 those 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 formed from 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;* and
  - 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 the electric utility sector 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**

Electric Utility Sector, All Periods.

Monthly and annual consumption 1973 through 1979 is assumed to be the amount of oil reported as consumed in steam-electric power plants. From January 1980, electric utility consumption of residual fuel is assumed to be the petroleum products reported as "heavy oil" consumed at utilities.

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

Non-Electric Utility Sectors, Annual Estimates Through 1988.

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 delivered to end users, grouped into sectors from EIA's "Deliveries of Fuel Oil and Kerosene" ("Deliveries") reports (based primarily on data collected by Form EIA-821, previously Form EIA-172) as follows:

- Commercial sector deliveries are directly from the "Deliveries" reports for 1979 through 1988. Prior to 1979, each year's deliveries subtotal of the heating plus industrial category is split into commercial and industrial in proportion to the 1979 shares;

- Industrial sector deliveries for 1979 through 1988 are the sum of deliveries for industrial, oil company, and all other uses. Prior to 1979, each year's deliveries 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; and

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

Non-Electric Utility Sectors, Monthly Estimates Through 1988.

- Commercial sector monthly consumption is estimated by allocating the annual commercial sector estimates described above into months in proportion to each month's share of the year's sales of No. 2 fuel oil as reported in the "Monthly Report of Heating Oil Sales" by the Ethyl Corporation for 1973 through 1980 and the American Petroleum Institute for 1981 and 1982, and the EIA, Form EIA-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale, 1983 through 1988.

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

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

Non-Electric Utility Sectors, 1989 Forward.

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 1988.

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

Sources for industrial sector:

- 1973 through 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 through 1979; monthly generation estimated to be in proportion to each month's hydroelectricity generation in the electric utility industry in 1980.

Note for imports and exports of electricity:

- Monthly electricity imports and exports estimates for 1982 forward were revised in the May 1984 *MER*. The revisions do not cause discontinuity in the annual data series: the data continue to come from the same source. The monthly data series, however, are discontinuous because monthly data from January 1982 forward are now available from the same source as the annual data. Estimates for monthly values prior to 1982, published in previous issues, were developed by converting the annual value to a daily rate and multiplying by the number of days in the month. Accordingly, month-to-month analyses are not comparable when taken across the transition date of January 1982. Monthly analyses on either side of that date will be comparable. There is no known bias in either the annual data or the monthly data since January 1982.

Sources for imports and exports of electricity:

- 1973 through 1980: DOE, Economic Regulatory Administration, "Report on Electric Energy Exchanges with Canada and Mexico."
- 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, Economic Regulatory Administration, *Electricity Exchanges Across International Borders.*
- 1984 through 1987: DOE, Economic Regulatory Administration, *Electricity Transactions Across International Borders.*
- 1988: DOE, Assistant Secretary for Fossil Energy, Office of Fuels Programs, *Electricity Transactions Across International Borders.*
- 1989 forward: EIA estimates.

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

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

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 through 1975: DOI, BOM, *Minerals Yearbook,* "Coke and Coal Chemicals," chapter.
- 1976 through 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 percent used by railroads and railways and attributed to the transportation sector. For 1973-1983 and 1989, "Monthly Series" data are used directly. For 1984-1988, 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 are 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 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[19] averaged 8.9 million barrels per day in August 1990, slightly higher than the July 1990 rate and 4 percent[20] above the August 1989 rate.

In August 1990, 17.8 million barrels per day of petroleum products were supplied for domestic use, 6 percent more than the previous month and 3 percent more than the August 1989 rate. Motor gasoline accounted for 43 percent of the total; distillate fuel oil, 17 percent; and residual fuel oil, 7 percent.

Motor gasoline supplied during August 1990 averaged 7.8 million barrels per day, 5 percent more than the previous month and 1 percent more than the August 1989 rate. Stocks of total motor gasoline totaled 211 million barrels at the end of August 1990, 8 million barrels below the stock level in the previous month and 10 million barrels less than the stock level as 1 year earlier.

In August 1990, 3.0 million barrels of distillate fuel oil were supplied per day, 11 percent above the July 1990 rate and 1 percent above the August 1989 rate. Distillate fuel oil ending stocks for August 1990 were 130 million barrels, 5 million barrels above the stock level in the previous month and 14 million barrels above the stock level 1 year earlier.

Residual fuel oil supplied in August 1990 averaged 1.3 million barrels per day, slightly lower than the previous month but 14 percent higher than the August 1989 rate. Residual fuel oil stocks measured 49 million barrels at the end of August 1990, the same as the stock level in the previous month but 4 million barrels higher than 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 1990.

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

Table 3.1a Crude Oil[a] and Petroleum Products Overview

	Field Production			Stock Change[b]		Petroleum Products Supplied	Ending Stocks[c]
	Total Domestic[d]	Crude Oil	Natural Gas Plant Production	Crude Oil[e]	Petroleum Products		Crude Oil[e] 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**	**I 1,074**
1975 Average	**10,045**	**8,375**	**1,633**	**I 17**	**I 15**	**16,322**	**1,133**
1976 Average	**9,774**	**8,132**	**h 1,604**	**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**	**I 1,392**
1981 Average	**10,230**	**8,572**	**1,609**	**I 290**	**I -130**	**16,058**	**1,484**
1982 Average	**10,252**	**8,649**	**1,550**	**136**	**-283**	**15,296**	**I 1,430**
1983 Average	**10,299**	**8,688**	**1,559**	**I 214**	**I -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 January	9,876	8,250	1,579	-43	-294	17,403	1,597
February	10,018	8,374	1,605	133	-868	17,760	1,576
March	10,071	8,374	1,636	219	-748	17,612	1,559
April	9,946	8,288	1,618	190	445	16,561	1,578
May	9,899	8,229	1,627	96	1,048	16,197	1,614
June	9,833	8,170	1,616	43	-109	17,059	1,612
July	9,713	8,040	1,618	-261	819	16,695	1,629
August	9,762	8,079	1,616	-488	307	17,482	1,624
September	9,575	7,895	1,621	-83	245	17,072	1,628
October	9,737	8,023	1,661	399	-333	17,580	1,630
November	9,751	8,023	1,666	3	25	17,620	1,631
December	9,641	7,942	1,634	-188	-911	18,365	1,597
Average	**9,818**	**8,140**	**1,625**	**1**	**-29**	**17,283**	
1989 January	9,678	7,937	1,664	179	563	17,269	1,620
February	9,441	7,788	1,607	47	-733	17,920	1,601
March	9,284	7,575	1,650	-127	-924	17,989	1,568
April	9,501	7,772	1,674	494	413	16,624	1,596
May	9,498	7,816	1,620	271	598	16,546	1,623
June	9,188	7,624	1,507	-434	-64	17,497	1,608
July	9,055	7,444	1,541	148	1,182	16,453	1,649
August	9,106	7,544	1,504	283	-104	17,360	1,654
September	9,096	7,548	1,480	-144	577	16,795	1,667
October	8,983	7,453	1,478	73	-378	17,304	1,658
November	9,084	7,536	1,483	541	-367	17,311	1,663
December	8,734	7,337	1,343	-302	-2,335	18,858	1,581
Average	**9,219**	**7,613**	**1,546**	**86**	**-129**	**17,325**	
1990 January	E 9,113	E 7,522	1,525	377	1,189	16,968	1,632
February	E 9,093	E 7,465	1,558	-316	577	17,024	1,639
March	E 8,986	E 7,394	1,519	1,030	-883	17,083	1,643
April	E 8,883	E 7,331	1,481	-94	-25	16,666	1,640
May	E 8,838	E 7,259	1,499	501	505	16,843	1,671
June	E 8,602	E 7,076	1,453	75	348	17,112	1,684
July	RE 8,694	RE 7,144	R 1,480	R -152	R 1,019	R 16,856	R 1,711
August	PE 8,697	PE 7,150	E 1,477	E -227	E 149	E 17,849	E 1,704
8-Month Average	**PE 8,861**	**PE 7,291**	**E 1,498**	**E 156**	**E 359**	**E 17,052**	
1989 8-Month Average	**9,343**	**7,686**	**1,596**	**109**	**126**	**17,200**	
1988 8-Month Average	**9,889**	**8,224**	**1,614**	**-16**	**82**	**17,093**	

[a]Includes lease condensate.
[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]Includes crude oil, natural gas plant liquids, other hydrocarbons, and alcohol.
[e]Includes stocks located in the Strategic Petroleum Reserve.
[f]Includes crude oil for storage in the Strategic Petroleum Reserve.
[g]Net imports equals imports minus exports.
[h]Due to a rounding difference, this value is 1,603 in the *Petroleum Supply Annual* and *Petroleum Supply Monthly*.
[i]In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock change calculations. See Note 4 at end of section.

Footnotes continued on following page.

Table 3.1b Crude Oil[a] and Petroleum Products Overview (Continued)

	Imports			Exports			Net Imports[g]
	Total	Crude Oil[f]	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**	**471**	**235**	**236**	**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 January	7,181	4,662	2,519	885	206	679	6,296
February	7,256	4,650	2,605	864	146	718	6,392
March	6,944	4,868	2,076	834	213	622	6,110
April	7,270	5,167	2,103	676	114	562	6,594
May	7,469	5,339	2,130	814	138	676	6,655
June	7,239	5,322	1,917	938	138	800	6,301
July	7,297	5,100	2,197	826	186	640	6,471
August	7,386	5,089	2,296	814	152	661	6,572
September	7,506	5,212	2,294	673	119	554	6,833
October	7,830	5,551	2,279	732	166	566	7,098
November	7,714	5,070	2,644	717	148	569	6,997
December	7,727	5,230	2,497	1,008	129	879	6,719
Average	**7,402**	**5,107**	**2,295**	**815**	**155**	**661**	**6,587**
1989 January	8,255	5,661	2,594	761	137	624	7,494
February	8,032	5,305	2,727	875	208	666	7,157
March	7,456	5,035	2,421	860	156	704	6,596
April	8,078	5,750	2,328	810	139	670	7,268
May	7,778	5,729	2,049	791	131	661	6,986
June	7,977	5,976	2,002	975	243	732	7,002
July	8,369	6,214	2,155	780	69	711	7,589
August	8,560	6,565	1,995	967	162	805	7,593
September	8,002	6,028	1,975	655	32	623	7,347
October	8,301	6,187	2,115	791	61	730	7,511
November	8,341	6,171	2,170	975	120	855	7,366
December	7,579	5,463	2,116	1,067	247	821	6,512
Average	**8,061**	**5,843**	**2,217**	**859**	**142**	**717**	**7,202**
1990 January	9,147	6,206	2,941	710	132	578	8,437
February	8,306	5,858	2,447	822	102	720	7,483
March	7,925	6,125	1,800	881	133	748	7,045
April	7,758	5,740	2,018	761	112	649	6,997
May	8,738	6,438	2,300	690	112	578	8,048
June	8,690	6,413	2,276	804	88	715	7,886
July	R 8,893	R 6,812	R 2,081	696	R 89	R 606	R 8,197
August	E 8,897	E 6,717	E 2,180	E 745	E 100	E 644	E 8,152
8-Month Average	**E 8,550**	**E 6,296**	**E 2,254**	**E 763**	**E 109**	**E 654**	**E 7,787**
1989 8-Month Average	**8,064**	**5,785**	**2,279**	**852**	**155**	**697**	**7,212**
1988 8-Month Average	**7,255**	**5,026**	**2,229**	**831**	**162**	**669**	**6,424**

Footnotes continued.

PE=Preliminary estimate. R=Revised data. E=Estimate.

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

Sources: See end of section.

Figure 3.1 Crude Oil and Natural Gas Liquids Production

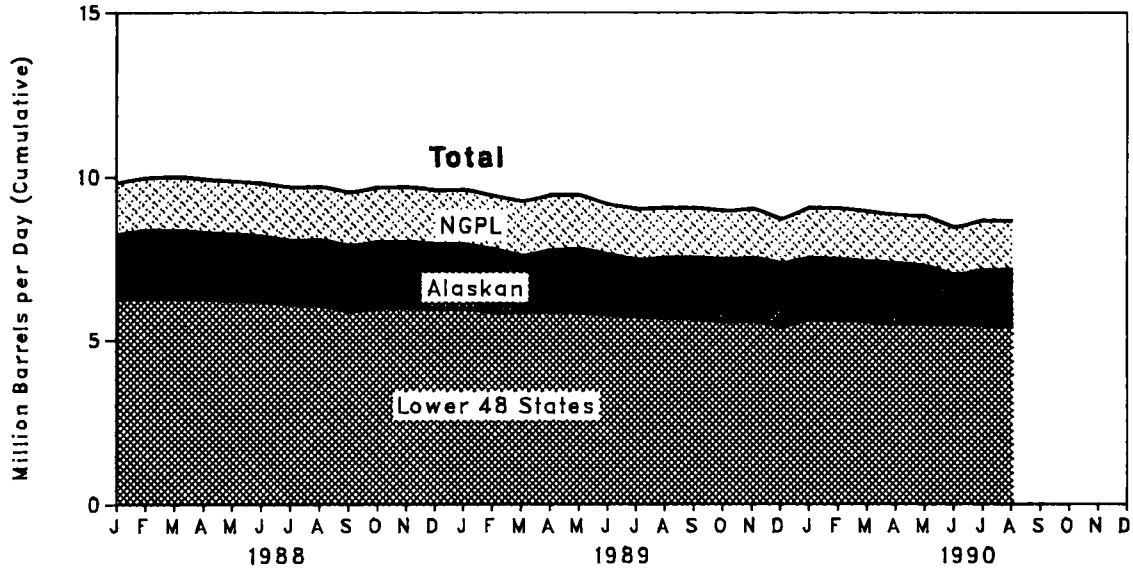


Figure 3.2 Petroleum Stocks

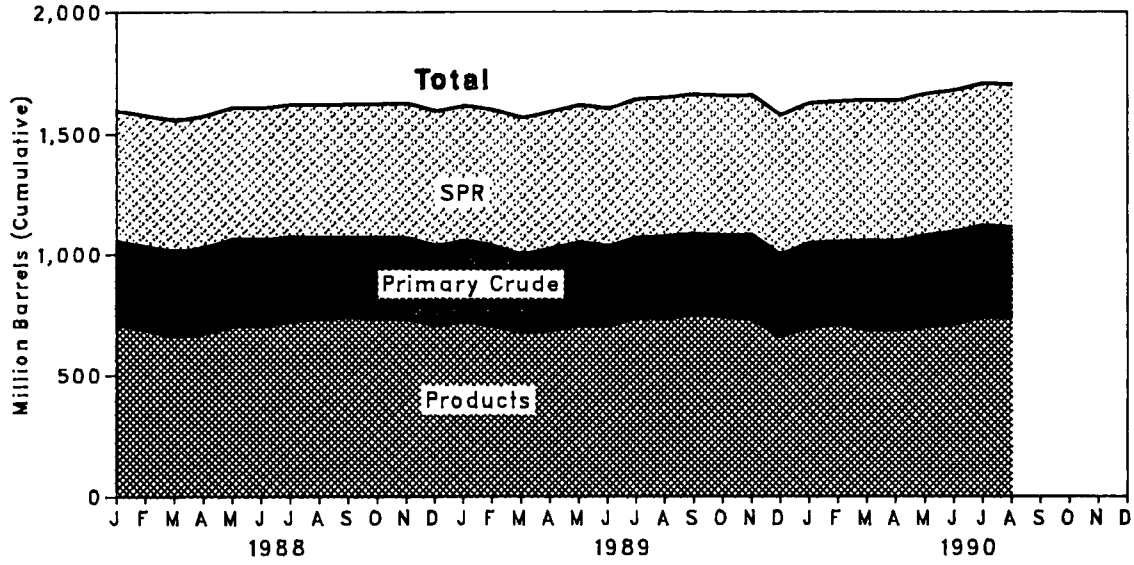


Figure 3.3 Petroleum Products Supplied and Imports

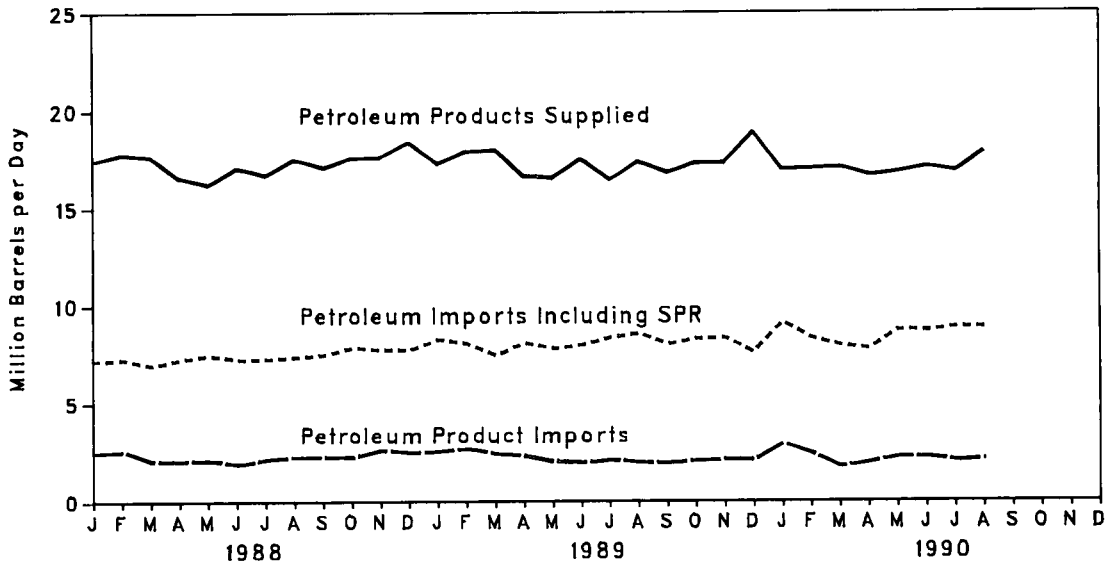


Figure 3.4 Petroleum Imports by Source

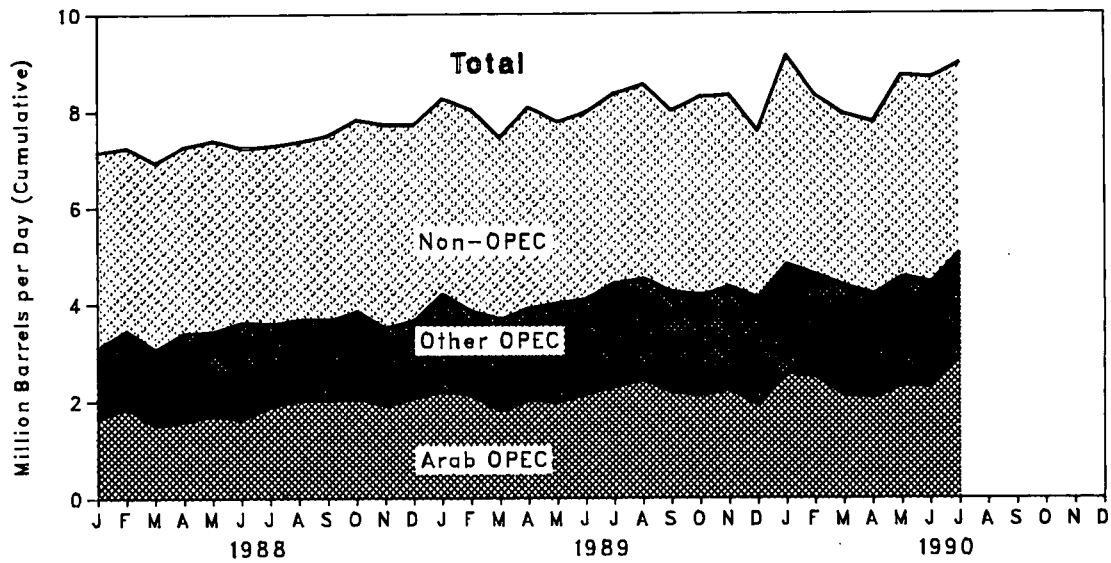


Table 3.2a Crude Oil[a] Supply and Disposition
(Thousand Barrels per Day)

	Supply						
	Field Production		Imports			Unaccounted for Crude Oil[e]	Crude Used Directly[f]
	Total Domestic	Alaskan	Total	SPR[d]	Other		
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**	**-18**
1977 Average	**8,245**	**464**	**6,615**	**21**	**6,594**	**-6**	**-14**
1978 Average	**8,707**	**1,229**	**6,356**	**162**	**6,195**	**-57**	**-14**
1979 Average	**8,552**	**1,401**	**6,519**	**67**	**6,452**	**-11**	**-13**
1980 Average	**8,597**	**1,617**	**5,263**	**44**	**5,219**	**34**	**-13**
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**	**NA**
1984 Average	**8,879**	**1,722**	**3,426**	**197**	**3,229**	**185**	**NA**
1985 Average	**8,971**	**1,825**	**3,201**	**118**	**3,083**	**145**	**NA**
1986 Average	**8,680**	**1,867**	**4,178**	**48**	**4,130**	**139**	**NA**
1987 Average	**8,349**	**1,962**	**4,674**	**73**	**4,601**	**145**	**NA**
1988 January	8,250	1,999	4,662	67	4,595	216	NA
February	8,374	2,070	4,650	49	4,601	-50	NA
March	8,374	2,086	4,868	23	4,845	258	NA
April	8,288	2,029	5,167	78	5,090	27	NA
May	8,229	2,016	5,339	22	5,317	125	NA
June	8,170	1,984	5,322	70	5,252	208	NA
July	8,040	1,960	5,100	42	5,058	432	NA
August	8,079	2,009	5,089	26	5,064	278	NA
September	7,895	2,019	5,212	84	5,128	228	NA
October	8,023	2,010	5,551	43	5,508	160	NA
November	8,023	2,027	5,070	89	4,981	258	NA
December	7,942	1,996	5,230	27	5,203	196	NA
Average	**8,140**	**2,017**	**5,107**	**51**	**5,055**	**196**	**NA**
1989 January	7,937	1,958	5,661	65	5,596	94	NA
February	7,788	1,962	5,305	84	5,221	-26	NA
March	7,575	1,686	5,035	75	4,960	426	NA
April	7,772	1,890	5,750	59	5,690	91	NA
May	7,816	1,973	5,729	77	5,652	280	NA
June	7,624	1,861	5,976	55	5,920	135	NA
July	7,444	1,725	6,214	75	6,139	426	NA
August	7,544	1,870	6,565	32	6,533	213	NA
September	7,548	1,875	6,028	59	5,969	121	NA
October	7,453	1,877	6,187	37	6,149	-125	NA
November	7,536	1,915	6,171	41	6,131	397	NA
December	7,337	1,904	5,463	12	5,452	343	NA
Average	**7,613**	**1,874**	**5,843**	**56**	**5,787**	**200**	**NA**
1990 January	E 7,522	E 1,864	6,206	24	6,182	321	NA
February	E 7,465	E 1,834	5,858	12	5,847	-9	NA
March	E 7,394	E 1,819	6,125	44	6,081	544	NA
April	E 7,331	E 1,803	5,740	38	5,702	22	NA
May	E 7,259	E 1,766	6,438	89	6,349	335	NA
June	E 7,076	E 1,613	6,413	17	6,397	394	NA
July	RE 7,144	RE 1,687	R 6,812	0	R 6,812	R 220	NA
August	PE 7,150	PE 1,721	E 6,717	E 95	E 6,622	E 338	NA
8-Month Average	**PE 7,291**	**PE 1,763**	**E 6,296**	**E 40**	**E 6,256**	**E 275**	**NA**
1989 8-Month Average	**7,686**	**1,864**	**5,785**	**65**	**5,719**	**208**	**NA**
1988 8-Month Average	**8,224**	**2,019**	**5,026**	**47**	**4,979**	**189**	**NA**

[a]Includes lease condensate.
[b]Stocks are totals as of end of period.
[c]A negative number indicates a decrease in stocks and a positive number indicates an increase.
[d]Strategic Petroleum Reserve.
[e]A balancing item.
[f]Beginning in January 1983, crude oil used directly as fuel is shown as product supplied.
[g]Stocks of Alaskan crude oil in transit are included beginning in January 1981. See Note 5 at end of section.
[h]Stock change is calculated using new basis stock levels. See Note 4 at end of section.
Footnotes continued on following page.

Table 3.2b Crude Oil[a] Supply and Disposition (Continued)

	Disposition						Ending Stocks[b]		
	Crude Losses	Stock Change[c] SPR[d]	Stock Change[c] Other	Refinery Input	Exports	Product Supplied[f]	Total	SPR[d]	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	15		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	15	45	52	13,481	287		[g] 466	109	[g] 358
1981 Average	5	336	[g] -46	12,470	228		594	230	363
1982 Average	3	174	-38	11,774	236		[h] 644	294	[h] 350
1983 Average	2	234	[h] -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 January	(s)	67	-110	12,920	206	45	888	543	346
February	(s)	49	84	12,644	146	52	892	544	348
March	(s)	26	193	13,016	213	52	899	545	354
April	(s)	77	112	13,135	114	42	905	547	357
May	(s)	22	74	13,425	138	34	908	548	360
June	(s)	70	-27	13,487	138	32	909	550	359
July	1	42	-302	13,617	186	29	901	551	349
August	(s)	26	-514	13,752	152	30	886	552	334
September	(s)	84	-167	13,261	119	37	883	555	329
October	(s)	43	356	13,126	166	42	896	556	340
November	(s)	89	-86	13,156	148	44	896	559	337
December	(s)	27	-215	13,381	129	44	890	560	330
Average	(s)	52	-51	13,246	155	40			
1989 January	(s)	65	115	13,330	137	47	895	562	334
February	(s)	85	-38	12,765	208	48	897	564	333
March	(s)	75	-202	12,963	156	45	893	566	327
April	(s)	60	434	12,956	139	23	908	568	340
May	(s)	77	194	13,405	131	19	916	570	346
June	(s)	44	-478	13,905	243	20	903	572	331
July	(s)	86	62	13,848	69	19	908	574	333
August	(s)	32	251	13,861	162	17	916	575	341
September	1	59	-203	13,791	32	18	912	577	335
October	(s)	37	36	13,360	61	21	914	578	336
November	(s)	41	500	13,420	120	25	930	579	351
December	(s)	12	-313	13,165	247	33	921	580	341
Average	(s)	56	30	13,401	142	28			
1990 January	(s)	24	353	13,499	132	40	933	581	352
February	0	12	-328	13,494	102	36	924	581	343
March	0	44	986	12,876	133	24	956	582	374
April	(s)	38	-132	13,051	112	24	953	583	370
May	0	89	412	13,389	112	30	969	586	382
June	(s)	16	59	13,690	88	29	971	587	384
July	[R] 0	[R] 0	[R] -152	[R] 14,208	[R] 89	[R] 31	966	587	[R] 380
August	[E] (s)	[E] 95	[E] -322	[E] 14,172	[E] 100	[E] 30	[E] 966	[E] 590	[E] 376
8-Month Average	[E] (s)	[E] 40	[E] 116	[E] 13,549	[E] 109	[E] 30			
1989 8-Month Average	(s)	65	44	13,386	155	29			
1988 8-Month Average	(s)	47	-63	13,254	162	39			

Footnotes continued.
PE=Preliminary estimate. R=Revised data. NA=Not available. E=Estimate. (s)=Less than 500 barrels per day.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Table 3.3a Crude Oil and Petroleum Product Imports
(Thousand Barrels per Day)

	Imports from OPEC Sources[a]										
	Algeria	Libya	Saudi Arabia[b]	United Arab Emirates	Indonesia	Iran	Nigeria	Venezuela	Other OPEC[b]	Total OPEC[c]	Total Arab OPEC[d]
1973 Average	**136**	**164**	**486**	**71**	**213**	**223**	**459**	**1,135**	**106**	**2,993**	**915**
1974 Average	**190**	**4**	**461**	**74**	**300**	**469**	**713**	**979**	**88**	**3,280**	**752**
1975 Average	**282**	**232**	**715**	**117**	**390**	**280**	**762**	**702**	**122**	**3,601**	**1,383**
1976 Average	**432**	**453**	**1,230**	**254**	**539**	**298**	**1,025**	**700**	**134**	**5,066**	**2,424**
1977 Average	**559**	**723**	**1,380**	**335**	**541**	**535**	**1,143**	**690**	**287**	**6,193**	**3,185**
1978 Average	**649**	**654**	**1,144**	**385**	**573**	**555**	**919**	**645**	**226**	**5,751**	**2,963**
1979 Average	**636**	**658**	**1,356**	**281**	**420**	**304**	**1,080**	**690**	**212**	**5,637**	**3,056**
1980 Average	**488**	**554**	**1,261**	**172**	**348**	**9**	**857**	**481**	**130**	**4,300**	**2,551**
1981 Average	**311**	**319**	**1,129**	**81**	**366**	**0**	**620**	**406**	**90**	**3,323**	**1,848**
1982 Average	**170**	**26**	**552**	**92**	**248**	**35**	**514**	**412**	**97**	**2,146**	**854**
1983 Average	**240**	**0**	**337**	**30**	**338**	**48**	**302**	**422**	**144**	**1,862**	**632**
1984 Average	**323**	**1**	**325**	**117**	**343**	**10**	**216**	**548**	**166**	**2,049**	**819**
1985 Average	**187**	**4**	**168**	**45**	**314**	**27**	**293**	**605**	**187**	**1,830**	**472**
1986 Average	**271**	**0**	**685**	**44**	**318**	**19**	**440**	**793**	**265**	**2,837**	**1,162**
1987 Average	**295**	**0**	**751**	**61**	**285**	**98**	**535**	**804**	**231**	**3,060**	**1,274**
1988 January	333	0	849	61	179	• 1	406	766	540	3,134	1,652
February	358	0	1,265	79	194	0	506	846	214	3,461	1,883
March	259	0	937	6	127	0	589	803	352	3,073	1,509
April	342	0	929	48	166	0	711	833	385	3,413	1,610
May	320	0	1,041	41	298	0	601	841	360	3,501	1,724
June	262	0	923	11	184	0	875	850	527	3,632	1,635
July	225	0	1,076	43	216	0	715	724	590	3,589	1,911
August	257	0	1,169	0	153	0	623	830	669	3,703	2,036
September	289	0	1,066	22	242	0	546	824	697	3,685	2,042
October	326	0	1,244	16	265	0	686	772	552	3,861	2,069
November	322	0	986	0	240	0	489	779	694	3,510	1,914
December	312	0	1,289	19	194	0	667	669	524	3,674	2,080
Average	**300**	**0**	**1,064**	**29**	**205**	**(s)**	**618**	**794**	**510**	**3,520**	**1,839**
1989 January	335	0	1,449	59	218	0	782	941	429	4,212	2,219
February	310	0	1,290	17	292	0	567	775	593	3,845	2,126
March	272	0	1,108	64	167	0	702	909	471	3,693	1,805
April	235	0	1,226	14	128	0	750	831	743	3,927	2,030
May	272	0	1,155	61	264	0	789	853	630	4,025	1,977
June	205	0	1,249	17	138	0	864	778	856	4,106	2,164
July	263	0	1,182	0	113	0	1,094	794	992	4,437	2,308
August	216	0	1,316	44	115	0	946	834	1,060	4,531	2,453
September	256	0	1,109	20	113	0	867	914	957	4,236	2,195
October	250	0	1,158	14	167	0	713	1,004	872	4,177	2,122
November	323	0	1,342	0	231	0	770	924	762	4,353	2,257
December	288	0	1,115	26	263	0	915	903	602	4,111	1,905
Average	**269**	**0**	**1,224**	**28**	**183**	**0**	**815**	**873**	**748**	**4,140**	**2,130**
1990 January	418	0	1,212	37	137	0	830	1,138	1,047	4,819	2,592
February	280	0	1,557	18	260	0	833	890	753	4,590	2,504
March	301	0	1,157	17	138	0	1,054	878	824	4,368	2,115
April	234	0	1,149	9	88	0	969	1,005	742	4,196	2,073
May	247	0	1,225	73	77	0	1,008	1,087	836	4,554	2,337
June	333	0	1,137	20	138	0	778	1,070	960	4,435	2,293
July	308	0	1,369	13	143	0	830	999	1,291	4,954	2,853
7-Month Average	**303**	**0**	**1,255**	**27**	**139**	**0**	**902**	**1,011**	**925**	**4,561**	**2,396**
1989 7-Month Average	**270**	**0**	**1,236**	**33**	**187**	**0**	**795**	**842**	**673**	**4,038**	**2,089**
1988 7-Month Average	**299**	**0**	**1,001**	**41**	**195**	**(s)**	**629**	**808**	**426**	**3,399**	**1,703**

[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]"Other OPEC" consists of Ecuador, Gabon, Iraq, Kuwait, and Qatar. Prior to January 1988, imports from the Neutral Zone between Kuwait and Saudi Arabia are included in imports from Saudi Arabia. From January 1988 forward, those imports are included in imports from "Other OPEC."

[c]"Total OPEC" consists of Ecuador, Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members.

[d]"Total Arab OPEC" consists of Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates. Imports from the Neutral Zone are included in imports from "Total Arab OPEC."

•A small amount of Iranian crude oil entered the United States (defined in this publication as the 50 States and the District of Columbia) 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.

Footnotes continued on following page.

Table 3.3b Crude Oil and Petroleum Product Imports (Continued)
(Thousand Barrels per Day)

	Imports from Non-OPEC Sources[1]										
	Bahamas	Canada	Mexico	Netherlands Antilles	Trinidad and Tobago	United Kingdom	Puerto Rico	Virgin Islands	Other Non-OPEC	Total Non-OPEC	Total Imports
1973 Average	**174**	**1,325**	**16**	**585**	**255**	**15**	**99**	**329**	**465**	**3,263**	**6,256**
1974 Average	**164**	**1,070**	**8**	**511**	**251**	**8**	**90**	**391**	**340**	**2,832**	**6,112**
1975 Average	**152**	**846**	**71**	**332**	**242**	**14**	**90**	**406**	**300**	**2,454**	**6,056**
1976 Average	**118**	**599**	**87**	**275**	**274**	**31**	**88**	**422**	**353**	**2,247**	**7,313**
1977 Average	**171**	**517**	**179**	**211**	**289**	**126**	**105**	**466**	**550**	**2,614**	**8,807**
1978 Average	**160**	**467**	**318**	**229**	**253**	**180**	**94**	**429**	**484**	**2,613**	**8,363**
1979 Average	**147**	**538**	**439**	**231**	**190**	**202**	**92**	**431**	**548**	**2,819**	**8,456**
1980 Average	**78**	**455**	**533**	**225**	**176**	**176**	**88**	**388**	**491**	**2,609**	**6,909**
1981 Average	**74**	**447**	**522**	**197**	**133**	**375**	**62**	**327**	**534**	**2,672**	**5,996**
1982 Average	**65**	**482**	**685**	**175**	**112**	**456**	**50**	**316**	**627**	**2,968**	**5,113**
1983 Average	**125**	**547**	**826**	**189**	**96**	**382**	**40**	**282**	**701**	**3,189**	**5,051**
1984 Average	**88**	**630**	**748**	**188**	**94**	**402**	**42**	**294**	**902**	**3,388**	**5,437**
1985 Average	**40**	**770**	**816**	**40**	**113**	**310**	**28**	**247**	**873**	**3,237**	**5,067**
1986 Average	**37**	**807**	**699**	**25**	**125**	**350**	**21**	**244**	**1,080**	**3,387**	**6,224**
1987 Average	**37**	**848**	**655**	**29**	**106**	**352**	**21**	**272**	**1,296**	**3,617**	**6,678**
1988 January	51	959	808	40	97	313	29	341	1,410	4,047	7,181
February	79	1,033	710	21	93	334	16	200	1,308	3,794	7,256
March	47	1,002	745	46	89	461	22	180	1,280	3,871	6,944
April	26	985	678	43	82	594	29	193	1,227	3,857	7,270
May	24	1,001	722	27	102	389	20	257	1,426	3,968	7,469
June	15	1,032	766	31	112	232	13	212	1,194	3,607	7,239
July	15	972	723	35	96	214	22	215	1,416	3,708	7,297
August	12	1,009	704	32	97	111	23	172	1,523	3,683	7,386
September	37	936	843	25	96	149	29	236	1,469	3,820	7,506
October	13	996	743	17	98	447	21	234	1,398	3,969	7,830
November	27	1,080	811	72	80	246	15	286	1,587	4,204	7,714
December	40	990	711	40	125	294	28	372	1,453	4,053	7,727
Average	**32**	**999**	**747**	**36**	**97**	**315**	**22**	**242**	**1,392**	**3,882**	**7,402**
1989 January	53	1,065	809	59	105	215	30	415	1,293	4,043	8,255
February	24	1,007	756	44	92	221	24	369	1,649	4,186	8,032
March	41	961	667	52	82	174	38	324	1,424	3,763	7,456
April	55	877	1,002	14	117	148	24	407	1,507	4,151	8,078
May	29	901	808	32	68	202	46	379	1,288	3,753	7,778
June	28	921	688	34	143	181	32	363	1,481	3,871	7,977
July	32	849	758	49	89	328	39	331	1,458	3,932	8,369
August	19	911	806	43	101	370	21	239	1,519	4,029	8,560
September	8	949	721	35	95	191	33	190	1,545	3,766	8,002
October	44	857	837	38	71	309	32	180	1,756	4,124	8,301
November	41	911	743	72	91	165	42	279	1,645	3,988	8,341
December	29	973	610	29	81	78	24	377	1,266	3,468	7,579
Average	**34**	**931**	**767**	**42**	**94**	**215**	**32**	**321**	**1,484**	**3,921**	**8,061**
1990 January	74	952	789	9	109	219	35	409	1,732	4,328	9,147
February	74	919	722	27	89	74	32	323	1,456	3,716	8,306
March	35	823	812	10	103	273	32	264	1,205	3,557	7,925
April	51	908	466	29	114	274	33	283	1,404	3,562	7,758
May	29	994	778	20	88	347	38	285	1,604	4,184	8,738
June	36	927	912	21	118	249	27	299	1,666	4,255	8,690
July	25	882	695	30	107	211	35	252	1,701	3,939	[R] 8,893
7-Month Average	**46**	**915**	**740**	**21**	**104**	**237**	**33**	**302**	**1,540**	**3,938**	**8,499**
1989 7-Month Average	**37**	**939**	**784**	**41**	**99**	**210**	**33**	**370**	**1,439**	**3,953**	**7,991**
1988 7-Month Average	**36**	**997**	**736**	**35**	**96**	**362**	**22**	**229**	**1,324**	**3,837**	**7,236**

Footnotes continued.

[1]Includes petroleum imported into the United States indirectly from members of OPEC, primarily from Caribbean and West European areas, as petroleum products that were refined from crude oil produced by OPEC.

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

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

Sources: See end of section.

Figure 3.5 Finished Motor Gasoline Product Supplied, Production, and Imports

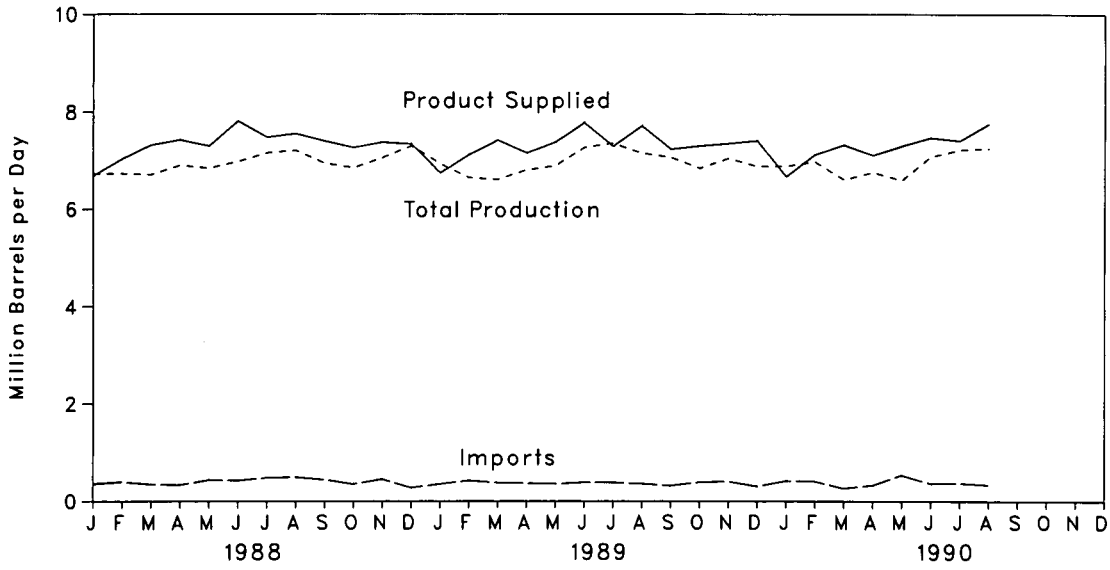


Figure 3.6 Motor Gasoline Ending Stocks

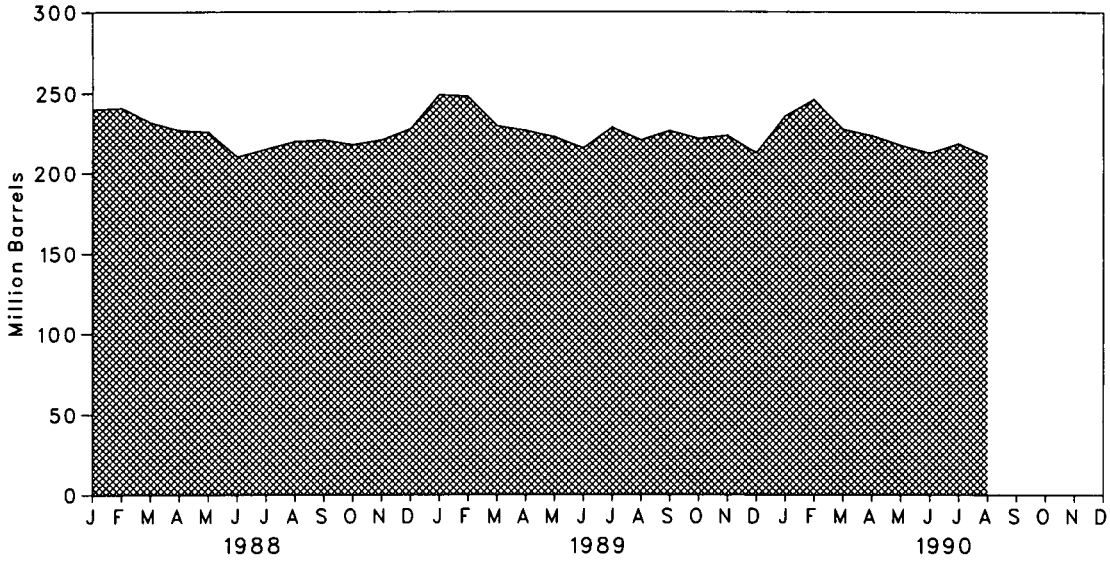


Table 3.4 Finished Motor Gasoline Supply and Disposition

	Supply		Disposition					Ending Stocks[a]	
					Product Supplied				
	Total Production	Imports[b]	Stock Change[b,c]	Exports	Total	Unleaded[d]	Unleaded	Total Motor Gasoline[e]	Finished Motor Gasoline
	Thousand Barrels per Day						Percent of Total	Million Barrels	
1973 Average	**6,535**	**134**	**-9**	**4**	**6,674**			**209**	
1974 Average	**6,360**	**204**	**24**	**2**	**6,537**			**[f] 218**	
1975 Average	**6,520**	**184**	**[f] 28**	**2**	**6,675**			**235**	
1976 Average	**6,841**	**131**	**-10**	**3**	**6,978**			**231**	
1977 Average	**7,033**	**217**	**72**	**2**	**7,177**	**1,976**	**27.5**	**258**	
1978 Average	**7,169**	**190**	**-54**	**1**	**7,412**	**2,521**	**34.0**	**238**	
1979 Average	**6,852**	**181**	**-2**	**(s)**	**7,034**	**2,798**	**39.8**	**237**	
1980 Average	**6,506**	**140**	**66**	**1**	**6,579**	**3,067**	**46.6**	**[f] 261**	
1981 Average[g]	**6,405**	**157**	**[f] -28**	**2**	**6,588**	**3,264**	**49.5**	**253**	
1982 Average	**6,338**	**197**	**-25**	**20**	**6,539**	**3,409**	**52.1**	**[f] 235**	
1983 Average	**6,340**	**247**	**[f] -45**	**10**	**6,622**	**3,647**	**55.1**	**222**	**186**
1984 Average	**6,453**	**299**	**54**	**6**	**6,693**	**3,987**	**59.6**	**243**	**205**
1985 Average	**6,419**	**381**	**-41**	**10**	**6,831**	**4,406**	**64.5**	**223**	**190**
1986 Average	**6,752**	**326**	**11**	**33**	**7,034**	**4,854**	**69.0**	**233**	**194**
1987 Average	**6,841**	**384**	**-15**	**35**	**7,206**	**5,470**	**75.9**	**226**	**189**
1988 January	6,730	357	387	8	6,693	5,395	80.6	240	201
February	6,736	397	75	18	7,039	5,607	79.7	241	203
March	6,715	349	-277	18	7,323	5,894	80.5	232	194
April	6,907	399	-142	18	7,430	5,991	80.6	227	190
May	6,851	437	-43	28	7,303	5,861	80.3	226	189
June	6,983	428	-465	59	7,817	6,336	81.1	210	175
July	7,159	482	148	12	7,482	6,144	82.1	215	179
August	7,209	494	131	15	7,556	6,232	82.5	220	184
September	6,948	443	-28	16	7,404	6,115	82.6	221	183
October	6,858	352	-75	13	7,271	5,988	82.4	218	180
November	7,060	451	118	15	7,379	6,157	83.4	221	184
December	7,303	277	192	45	7,344	6,220	84.7	228	190
Average	**6,956**	**405**	**3**	**22**	**7,336**	**5,995**	**81.7**		
1989 January	6,937	353	512	33	6,745	5,754	85.3	249	206
February	6,650	423	-70	24	7,119	6,141	86.3	248	204
March	6,612	381	-471	43	7,421	6,380	86.0	230	189
April	6,811	370	-22	46	7,157	6,248	87.3	227	188
May	6,894	355	-163	31	7,381	6,454	87.5	223	183
June	7,275	386	-180	60	7,780	6,864	88.2	216	178
July	7,360	383	390	57	7,296	6,509	89.2	229	190
August	7,155	360	-260	58	7,717	6,934	89.8	221	182
September	7,069	320	118	31	7,240	6,443	89.0	227	186
October	6,845	389	-97	29	7,302	6,642	91.0	222	183
November	7,046	406	81	18	7,353	6,756	91.9	224	185
December	6,884	306	-257	37	7,410	6,927	93.5	213	177
Average	**6,963**	**369**	**-35**	**39**	**7,328**	**6,507**	**88.8**		
1990 January	6,889	417	599	31	6,675	6,272	94.0	236	196
February	6,978	407	204	53	7,129	6,657	93.4	246	201
March	6,612	265	-493	45	7,325	6,881	93.9	228	186
April	6,764	327	-52	28	7,116	6,696	94.1	224	184
May	6,599	535	-196	25	7,304	6,884	94.2	218	178
June	7,084	361	-86	52	7,478	7,059	94.4	213	176
July	[R] 7,230	[R] 372	[R] 146	[R] 41	[R] 7,415	[R] 7,012	[R] 94.6	[R] 219	[R] 180
August	[E] 7,255	[E] 334	[E] -206	[E] 38	[E] 7,757	[E] 7,342	[E] 94.6	[E] 211	[E] 173
8-Month Average	**[E] 6,926**	**[E] 377**	**[E] -13**	**[E] 39**	**[E] 7,277**	**[E] 6,852**			
1989 8-Month Average	**6,965**	**376**	**-32**	**44**	**7,328**	**6,413**			
1988 8-Month Average	**6,912**	**418**	**-22**	**22**	**7,330**	**5,933**			

[a]Stocks are totals as of end of period.
[b]Beginning in 1981, excludes blending components.
[c]A negative number indicates a decrease in stocks and a positive number indicates an increase.
[d]Includes gasohol.
[e]Includes motor gasoline blending components.
[f]In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock change calculations. See Note 4 at end of section.
[g]Beginning in January 1981, survey forms were modified. See Note 1 at end of section.
R=Revised data. E=Estimate. (s)=Less than 500 barrels per day.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Figure 3.7 Distillate Fuel Oil Product Supplied, Production, and Imports

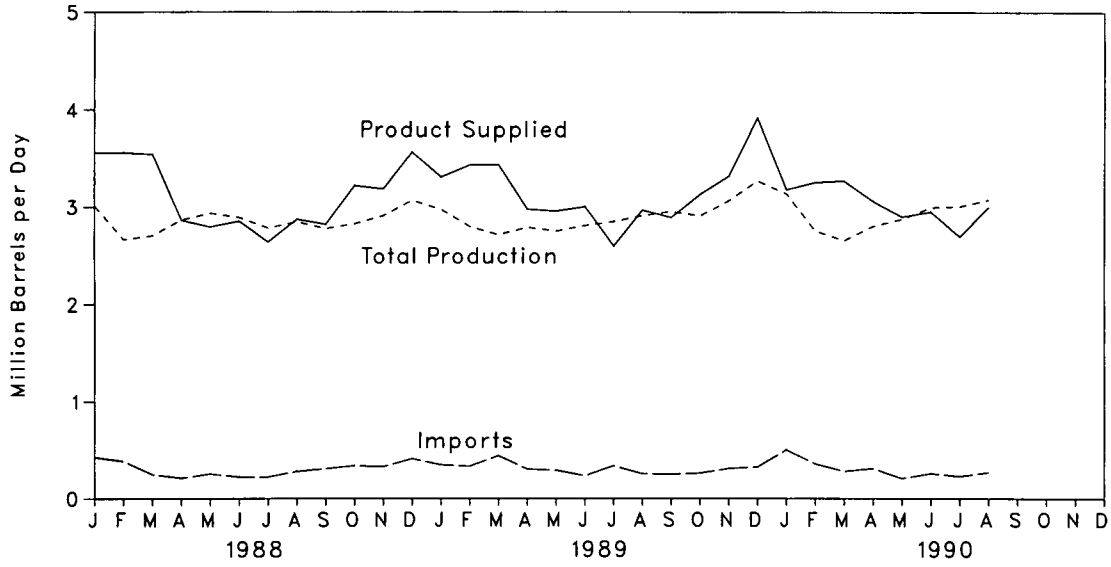


Figure 3.8 Distillate Fuel Oil Ending Stocks

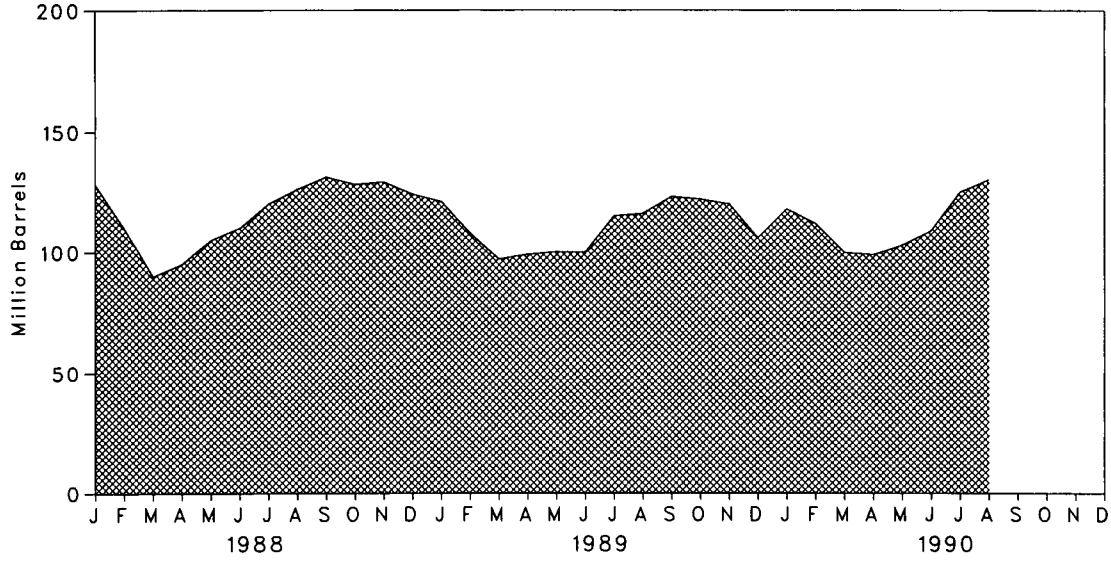


Table 3.5 Distillate Fuel Oil Supply and Disposition

	Supply			Disposition			
	Total Production	Imports	Crude Used Directly[a]	Stock Change[b]	Exports	Product Supplied[a]	Ending Stocks[c]
	Thousand Barrels per Day						Million Barrels
1973 Average	**2,822**	**392**	**2**	**115**	**9**	**3,092**	**196**
1974 Average	**2,669**	**289**	**2**	**9**	**2**	**2,948**	**[d] 200**
1975 Average	**2,654**	**155**	**2**	**[d] -41**	**1**	**2,851**	**209**
1976 Average	**2,924**	**146**	**1**	**-62**	**1**	**3,133**	**186**
1977 Average	**3,278**	**250**	**1**	**176**	**1**	**3,352**	**250**
1978 Average	**3,167**	**173**	**1**	**-93**	**3**	**3,432**	**216**
1979 Average	**3,153**	**193**	**1**	**34**	**3**	**3,311**	**229**
1980 Average	**2,662**	**142**	**1**	**-64**	**3**	**2,866**	**[d] 205**
1981 Average[e]	**2,613**	**173**	**10**	**[d] -38**	**5**	**2,829**	**192**
1982 Average	**2,606**	**93**	**10**	**-35**	**74**	**2,671**	**[d] 179**
1983 Average	**2,456**	**174**	**NA**	**[d] -124**	**64**	**2,690**	**140**
1984 Average	**2,681**	**272**	**NA**	**57**	**51**	**2,845**	**161**
1985 Average	**2,687**	**200**	**NA**	**-48**	**67**	**2,868**	**144**
1986 Average	**2,798**	**247**	**NA**	**31**	**100**	**2,914**	**155**
1987 Average	**2,731**	**255**	**NA**	**-56**	**66**	**2,976**	**134**
1988 January	3,010	424	NA	-206	82	3,558	128
February	2,667	383	NA	-614	107	3,557	110
March	2,706	247	NA	-660	74	3,539	90
April	2,867	210	NA	171	42	2,864	95
May	2,936	253	NA	320	74	2,795	105
June	2,893	222	NA	185	76	2,854	110
July	2,784	222	NA	308	58	2,640	120
August	2,848	279	NA	185	70	2,873	126
September	2,778	307	NA	192	72	2,821	131
October	2,827	336	NA	-103	48	3,218	128
November	2,909	327	NA	19	34	3,183	129
December	3,068	409	NA	-171	87	3,560	124
Average	**2,859**	**302**	**NA**	**-30**	**69**	**3,122**	
1989 January	2,974	346	NA	-93	110	3,303	121
February	2,797	331	NA	-463	164	3,427	108
March	2,713	439	NA	-352	76	3,428	97
April	2,789	301	NA	60	56	2,975	99
May	2,750	290	NA	35	51	2,954	100
June	2,809	233	NA	(s)	39	3,002	100
July	2,848	334	NA	498	89	2,596	115
August	2,907	254	NA	41	154	2,966	116
September	2,952	249	NA	231	81	2,889	123
October	2,906	261	NA	-50	90	3,127	122
November	3,063	307	NA	-64	123	3,311	120
December	3,266	324	NA	-454	130	3,914	106
Average	**2,899**	**306**	**NA**	**-49**	**97**	**3,157**	
1990 January	3,136	501	NA	398	62	3,177	118
February	2,753	357	NA	-204	65	3,250	112
March	2,655	280	NA	-405	75	3,265	100
April	2,802	308	NA	-8	59	3,059	99
May	2,873	207	NA	109	75	2,897	103
June	2,995	257	NA	219	84	2,949	109
July	[R] 3,006	[R] 229	NA	[R] 512	[R] 30	[R] 2,693	[R] 125
August	[E] 3,074	[E] 269	NA	[E] 264	[E] 79	[E] 3,000	[E] 130
8-Month Average	**[E] 2,914**	**[E] 301**	**NA**	**[E] 114**	**[E] 66**	**[E] 3,034**	
1989 8-Month Average	**2,824**	**316**	**NA**	**-30**	**92**	**3,078**	
1988 8-Month Average	**2,840**	**280**	**NA**	**-36**	**73**	**3,083**	

[a]Beginning in January 1983, product supplied for distillate fuel oil does not include crude oil used directly. See Note 3 at end of section.
[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]In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock change calculations. See Note 4 at end of section. Due to a rounding difference, the 1975 stock change value is -40 in the *Petroleum Supply Annual* and the *Petroleum Supply Monthly*.
[e]Beginning in January 1981, survey forms were modified. See Note 1 at end of section.
R=Revised data. NA=Not available. E=Estimate.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Figure 3.9 Residual Fuel Oil Product Supplied, Production, and Imports

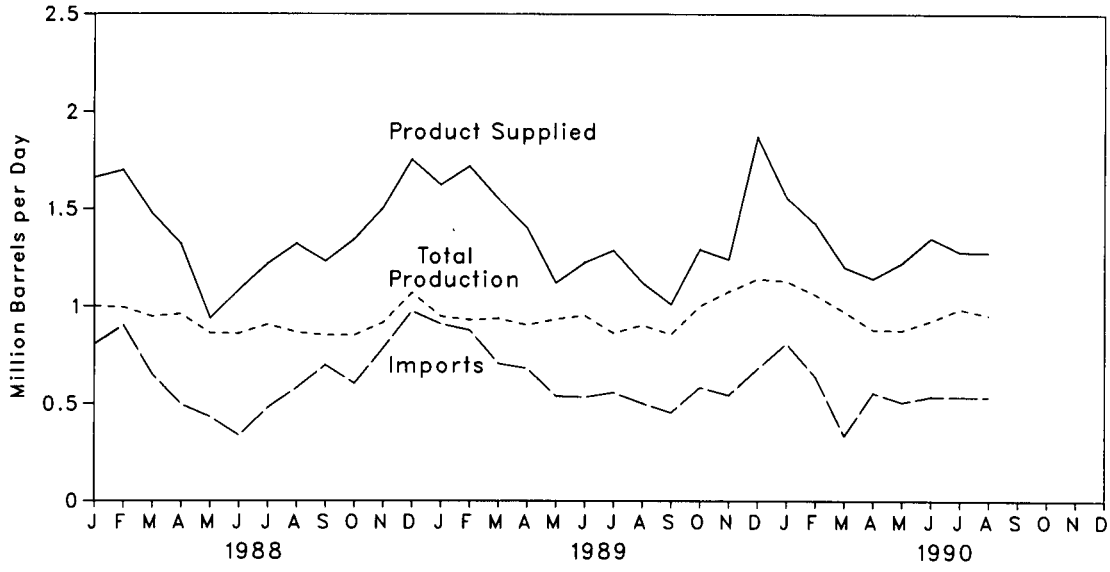


Figure 3.10 Residual Fuel Oil Ending Stocks

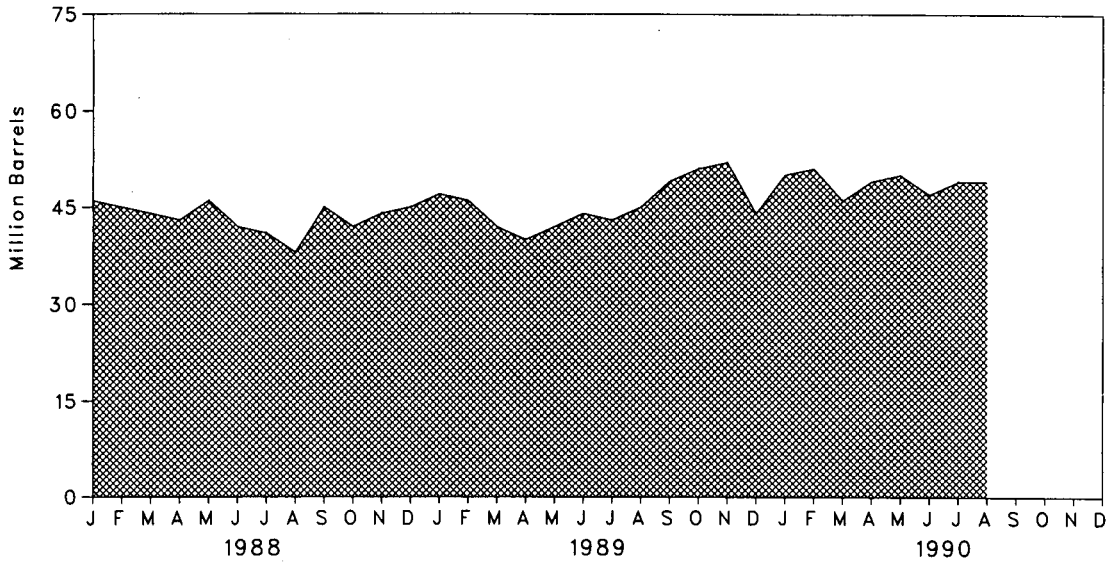


Table 3.6 Residual Fuel Oil Supply and Disposition

	Supply			Disposition			Ending Stocks[c]
	Total Production	Imports	Crude Used Directly[a]	Stock Change[b]	Exports	Product Supplied[a]	
	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**	**NA**	**[d] -55**	**185**	**1,421**	**49**
1984 Average	**891**	**681**	**NA**	**12**	**190**	**1,369**	**53**
1985 Average	**882**	**510**	**NA**	**-7**	**197**	**1,202**	**50**
1986 Average	**889**	**669**	**NA**	**-8**	**147**	**1,418**	**47**
1987 Average	**885**	**565**	**NA**	**(s)**	**186**	**1,264**	**47**
1988 January	1,002	805	NA	-44	190	1,661	46
February	994	901	NA	-33	229	1,698	45
March	948	650	NA	-43	165	1,476	44
April	960	495	NA	-33	170	1,318	43
May	862	432	NA	94	263	938	46
June	880	336	NA	-117	249	1,083	42
July	906	479	NA	-37	206	1,217	41
August	866	581	NA	-97	225	1,320	38
September	852	698	NA	220	100	1,230	45
October	852	603	NA	-68	181	1,343	42
November	916	785	NA	51	146	1,504	44
December	1,069	975	NA	20	271	1,754	45
Average	**926**	**644**	**NA**	**-8**	**200**	**1,378**	
1989 January	949	909	NA	84	151	1,623	47
February	930	877	NA	-58	146	1,719	46
March	937	706	NA	-128	220	1,551	42
April	904	681	NA	-52	236	1,401	40
May	934	538	NA	77	276	1,119	42
June	953	533	NA	54	208	1,223	44
July	862	556	NA	-44	176	1,286	43
August	903	501	NA	58	225	1,121	45
September	856	454	NA	162	137	1,010	49
October	1,001	583	NA	50	243	1,292	51
November	1,075	543	NA	48	330	1,240	52
December	1,140	680	NA	-275	226	1,870	44
Average	**954**	**629**	**NA**	**-2**	**215**	**1,370**	
1990 January	1,129	809	NA	191	186	1,561	50
February	1,060	640	NA	63	214	1,424	51
March	974	334	NA	-171	277	1,202	46
April	880	555	NA	93	200	1,142	49
May	877	507	NA	21	141	1,222	50
June	926	536	NA	-96	207	1,350	47
July	[R] 987	[R] 535	NA	[R] 72	[R] 171	[R] 1,279	[R] 49
August	[E] 954	[E] 534	NA	[E] 38	[E] 173	[E] 1,277	[E] 49
8-Month Average	**[E] 973**	**[E] 555**	**NA**	**[E] 26**	**[E] 196**	**[E] 1,306**	
1989 8-Month Average	**921**	**661**	**NA**	**0**	**205**	**1,377**	
1988 8-Month Average	**927**	**584**	**NA**	**-39**	**212**	**1,337**	

[a]Beginning in January 1983, product supplied for residual fuel oil does not include crude oil used directly. See Note 3 at end of section.
[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]In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock change calculations. See Note 4 at end of section.
[e]Beginning in January 1981, survey forms were modified. See Note 1 at end of section.
R=Revised data. NA=Not available. E=Estimate. (s)=Less than 500 barrels per day.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Figure 3.11 Liquefied Petroleum Gases Product Supplied, Production, and Imports

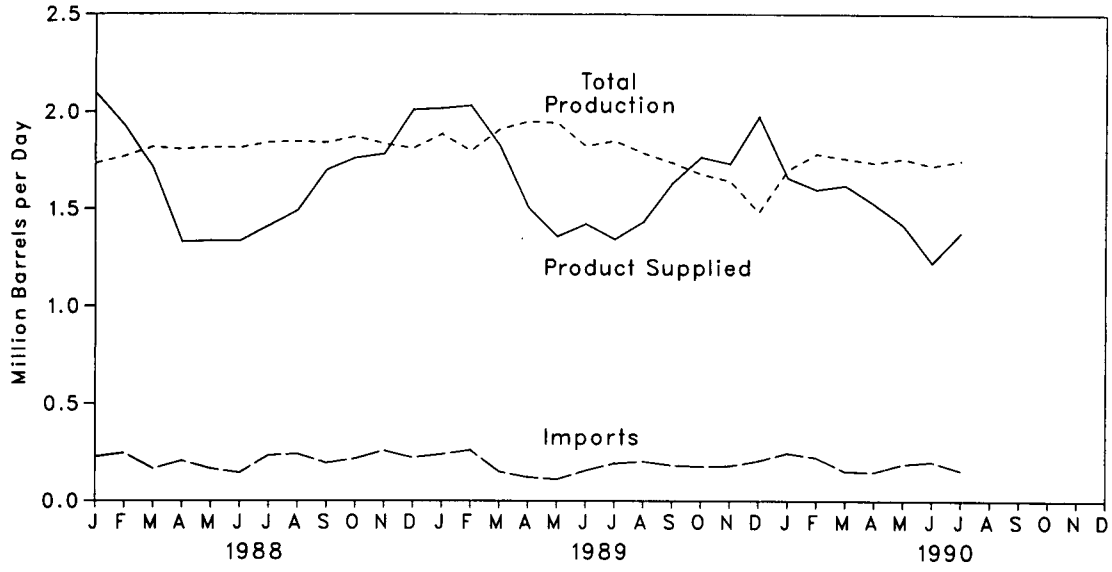


Figure 3.12 Liquefied Petroleum Gases Ending Stocks

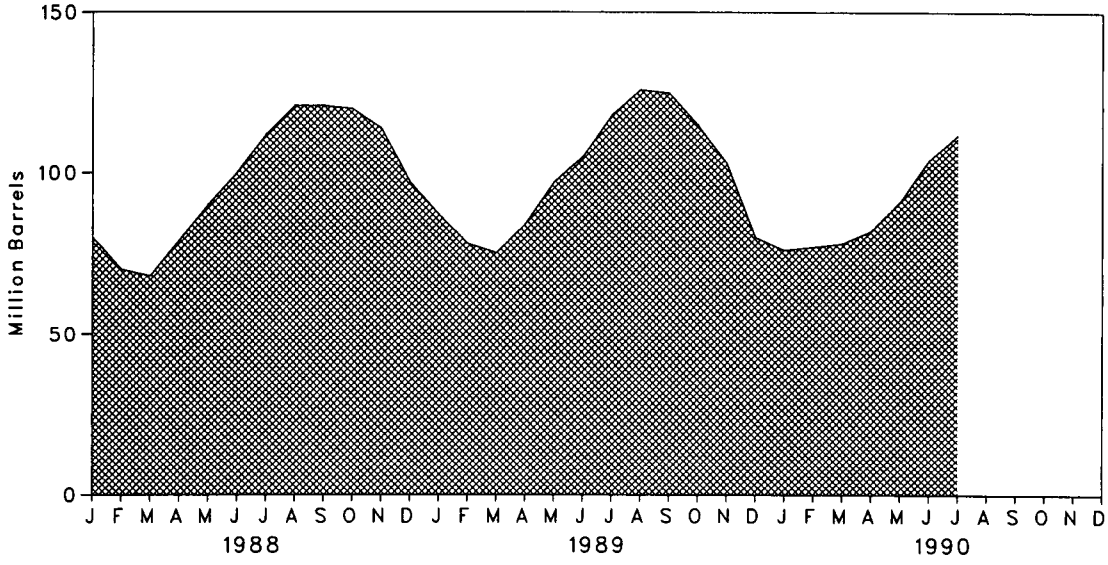


Table 3.7 Liquefied Petroleum Gases[a] Supply and Disposition

	Supply		Disposition				
	Total Production	Imports	Stock Change[b]	Refinery Inputs	Exports	Product Supplied	Ending Stocks[c]
	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**	**[d] 113**
1975 Average	**1,527**	**112**	**[d] 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**	**132**
1979 Average	**1,556**	**217**	**-70**	**236**	**15**	**1,592**	**111**
1980 Average	**1,535**	**216**	**27**	**233**	**21**	**1,469**	**[d] 120**
1981 Average	**1,571**	**244**	**[d] 18**	**289**	**42**	**1,466**	**135**
1982 Average	**• 1,527**	**226**	**-111**	**300**	**65**	**1,499**	**[d] 94**
1983 Average	**1,642**	**190**	**[d] -4**	**253**	**73**	**1,509**	**[d] 101**
1984 Average	**1,697**	**195**	**[d] -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 January	1,734	226	-566	383	44	2,099	80
February	1,770	245	-328	366	47	1,929	70
March	1,819	165	-50	292	36	1,707	68
April	1,806	205	361	277	43	1,329	79
May	1,817	165	343	277	37	1,324	90
June	1,814	144	331	256	38	1,333	100
July	1,842	233	380	248	35	1,412	112
August	1,847	241	287	262	50	1,490	121
September	1,841	194	20	274	43	1,698	121
October	1,872	216	-47	318	56	1,761	120
November	1,835	258	-206	445	71	1,782	114
December	1,811	222	-522	461	85	2,010	97
Average	**1,817**	**209**	**1**	**321**	**49**	**1,656**	
1989 January	1,885	239	-335	422	19	2,018	87
February	1,798	260	-333	328	31	2,032	78
March	1,909	150	-85	274	43	1,827	75
April	1,950	121	294	242	27	1,507	84
May	1,943	110	428	226	43	1,357	97
June	1,824	155	269	254	35	1,422	105
July	1,850	192	407	247	45	1,343	118
August	1,787	202	272	245	40	1,433	126
September	1,737	182	-46	303	31	1,631	125
October	1,679	176	-313	371	31	1,766	115
November	1,643	179	-389	446	33	1,732	103
December	1,483	205	-749	424	37	1,975	80
Average	**1,791**	**181**	**-47**	**315**	**35**	**1,668**	
1990 January	1,700	245	-174	416	44	1,660	76
February	1,784	223	20	346	42	1,599	77
March	1,760	152	42	205	44	1,620	78
April	1,738	148	136	200	25	1,525	82
May	1,760	189	279	216	36	1,417	91
June	1,722	201	451	220	28	1,223	104
July	1,750	156	259	230	36	1,379	112
7-Month Average	**1,744**	**187**	**145**	**261**	**37**	**1,489**	
1989 7-Month Average	**1,881**	**175**	**96**	**284**	**35**	**1,640**	
1988 7-Month Average	**1,800**	**197**	**68**	**300**	**40**	**1,590**	

[a]Includes ethane, propane, normal butane, and isobutane.
[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]In January 1975, 1981, 1983, and 1984, a new stock basis was established affecting stocks reported and stock change calculations. See Note 4 at end of section.
•Due to a rounding difference, this value is 1,528 in the *Petroleum Supply Annual* and the *Petroleum Supply Monthly.*
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Table 3.8 Other Petroleum Products[a] Supply and Disposition

	Supply		Disposition				
	Total Production	Imports	Stock Change[b]	Refinery Inputs	Exports	Products Supplied	Ending Stocks[c]
	Thousand Barrels per Day						Million Barrels
1973 Average	**3,693**	**502**	**9**	**750**	**166**	**3,270**	**208**
1974 Average	**3,558**	**432**	**28**	**665**	**174**	**3,123**	**[d] 218**
1975 Average	**3,418**	**277**	**[d] -4**	**537**	**160**	**3,002**	**219**
1976 Average	**3,643**	**206**	**5**	**524**	**175**	**3,145**	**220**
1977 Average	**3,912**	**205**	**27**	**514**	**165**	**3,410**	**230**
1978 Average	**4,046**	**166**	**-14**	**492**	**167**	**3,568**	**225**
1979 Average	**4,153**	**195**	**37**	**352**	**209**	**3,749**	**238**
1980 Average	**3,956**	**210**	**23**	**311**	**198**	**3,634**	**[d] 247**
1981 Average	**3,739**	**226**	**[d] -46**	**723**	**199**	**3,088**	**282**
1982 Average	**3,453**	**334**	**-80**	**767**	**211**	**• 2,870**	**[d] 253**
1983 Average	**3,460**	**411**	**[d] -6**	**712**	**242**	**2,923**	**[d] 256**
1984 Average	**3,632**	**565**	**[d] -23**	**791**	**245**	**3,183**	**240**
1985 Average	**3,721**	**588**	**17**	**886**	**240**	**3,166**	**246**
1986 Average	**3,997**	**561**	**10**	**888**	**308**	**3,353**	**250**
1987 Average	**4,080**	**610**	**-1**	**829**	**289**	**3,572**	**250**
1988 January	3,942	706	136	812	354	3,347	254
February	3,905	680	31	753	318	3,484	255
March	4,147	666	282	687	328	3,515	264
April	4,010	794	87	851	288	3,577	266
May	4,071	843	335	501	274	3,803	277
June	4,265	787	-43	777	379	3,939	276
July	4,315	781	21	831	329	3,915	276
August	4,413	701	-199	796	302	4,215	270
September	4,245	651	-159	850	323	3,882	265
October	4,163	771	-40	762	268	3,944	264
November	4,068	823	43	818	303	3,728	265
December	4,155	613	-429	1,153	392	3,653	252
Average	**4,143**	**735**	**6**	**799**	**321**	**3,751**	
1989 January	4,198	746	396	706	311	3,532	264
February	3,957	837	191	726	302	3,574	270
March	4,067	745	112	660	321	3,718	273
April	3,953	854	133	808	306	3,561	277
May	4,131	755	221	688	260	3,718	284
June	4,375	695	-206	838	389	4,049	278
July	4,454	690	-69	955	344	3,913	276
August	4,436	677	-215	893	328	4,107	269
September	4,428	770	112	737	343	4,005	272
October	4,191	705	32	730	337	3,796	273
November	4,122	736	-43	900	351	3,650	272
December	3,763	600	-601	918	391	3,655	253
Average	**4,174**	**733**	**4**	**797**	**332**	**3,774**	
1990 January	4,014	970	176	699	255	3,854	259
February	4,255	819	495	645	347	3,587	273
March	4,115	769	144	787	306	3,646	278
April	4,125	679	-195	861	337	3,800	272
May	4,235	861	292	531	300	3,973	281
June	4,267	922	-141	904	345	4,082	277
July	4,581	789	30	954	327	4,059	278
7-Month Average	**4,227**	**830**	**112**	**770**	**316**	**3,860**	
1989 7-Month Average	**4,165**	**759**	**112**	**769**	**319**	**3,725**	
1988 7-Month Average	**4,095**	**751**	**123**	**744**	**324**	**3,655**	

[a]Includes pentanes plus, other hydrocarbons and alcohol, unfinished oil, gasoline blending components, and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil, and liquefied petroleum gases.

[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]In January 1975, 1981, 1983, and 1984, a new stock basis was established affecting stocks reported and stock change calculations. See Note 4 at end of this section.

[e]Due to a rounding difference, this value is 2,869 in the *Petroleum Supply Annual* and the *Petroleum Supply Monthly*.

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

Sources: See end of section.

Petroleum Notes and Sources

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 industry publications such 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.

Every 3 years an extensive survey is conducted to update the frames completely. The updating involves consolidating information from every known source including State agencies, Federal agencies (e.g., Environmental Protection Agency, Corps of Engineers, Census Bureau, etc.), and private industry directories. 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.

2. **Motor Gasoline:** Beginning in January 1981, the EIA expanded its universe to include non-refinery blenders; redefined motor gasoline into two categories (finished leaded and finished unleaded); and separated blending components from finished motor gasoline as a reporting category. Also, survey forms were modified to describe refinery operations more accurately. For further details, see the EIA, *Petroleum Supply Monthly.*

3. **Distillate and Residual Fuel Oils:** The requirement to report crude oil burned on leases and pipelines as either distillate or residual fuel oil has been eliminated. Prior to January 1981, the refinery input of unfinished oils number typically exceeded the number for 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 an unfinished oil input 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. For further details, see the EIA, *Petroleum Supply Monthly.*

4. **New Stock Basis:** In January 1975, 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--1,462.
- Motor Gasoline: 1974--225; 1980--263; 1982--244 (Total) and 203 (Finished).
- Distillate Fuel Oil: 1974--224; 1980--205; and 1982--186.
- Residual Fuel Oil: 1974--75; 1980--91; and 1982--68.
- Liquefied Petroleum Gases: 1974--113; 1980--128; and 1982--103.
- Other Petroleum Products: 1974--220; 1980--249; and 1982--259.
- Stock change calculations beginning in 1975, 1981, and 1983, were made 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 "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.
- Other Petroleum Products: 1983--248.

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).

Sources

- 1973 through 1976: U.S. Department of the Interior, Bureau of Mines, *Mineral Industry Surveys,* "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual."

- 1977 through 1980: Energy Information Administration (EIA), *Energy Data Reports,* "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual" and unleaded gasoline data from *Monthly Petroleum Statistics Report.*

- 1981 through 1989: EIA, *Petroleum Supply Annual.*

- January 1990 through July 1990: Detailed Statistics in appropriate issues of the *Petroleum Supply Monthly.*

- August 1990: Estimates based on EIA weekly data (except domestic crude oil production).

- January 1990 through August 1990: Domestic crude oil production estimate based on historical statistics from State conservation agencies and the Minerals Management Service of the U.S. Department of the Interior.

Section 4. Natural Gas

Total dry natural gas production in the United States during July 1990 was an estimated 1.4 trillion cubic feet,[21] slightly lower than the previous July.

Consumption of natural and supplemental gas in July 1990 was 1.3 trillion cubic feet, 3 percent above the level in July 1989.

Deliveries to residential consumers in June 1990 (latest data available) were 160 billion cubic feet, 3 percent higher than the previous June. Total deliveries to residential consumers in the first half of 1990 were down 7 percent compared with deliveries during the first half of 1989.

Total deliveries to industrial consumers during June 1990 were 535 billion cubic feet, 1 percent higher than in the previous June. Deliveries to industrial consumers during the first half of 1990 were down slightly from deliveries during the first half of 1989.

Imports of natural gas in July 1990 were 122 billion cubic feet, 21 percent higher than in the previous July.

Stocks of working gas[22] in underground natural gas storage reservoirs at the end of July 1990 totaled 2.7 trillion cubic feet, 4 percent above the level of stocks available 1 year earlier. Net withdrawals from storage during July 1990 were 298 billion cubic feet, 13 percent below the amount available during the previous July.

[21]Percentage changes are calculated using unrounded data.
[22]Gas available for withdrawal.

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	Total Dry Gas Production[f]
1973 Total	**24,067**	**1,171**	**NA**	**248**	**[g] 22,648**	**917**	**[g] 21,731**
1974 Total	**22,850**	**1,080**	**NA**	**169**	**[g] 21,601**	**887**	**[g] 20,713**
1975 Total	**21,104**	**861**	**NA**	**134**	**[g] 20,109**	**872**	**[g] 19,236**
1976 Total	**20,944**	**859**	**NA**	**132**	**[g] 19,952**	**854**	**[g] 19,098**
1977 Total	**21,097**	**935**	**NA**	**137**	**[g] 20,025**	**863**	**[g] 19,163**
1978 Total	**21,309**	**1,181**	**NA**	**153**	**[g] 19,974**	**852**	**[g] 19,122**
1979 Total	**21,883**	**1,245**	**NA**	**167**	**[g] 20,471**	**808**	**[g] 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	**20,210**	**1,388**	**208**	**93**	**18,520**	**762**	**17,758**
1983 Total	**18,597**	**1,458**	**222**	**95**	**16,822**	**790**	**16,033**
1984 Total	**20,192**	**1,630**	**224**	**108**	**18,230**	**838**	**17,392**
1985 Total	**19,534**	**1,915**	**326**	**95**	**17,198**	**816**	**16,382**
1986 Total	**19,063**	**1,838**	**337**	**98**	**16,791**	**800**	**15,991**
1987 Total	**20,056**	**2,208**	**376**	**124**	**17,349**	**812**	**16,536**
1988 January	[R] 1,925	[R] 216	40	12	[R] 1,657	76	[R] 1,581
February	[R] 1,752	[R] 196	36	12	[R] 1,508	69	[R] 1,439
March	[R] 1,826	[R] 201	40	12	[R] 1,573	72	[R] 1,501
April	[R] 1,684	[R] 193	39	12	[R] 1,440	66	[R] 1,374
May	[R] 1,724	204	33	12	[R] 1,475	[R] 68	[R] 1,407
June	[R] 1,655	202	39	12	[R] 1,402	64	[R] 1,338
July	[R] 1,674	204	37	13	[R] 1,420	65	[R] 1,355
August	[R] 1,691	203	36	12	[R] 1,440	66	[R] 1,374
September	[R] 1,609	200	38	12	[R] 1,359	62	[R] 1,297
October	[R] 1,747	[R] 217	42	12	[R] 1,476	67	[R] 1,409
November	[R] 1,772	[R] 217	38	12	[R] 1,505	69	[R] 1,436
December	[R] 1,864	[R] 225	42	11	[R] 1,586	73	[R] 1,513
Total	**[R] 20,922**	**[R] 2,478**	**460**	**[R] 143**	**[R] 17,841**	**[R] 817**	**[R] 17,026**
1989 January	[R] 1,859	[R] 217	[R] 34	[R] 11	[R] 1,597	[R] 70	[R] 1,527
February	[R] 1,709	[R] 191	[R] 29	[R] 11	[R] 1,476	[R] 64	[R] 1,412
March	[R] 1,804	[R] 195	[R] 31	[R] 13	[R] 1,564	[R] 68	[R] 1,496
April	[R] 1,734	[R] 201	[R] 29	[R] 12	[R] 1,491	[R] 65	[R] 1,426
May	[R] 1,766	[R] 212	[R] 31	[R] 12	[R] 1,511	[R] 66	[R] 1,445
June	[R] 1,677	[R] 190	[R] 28	[R] 12	[R] 1,449	[R] 63	[R] 1,386
July	[R] 1,710	[R] 197	[R] 30	[R] 12	[R] 1,474	[R] 64	[R] 1,410
August	[R] 1,701	[R] 205	[R] 28	[R] 12	[R] 1,460	[R] 63	[R] 1,397
September	[R] 1,637	[R] 205	[R] 28	[R] 12	[R] 1,393	[R] 60	[R] 1,333
October	[R] 1,718	[R] 209	[R] 29	[R] 12	[R] 1,469	[R] 64	[R] 1,405
November	[R] 1,782	[R] 213	[R] 31	[R] 12	[R] 1,525	[R] 66	[R] 1,459
December	[R] 1,901	[R] 217	[R] 33	[R] 12	[R] 1,635	[R] 72	[R] 1,563
Total	**[R] 20,998**	**[R] 2,451**	**[R] 362**	**[R] 141**	**[R] 18,044**	**[R] 785**	**[R] 17,260**
1990 January	[R] 1,928	[R] 205	[R] 32	[R] 15	[R] 1,676	78	[R] 1,598
February	[R] 1,708	[R] 180	[R] 27	[R] 9	[R] 1,492	[R] 70	[R] 1,422
March	[R] 1,815	[R] 207	[R] 30	[R] 10	[R] 1,568	73	[R] 1,495
April	[R] 1,737	[R] 201	[R] 29	[R] 10	[R] 1,497	[R] 70	[R] 1,427
May	[R] 1,762	[E] 203	[R] 35	[E] 11	[R] 1,513	[R] 71	[R] 1,442
June	[E] 1,678	[E] 194	[E] 34	[E] 10	[E] 1,440	[E] 67	[E] 1,373
July	[E] 1,721	[E] 198	[E] 35	[E] 11	[E] 1,477	[E] 69	[E] 1,408
7-Month Total	**[E] 12,349**	**[E] 1,388**	**[E] 222**	**[E] 76**	**[E] 10,663**	**[E] 498**	**[E] 10,165**
1989 7-Month Total	**12,259**	**1,403**	**212**	**83**	**10,562**	**460**	**10,102**
1988 7-Month Total	**12,240**	**1,416**	**264**	**85**	**10,475**	**480**	**9,995**

[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 Wet Gas Withdrawals minus Used for Repressuring, Nonhydrocarbon Gases Removed, and Vented and Flared. See Note 2 at end of section.
[f]Marketed Production (Wet) minus Extraction Loss.
[g]May include unknown quantities of nonhydrocarbon gases.
R=Revised data. NA=Not available. E=Estimate.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: • 1973 through 1988: Energy Information Administration (EIA), *Natural Gas Annual 1988, Volume II*, Table 1. • 1989 forward: EIA, *Natural Gas Monthly*, July 1990, 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[b]	Total Supply/ Disposition[c]	Additions to Storage[a]	Exports[b]	Consumption[b]	Unaccounted for[e]
1973 Total	[d] 21,731	1,533	NA	1,033	24,297	1,974	77	22,049	196
1974 Total	[d] 20,713	1,701	NA	959	23,373	1,784	77	21,223	289
1975 Total	[d] 19,236	1,760	NA	953	21,949	2,104	73	19,538	235
1976 Total	[d] 19,098	1,921	NA	964	21,983	1,756	65	19,946	216
1977 Total	[d] 19,163	1,750	NA	1,011	21,924	2,307	56	19,521	41
1978 Total	[d] 19,122	2,158	NA	966	22,245	2,278	53	19,627	287
1979 Total	[d] 19,663	2,047	NA	1,253	22,964	2,295	56	20,241	372
1980 Total	19,403	1,972	155	985	22,515	1,949	49	19,877	640
1981 Total	19,181	1,930	176	904	22,191	2,228	59	19,404	501
1982 Total	17,758	2,164	145	933	21,000	2,472	52	18,001	475
1983 Total	16,033	2,270	132	920	19,354	1,822	55	16,835	• 642
1984 Total	17,392	2,098	110	843	20,443	2,295	55	17,951	• 143
1985 Total	16,382	2,397	126	950	19,855	2,163	55	17,281	356
1986 Total	15,991	1,837	113	750	18,692	1,984	61	16,221	427
1987 Total	16,536	1,905	101	993	19,534	1,911	54	17,211	359
1988 January	R 1,581	586	12	139	R 2,318	47	5	R 2,187	R 79
February	R 1,439	462	R 11	117	R 2,029	50	5	R 2,038	R -64
March	R 1,501	259	R 10	113	R 1,883	99	6	R 1,867	R -89
April	R 1,374	92	8	96	R 1,570	165	6	R 1,464	R -65
May	R 1,407	46	R 7	94	R 1,554	288	4	R 1,302	R -40
June	R 1,338	36	7	93	R 1,474	280	8	R 1,170	R 16
July	R 1,355	42	R 7	100	R 1,504	300	5	R 1,177	R 22
August	R 1,374	52	7	94	R 1,527	288	6	R 1,222	R 11
September	R 1,297	46	R 6	95	R 1,444	314	7	R 1,099	R 24
October	R 1,409	92	8	106	R 1,615	202	6	R 1,232	175
November	R 1,436	159	R 9	121	R 1,725	117	7	R 1,453	148
December	R 1,513	397	R 11	127	R 2,048	62	9	R 1,820	R 157
Total	R 17,026	2,270	101	1,294	R 20,691	2,212	74	R 18,030	R 375
1989 January	R 1,527	R 426	R 11	119	R 2,083	R 53	7	R 2,023	R 0
February	R 1,412	R 614	R 10	110	R 2,146	R 32	7	R 2,008	R 99
March	R 1,496	R 369	R 10	113	R 1,988	R 106	11	R 1,945	R -74
April	R 1,426	R 138	R 8	110	R 1,682	R 184	11	R 1,580	R -93
May	R 1,445	R 44	R 8	108	R 1,605	R 326	8	R 1,348	R -77
June	R 1,386	R 20	R 7	104	R 1,517	R 381	9	R 1,200	R -73
July	R 1,410	R 29	R 8	101	R 1,548	R 377	9	R 1,220	R -58
August	R 1,397	R 29	R 8	108	R 1,542	R 362	9	1,216	R -45
September	R 1,333	R 39	R 7	117	R 1,496	R 325	9	R 1,181	R -19
October	R 1,405	R 96	R 9	123	R 1,633	R 225	10	R 1,337	R 61
November	R 1,459	R 227	R 9	123	R 1,818	R 105	8	R 1,567	R 138
December	R 1,563	R 821	R 12	145	R 2,541	R 52	8	R 2,156	R 325
Total	R 17,260	R 2,852	R 107	1,382	R 21,599	R 2,529	107	R 18,780	R 182
1990 January	R 1,598	R 339	16	149	R 2,102	R 91	R 8	R 2,088	R -85
February	R 1,422	R 324	14	118	R 1,878	R 70	R 8	R 1,784	R 16
March	R 1,495	R 256	14	115	R 1,880	R 124	R 10	R 1,749	R -3
April	R 1,427	R 140	13	122	R 1,702	183	8	R 1,550	R -39
May	R 1,442	R 45	11	108	R 1,606	R 289	R 8	R 1,357	R -48
June	E 1,373	R 42	11	R 114	R 1,540	R 327	R 9	R 1,253	R -49
July	E 1,408	27	12	122	1,569	325	8	1,261	-25
7-Month Total	E 10,165	1,173	91	848	12,277	1,409	59	11,042	-233
1989 7-Month Total	10,102	1,640	62	765	12,569	1,459	62	11,324	-276
1988 7-Month Total	9,995	1,523	62	752	12,332	1,229	39	11,205	-141

[a]Data for 1980 through 1989 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]Data for 1978 forward do not include in-transit receipts and deliveries.
[d]May include unknown quantities of nonhydrocarbon gases.
[e]See Note 7 at end of section.
R=Revised data. NA=Not available. E=Estimate.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: • 1973 through 1988: Energy Information Administration (EIA), *Natural Gas Annual 1988, Volume II*, Tables 2 and 12. • 1989 forward: EIA, *Natural Gas Monthly*, July 1990, Table 2.

Table 4.3 Natural Gas[a] Consumption by End-Use Sector
(Billion Cubic Feet)

	Lease and Plant Fuel	Pipeline Fuel[b]	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 January	102	63	R 852	R 424	R 578	168	R 2,022	R 2,187
February	93	55	755	R 392	R 574	170	R 1,890	R 2,038
March	97	53	597	R 320	R 596	204	R 1,717	R 1,867
April	88	46	R 400	R 223	R 507	199	R 1,330	R 1,464
May	91	49	258	R 158	R 507	240	R 1,162	R 1,302
June	86	47	152	R 118	R 487	280	R 1,037	R 1,170
July	87	49	123	R 109	R 480	328	R 1,041	R 1,177
August	88	49	114	R 113	R 514	344	R 1,085	R 1,222
September	83	47	125	R 113	R 499	233	R 969	R 1,099
October	91	49	232	R 156	R 522	182	R 1,092	R 1,232
November	92	51	R 391	R 225	543	150	R 1,310	R 1,453
December	R 98	56	R 631	R 320	R 577	137	R 1,666	R 1,820
Total	**R 1,096**	**614**	**4,630**	**2,670**	**6,383**	**2,636**	**R 16,320**	**R 18,030**
1989 January	R 95	R 57	R 751	376	R 598	146	R 1,871	R 2,023
February	R 88	R 57	R 742	R 380	R 570	171	1,863	R 2,008
March	R 93	R 54	R 645	R 342	R 602	209	R 1,798	R 1,945
April	R 88	R 49	R 414	R 233	R 563	233	R 1,443	R 1,580
May	R 89	R 51	R 256	R 159	R 544	249	R 1,208	R 1,348
June	R 86	R 50	R 155	R 121	R 529	258	R 1,064	R 1,200
July	R 88	R 50	R 129	R 110	R 525	318	R 1,082	R 1,220
August	R 87	R 50	R 121	R 110	R 539	308	R 1,079	1,216
September	R 82	R 48	139	R 113	R 532	266	R 1,051	R 1,181
October	R 87	R 49	R 228	R 152	R 568	252	R 1,201	R 1,337
November	R 90	R 50	R 405	R 231	R 603	187	R 1,427	R 1,567
December	R 97	R 65	R 790	R 391	R 643	170	R 1,994	R 2,156
Total	**R 1,070**	**R 630**	**R 4,777**	**R 2,719**	**R 6,816**	**2,768**	**R 17,080**	**R 18,780**
1990 January	R 111	53	R 785	401	R 595	144	R 1,924	R 2,088
February	R 99	48	R 630	R 329	R 546	131	R 1,637	R 1,784
March	R 104	48	R 544	R 299	R 572	182	R 1,597	R 1,749
April	R 99	44	R 394	R 234	R 582	197	R 1,407	R 1,550
May	R 100	47	R 245	R 156	R 569	239	R 1,210	R 1,357
June	95	44	160	124	535	295	1,114	R 1,253
6-Month Total	**608**	**284**	**2,758**	**1,543**	**3,399**	**1,189**	**8,889**	**9,781**
1989 6-Month Total	**539**	**318**	**2,963**	**1,611**	**3,406**	**1,266**	**9,247**	**10,104**
1988 6-Month Total	**557**	**313**	**3,014**	**1,635**	**3,249**	**1,261**	**9,158**	**10,028**

[a]Includes supplemental gaseous fuels.
[b]Natural gas consumed in the operation of pipelines, primarily in compressors.
R=Revised data.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: • 1973 through 1988: Energy Information Administration (EIA), *Natural Gas Annual 1988, Volume II,* Table 3. • 1989 forward: EIA, *Natural Gas Monthly,* July 1990, Table 3.

Table 4.4 Underground Storage of Natural Gas
(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 January	3,792	2,228	6,020	-52	-2.3	47	578	-531
February	3,791	1,827	5,618	-161	-8.1	50	456	-406
March	3,790	1,682	5,473	-197	-10.5	99	255	-156
April	3,790	1,769	5,559	-169	-8.7	162	92	71
May	3,790	2,027	5,818	-179	-8.1	282	46	236
June	3,792	2,293	6,085	-144	-5.9	274	36	238
July	3,793	2,567	6,359	-69	-2.6	294	42	252
August	3,791	2,835	6,626	-1	.0	282	52	230
September	3,791	3,120	6,911	71	2.3	308	46	262
October	3,792	3,243	7,035	137	4.4	198	92	105
November	3,803	3,171	6,974	112	3.7	117	157	-40
December	3,800	2,850	6,650	94	3.4	62	391	-329
Total						**2,174**	**2,244**	**-69**
1989 January	3,798	2,509	6,307	281	12.6	R 53	R 418	R -365
February	3,801	1,994	5,796	168	9.2	R 32	R 602	R -570
March	3,801	1,776	5,578	94	5.6	R 106	R 362	R -256
April	3,801	1,823	5,624	54	3.0	R 181	R 138	R 43
May	3,802	2,062	5,863	34	1.7	R 321	R 44	R 277
June	3,802	2,374	6,176	82	3.6	R 375	R 20	R 355
July	3,802	2,644	6,446	77	3.0	R 371	R 29	R 341
August	3,802	2,938	6,740	103	3.6	R 356	R 29	R 328
September	3,802	R 3,187	R 6,990	R 67	R 2.2	R 320	R 39	R 281
October	R 3,792	R 3,268	R 7,061	R 25	R .8	R 221	R 96	R 124
November	R 3,809	R 3,199	R 7,008	R 28	R .9	R 105	R 223	R -118
December	3,812	R 2,513	R 6,325	R -337	R -11.8	R 52	R 805	R -752
Total						**R 2,493**	**R 2,804**	**R -311**
1990 January	3,818	R 2,265	R 6,083	R -243	R -9.7	R 91	R 339	R -248
February	3,814	R 2,013	R 5,827	R 19	R .9	R 70	R 324	R -253
March	R 3,818	R 1,878	R 5,695	R 101	R 5.7	R 124	R 256	R -131
April	R 3,839	R 1,932	R 5,771	R 109	R 6.0	183	R 140	R 43
May	3,823	2,159	R 5,982	97	4.7	R 289	R 45	R 245
June	R 3,844	R 2,454	R 6,297	R 79	R 3.3	R 327	R 42	R 285
July	3,850	2,747	6,597	103	3.9	325	27	298

[a]Total underground storage capacity at the end of each calendar year (in billion cubic feet): 1978--6,890; 1979--6,929; 1980--7,434; 1981--7,805; 1982--7,915; 1983--7,985; 1984--8,043; 1985--8,087; 1986--8,145; 1987 and 1988--8,124; and 1989--8,124. Current capacity is 8,125.

[b]For 1980 through 1989, 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: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.

Sources: • **Storage Activity**—1973 through 1975: Energy Information Administration (EIA), *Natural Gas Annual 1988, Volume II,* Table 9. 1976 through 1979: EIA, *Natural Gas Production and Consumption 1979,* Table 1. 1980 through 1989: EIA, *Natural Gas Annual 1988, Volume II,* Table 11. 1989 forward: EIA, *Natural Gas Monthly,* May 1990, Table 17. • **Other Data**—1973: American Gas Association (AGA), *Gas Facts* (1973 Data), Table 57. 1974: AGA, *Gas Facts* (1974 Data), Table 40. 1975 and 1976: Federal Energy Administration, Form FEA-G318-M-O, and Federal Power Commission (FPC), Form FPC-8. 1977 and 1978: EIA, Form FEA-G318-M-O, and FPC, Form FERC-8. 1979 through 1988: EIA, Form EIA-191, and Federal Energy Regulatory Commission, Form FERC-8. 1989 forward: EIA, *Natural Gas Monthly,* July 1990, Table 17.

Figure 4.1 Natural Gas Consumption, Production, and Imports

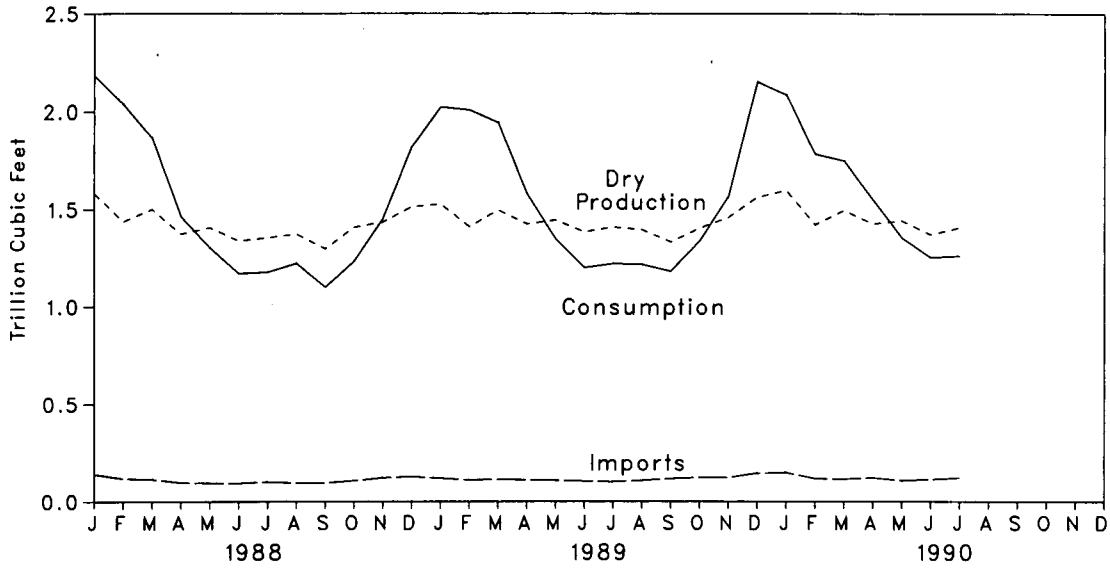
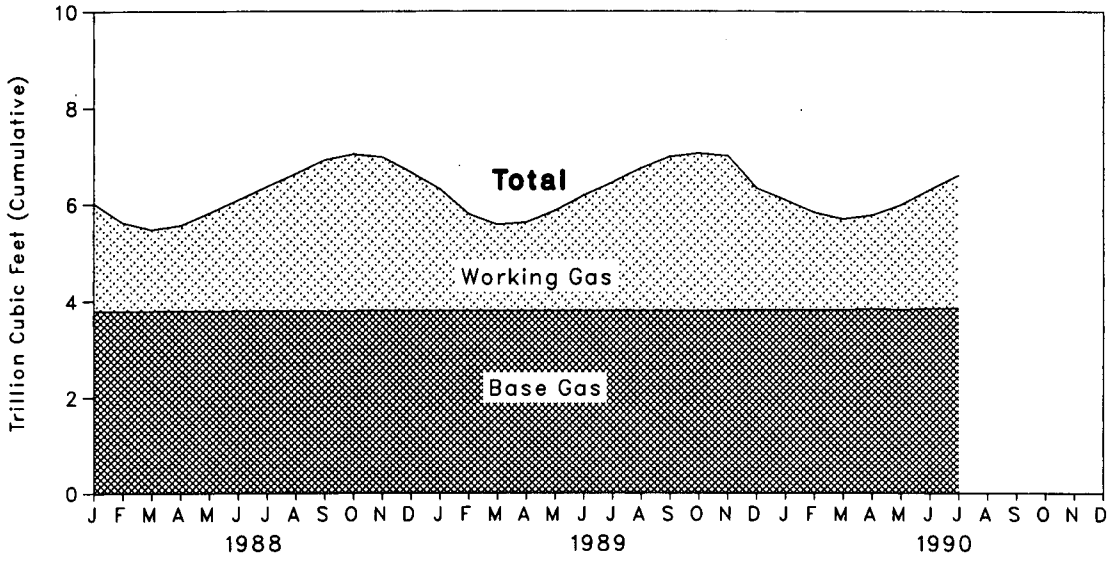


Figure 4.2 Natural Gas in Storage, End of Period



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) 1988.* 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 *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 from the Interstate Oil Compact Commission and the U.S. Minerals Management Service. Volumetric data are converted, as necessary, to a standard 14.73 psia 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 liquids constituents at natural gas processing plants.

Annual data for extraction loss are from the EIA *NGA* for which they have been estimated based on 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 based on 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 based on total natural gas disposition data from the EIA *NGA.*

4. Supplemental Gaseous Fuels: Supplemental gaseous fuels are mainly synthetic natural gas, propane-air, and refinery gas. Other gases may also be included such as coke oven gas, biomass gas, manufactured gas, and air injected 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 monthy supplemental gaseous fuels figure.

5. Imports and Exports: The United States imports natural gas via pipeline from Mexico and Canada and liquefied natural gas (LNG) (except in 1986) via tanker from Algeria. One shipment of LNG was received in December 1986 from Indonesia. The United States exports natural gas via pipeline to Mexico and Canada 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. Unaccounted For: Unaccounted 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.

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). Monthly data are revised after publication of the EIA *Underground Natural Gas Storage in the United States* for that heating year (April through March). In addition, 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 through 1988 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.

Section 5. Oil and Gas Resource Development

In August 1990, the number of crews engaged in seismic exploration decreased by 4 from the previous month. The August 1990 total of 125 crews was 11 less than the previous August. Of the total, 102 were land crews and 23 were marine vessels. The number of land crews was down by 8, and the number of marine vessels decreased by 3 from August 1989.

The August 1990 rotary rig count of 987 was 2 percent lower than in the previous month but 11 percent higher than in August 1989. Of the total number of rigs in operation, 879 were onshore and 108 were offshore. The number of onshore rigs was up 14 percent from the number in August 1989, and the number of offshore rigs was down 5 percent.

Exploratory and development well completions during July 1990 totaled an estimated 2,670, the same as the previous month and 13 percent higher than the July 1989 total. Oil well completions were 1,050, up 19 percent from the level in July 1989, and gas well completions totaled 870, up 10 percent from the July 1989 total. Total footage drilled in July 1990 was 12.15 million feet, almost the same as the total in June 1990 but up 15 percent from the total in July 1989.

Figure 5.1 Seismic Crews, Rotary Rigs, and Footage Drilled

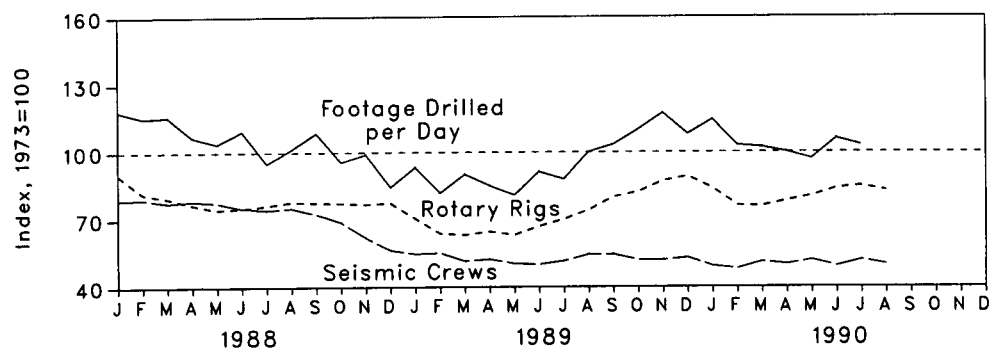


Figure 5.2 Total Oil and Gas Wells Completed

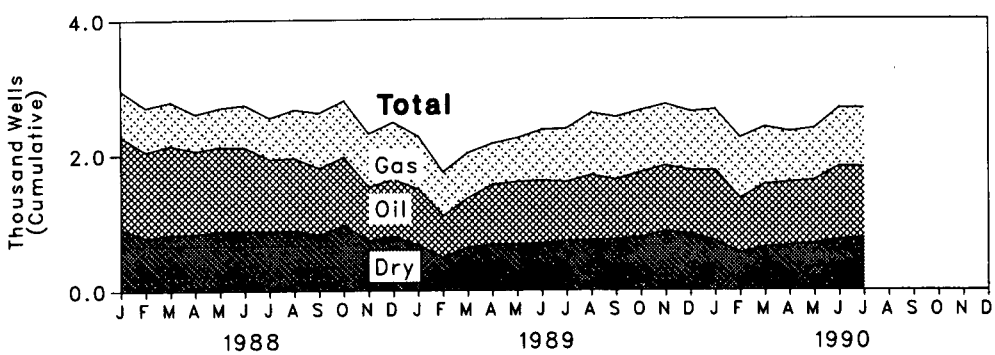


Table 5.1 Seismic Crews and Rotary Rigs

	Crews Engaged in Seismic Exploration			Rotary Rigs in Operation[a]		
	Offshore	Onshore	Total	Offshore	Onshore	Total
	Monthly Average			Weekly Average		
1973 Average	**23**	**227**	**250**	**84**	**1,110**	**1,194**
1974 Average	**31**	**274**	**305**	**94**	**1,378**	**1,472**
1975 Average	**30**	**254**	**284**	**106**	**1,554**	**1,660**
1976 Average	**25**	**237**	**262**	**129**	**1,529**	**1,658**
1977 Average	**27**	**281**	**308**	**167**	**1,834**	**2,001**
1978 Average	**25**	**327**	**352**	**185**	**2,074**	**2,259**
1979 Average	**30**	**370**	**400**	**207**	**1,970**	**2,177**
1980 Average	**37**	**493**	**530**	**231**	**2,678**	**2,909**
1981 Average	**44**	**637**	**681**	**256**	**3,714**	**3,970**
1982 Average	**57**	**531**	**588**	**243**	**2,862**	**3,105**
1983 Average	**47**	**426**	**473**	**199**	**2,033**	**2,232**
1984 Average	**49**	**445**	**494**	**213**	**2,215**	**2,428**
1985 Average	**45**	**333**	**378**	**206**	**1,774**	**1,980**
1986 Average	**24**	**176**	**201**	**99**	**865**	**964**
1987 Average	**24**	**153**	**176**	**95**	**841**	**936**
1988 January	30	167	197	127	949	1,076
February	30	168	198	123	853	976
March	29	165	194	119	832	951
April	29	167	196	117	800	917
May	30	164	194	123	768	891
June	30	158	188	124	773	897
July	28	158	186	126	786	912
August	32	156	188	123	807	930
September	30	151	181	122	805	927
October	30	142	172	122	801	923
November	28	127	155	129	789	918
December	27	114	141	127	797	924
Average	**29**	**153**	**182**	**123**	**813**	**936**
1989 January	25	112	137	110	731	841
February	23	115	138	95	667	762
March	21	108	129	93	660	753
April	22	109	131	92	679	771
May	22	104	126	92	662	754
June	22	102	124	103	692	795
July	22	107	129	114	718	832
August	26	110	136	114	772	886
September	24	114	138	107	848	955
October	21	109	130	106	878	984
November	20	109	129	119	922	1,041
December	20	112	132	117	948	1,065
Average	**23**	**109**	**132**	**105**	**764**	**869**
1990 January	20	103	123	113	885	998
February	20	100	120	105	806	911
March	21	107	128	108	797	905
April	24	101	125	111	824	935
May	25	104	129	120	841	961
June	23	100	123	113	886	999
July	24	105	129	108	902	1,010
August	23	102	125	108	879	987
8-Month Average	**23**	**103**	**126**	**111**	**854**	**965**
1989 8-Month Average	**23**	**108**	**131**	**102**	**698**	**800**
1988 8-Month Average	**30**	**163**	**193**	**123**	**820**	**943**

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

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

Sources • Crews Engaged: Society of Geophysicists, "Monthly Seismic Crew Count" and annual reports in *Geophysics: The Leading Edge of Exploration.* • Rotary Rigs: Hughes Tool Company, "Rotary Rigs Running--by State."

Table 5.2 Total Oil and Gas Wells Completed and Footage Drilled

	Wells Completed				Footage Drilled
	Oil	Gas	Dry	Total	
	Thousand Wells				Million Feet
1973 Total	**10.25**	**6.98**	**10.47**	**27.69**	**139.42**
1974 Total	**13.66**	**7.17**	**12.21**	**33.04**	**153.79**
1975 Total	**16.98**	**8.17**	**13.74**	**38.89**	**181.05**
1976 Total	**17.70**	**9.44**	**13.81**	**40.94**	**187.29**
1977 Total	**18.70**	**12.12**	**15.04**	**45.86**	**215.70**
1978 Total	**19.07**	**14.41**	**16.59**	**50.06**	**238.39**
1979 Total	**20.70**	**15.17**	**16.04**	**51.91**	**243.69**
1980 Total	**32.28**	**17.22**	**20.34**	**69.84**	**312.30**
1981 Total	**42.84**	**19.91**	**27.28**	**90.03**	**408.84**
1982 Total	**38.94**	**18.85**	**26.15**	**83.93**	**376.75**
1983 Total	**36.93**	**14.39**	**23.97**	**75.29**	**316.26**
1984 Total	**42.32**	**16.89**	**25.42**	**84.63**	**368.61**
1985 Total	**34.81**	R 14.18	**20.94**	R 69.93	R 311.06
1986 Total	R 18.62	**8.11**	**12.76**	R 39.49	R 177.16
1987 Total	**16.22**	**7.75**	R 11.46	R 35.43	R 160.92
1988 January	1.36	.68	.92	2.95	14.58
February	1.27	.66	.78	2.70	13.43
March	1.32	.65	.82	2.78	13.71
April	1.23	.55	.83	2.61	12.77
May	1.25	.58	.87	2.69	12.40
June	1.24	.63	.88	2.75	12.63
July	R 1.07	.62	R .86	R 2.54	R 12.17
August	1.07	.72	.88	2.67	12.00
September	.99	.82	.81	2.63	12.70
October	1.00	.84	.96	2.79	13.24
November	.83	.79	.75	2.36	11.54
December	R .84	R .85	R .79	R 2.47	R 12.22
Total	R 13.46	R 8.36	R 10.12	R 31.95	R 153.38
1989 January	.83	.78	.66	2.28	11.05
February	.61	.65	.48	1.74	8.88
March	.72	.67	.63	2.02	9.65
April	.89	.61	.66	2.16	10.00
May	.92	.65	.67	2.24	10.02
June	.87	.75	.72	2.34	10.64
July	R .88	R .79	.71	R 2.37	R 10.57
August	.98	.92	.73	2.63	11.24
September	.88	.93	.74	2.55	11.42
October	.96	.92	.83	2.70	11.86
November	.97	.91	.77	2.64	12.04
December	.99	.89	.77	2.65	12.63
Total	R 10.49	R 9.46	**8.37**	R 28.32	R 130.00
1990 January	R 1.04	R .90	R .72	R 2.66	R 13.06
February	.80	.90	.54	2.24	10.97
March	.92	.85	.63	2.40	12.10
April	.93	.75	.65	2.32	11.46
May	.93	.77	.68	2.38	11.44
June	1.08	.86	.74	2.67	12.14
July	1.05	.87	.76	2.67	12.15
7-Month Total	**6.74**	**5.90**	**4.71**	**17.35**	**83.31**
1989 7-Month Total	**5.72**	**4.90**	**4.54**	**15.15**	**70.80**
1988 7-Month Total	**8.74**	**4.36**	**5.95**	**19.04**	**91.68**

R=Revised data.

Notes: • Includes exploratory and development wells; excludes service wells, stratigraphic tests, and core tests. • Geographic coverage is the 50 States and the District of Columbia. • Totals and averages may not equal sum of components due to subsequent revisions and independent rounding. • Due to the method of estimation, data shown on this page are frequently revised. See end of section.

Sources • Energy Information Administration computations based on well reports submitted to the American Petroleum Institute by Petroleum Information Corporation.

Oil and Gas Resource Development Notes

Beginning in the March 1985 *Monthly Energy Review (MER)*, the Energy Information Administration (EIA) revised the exploratory and development wells drilled data series. In order to present a consistent series, historical as well as current statistics were adjusted.

In previous issues, the *MER* published statistics based on data on well completions reported to the American Petroleum Institute during a given month, as opposed to data on wells actually completed during the month. Because of the time lag from date of well completion to date of reporting, data on well completions reported are not as accurate an indicator of drilling activity as are data on well completions. For example, during 1982 well completions reported continued to rise even though the number of wells actually completed fell. Starting in the March 1985 issue of the *MER*, published figures have been EIA estimates of the number of wells actually completed in a given month and are shown in thousands, rounded to two decimal places. The associated footage drilled is shown in millions, also rounded to two decimal places.

The EIA estimates are calculated using an adjustment process that imputes total well counts and footage by type and class based on partial counts of well completions available from the reported data. That is, based on statistical analysis of the incomplete reported data, the process imputes the missing portions to determine values for total well completions and footage. Estimates for a given month are first published in the *MER* for that month, that is estimates for June 1984 are first published in the June 1984 *MER*. Revisions to the estimates are scheduled for the 6th, 12th, and 24th months following initial publication, as newly reported data refine the accuracy of the estimate. Unscheduled revisions to the published data will also be made when the latest estimate differs by more than 15 percent during the first 5 months, more than 10 percent during the next 6 months, more than 5 percent during the following 6 months, or more than 2 percent thereafter through 5 years. After 5 years, the actual reported data will be published.

The three well types considered are oil, gas, and dry. By convention, wells with both oil and gas zones are categorized as oil. Well classes are either development or exploratory; wells in any other class have been deleted. Exploratory well categories considered are new field wildcat, new pool wildcat, deeper pool test, or extension (American Association of Petroleum Geologists well classification codes 1 through 5).

Additional information may be obtained from "Estimating Well Completions," the feature article published in the March 1985 *MER*.

Section 6. Coal

Coal production in July 1990 totaled 81 million short tons, 22 percent[23] higher than in July 1989.

Electric utility coal consumption in June 1990 totaled 65 million short tons, 2 percent higher than in June 1989. During the first 6 months of 1990, coal consumption at electric utilities was 367 million short tons, 1 percent less than the 369 million short tons consumed during the first 6 months of 1989.

Electric utility coal stocks were 163 million short tons at the end of June 1990, 9 percent higher than at the end of June 1989.

Exports of coal in June 1990 totaled 9 million short tons, 4 percent lower than in June 1989. Coal exports for January through June 1990 totaled 50 million short tons, relatively unchanged from exports during the same period in 1989.

Imports of coal in June 1990 totaled 348 thousand short tons, 60 percent higher than in June 1989. Coal imports during the first 6 months of 1990 totaled 1 million short tons, 16 percent higher than imports during the first 6 months of 1989.

[23]Percentage changes are calculated using unrounded data.

Figure 6.1 Coal Production, Consumption, and Exports

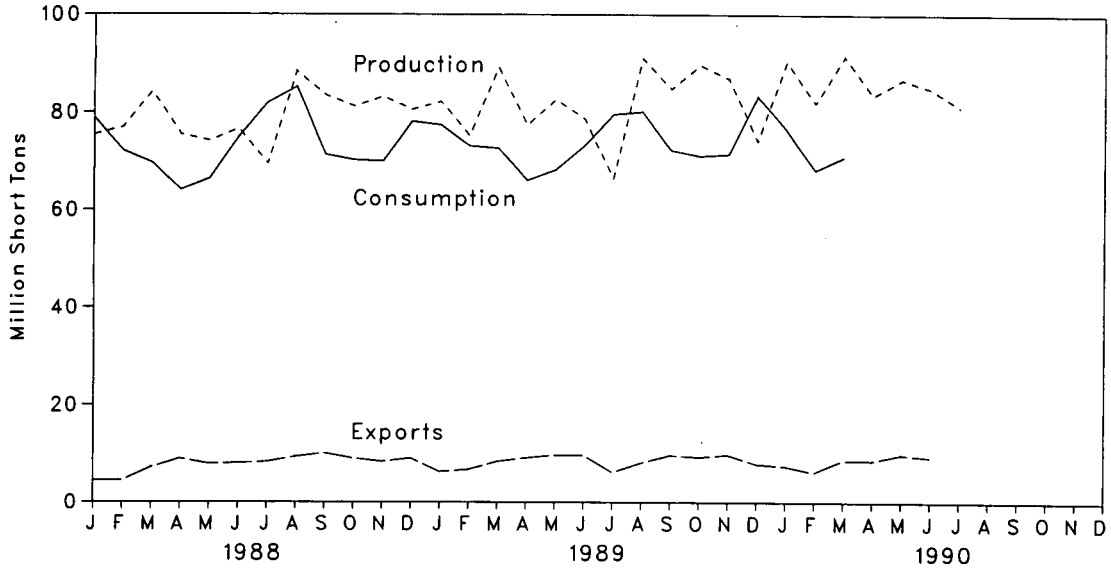


Figure 6.2 Coal Stocks, End of Period

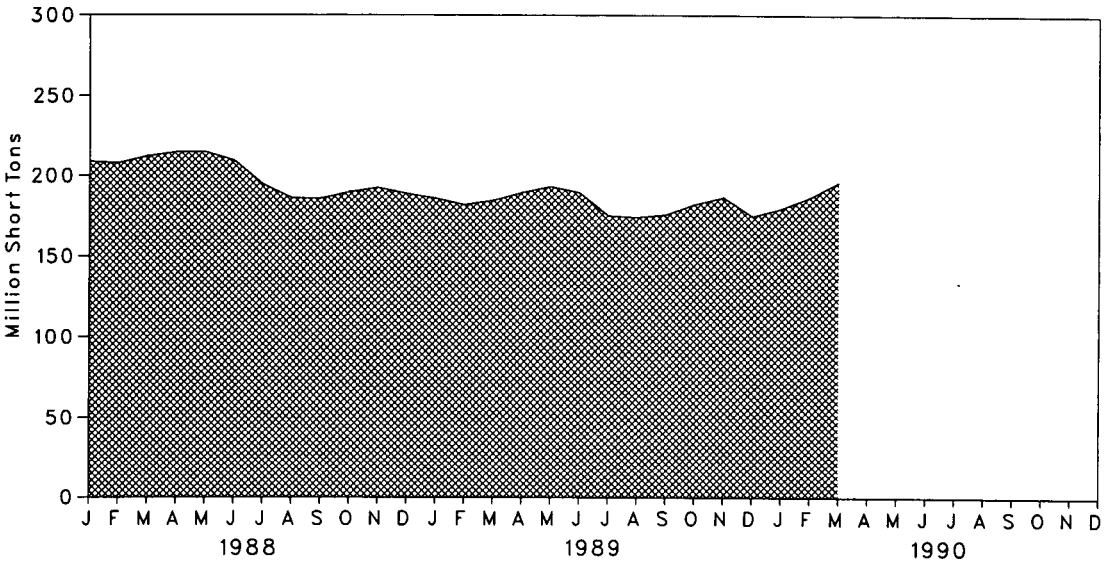


Table 6.1 Coal Overview
(Thousand Short Tons)

	Production	Consumption	Imports[a]	Exports	Stocks[b]
1973 Total	**598,568**	**562,584**	**127**	**53,587**	**NA**
1974 Total	**610,023**	**558,402**	**2,080**	**60,661**	**NA**
1975 Total	**654,641**	**562,640**	**940**	**66,309**	**NA**
1976 Total	**684,913**	**603,790**	**1,203**	**60,021**	**NA**
1977 Total	**697,205**	**625,291**	**1,647**	**54,312**	**NA**
1978 Total	**670,164**	**625,225**	**2,953**	**40,714**	**NA**
1979 Total	**781,134**	**680,524**	**2,059**	**66,042**	**202,472**
1980 Total	**829,700**	**702,729**	**1,194**	**91,742**	**228,407**
1981 Total	**823,775**	**732,628**	**1,043**	**112,541**	**209,423**
1982 Total	**838,111**	**706,910**	**742**	**106,277**	**232,037**
1983 Total	**782,091**	**736,671**	**1,271**	**77,772**	**202,585**
1984 Total	**895,921**	**791,291**	**1,286**	**81,483**	**231,300**
1985 Total	**883,638**	**818,049**	**1,952**	**92,680**	**203,367**
1986 Total	**890,315**	**804,312**	**2,212**	**85,518**	**207,319**
1987 Total	**918,762**	**836,941**	**1,747**	**79,607**	**213,780**
1988 January	75,585	78,967	159	4,434	208,697
February	77,054	72,166	162	4,482	207,712
March	84,251	69,654	221	7,145	212,044
April	75,623	64,156	107	8,943	214,768
May	74,284	66,511	224	7,905	214,923
June	76,738	75,080	257	8,053	209,386
July	69,451	81,994	203	8,303	194,636
August	88,576	85,302	205	9,322	186,020
September	83,596	71,378	29	10,066	185,691
October	81,241	70,252	229	9,010	189,812
November	83,284	70,011	207	8,338	192,518
December	80,584	78,194	131	9,023	188,831
Total	**950,265**	**883,664**	**2,134**	**95,023**	
1989 January	82,241	77,491	66	6,306	185,816
February	75,323	73,220	131	6,748	181,858
March	89,336	72,735	334	8,375	184,542
April	77,419	66,140	158	9,104	188,500
May	82,694	68,270	312	9,685	193,185
June	78,696	73,361	218	9,657	189,495
July	66,519	79,603	375	6,209	175,335
August	91,212	80,148	247	8,122	174,356
September	84,989	72,393	303	9,661	176,002
October	89,802	71,180	160	9,293	182,261
November	87,083	71,543	245	9,768	186,739
December	74,267	83,410	303	7,888	175,120
Total	**979,578**	**889,491**	**2,851**	**100,815**	
1990 January	90,541	76,650	175	7,447	179,663
February	82,017	68,249	268	6,243	186,796
March	91,616	71,030	292	8,693	196,270
April	83,647	NA	182	8,590	NA
May	86,943	NA	144	9,827	NA
June	85,046	NA	348	9,316	NA
July	81,210	NA	NA	NA	NA
7-Month Total	**601,021**	**NA**	**NA**	**NA**	
1989 7-Month Total	**552,226**	**510,819**	**1,594**	**56,083**	
1988 7-Month Total	**532,985**	**508,528**	**1,333**	**49,265**	

[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.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Data through 1988 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • See Notes 1, 2, and 3 at end of section for methodology used to calculate production, consumption, and stocks.

Sources: See end of section.

Table 6.2 Coal Consumption by End-Use Sector[a]
(Thousand Short Tons)

	Electric Utilities	Industrial		Residential and Commercial	Total
		Coke Plants	Other Industrial Including Transportation		
1973 Total	**389,212**	**94,101**	**68,154**	**11,117**	**562,584**
1974 Total	**391,811**	**90,191**	**64,983**	**11,417**	**558,402**
1975 Total	**405,962**	**83,598**	**63,670**	**9,410**	**562,640**
1976 Total	**448,371**	**84,704**	**61,799**	**8,916**	**603,790**
1977 Total	**477,126**	**77,739**	**61,472**	**8,954**	**625,291**
1978 Total	**481,235**	**71,394**	**63,085**	**9,511**	**625,225**
1979 Total	**527,051**	**77,368**	**67,717**	**8,388**	**680,524**
1980 Total	**569,274**	**66,657**	**60,347**	**6,452**	**702,729**
1981 Total	**596,797**	**61,015**	**67,395**	**7,422**	**732,628**
1982 Total	**593,666**	**40,908**	**64,096**	**8,240**	**706,910**
1983 Total	**625,211**	**37,033**	**65,979**	**8,448**	**736,671**
1984 Total	**664,399**	**44,022**	**73,744**	**9,128**	**791,291**
1985 Total	**693,841**	**41,056**	**75,372**	**7,779**	**818,049**
1986 Total	**685,056**	**36,006**	**75,583**	**7,667**	**804,312**
1987 Total	**717,894**	**36,957**	**75,175**	**6,914**	**836,941**
1988 January	67,850	3,465	6,826	826	78,967
February	61,401	3,297	6,789	678	72,166
March	58,758	3,595	6,801	500	69,654
April	54,135	3,508	5,904	608	64,156
May	56,529	3,686	5,937	358	66,511
June	65,343	3,353	5,944	440	75,080
July	71,749	3,605	5,962	679	81,994
August	75,253	3,418	5,972	658	85,302
September	61,540	3,461	5,989	388	71,378
October	59,561	3,550	6,694	446	70,252
November	59,305	3,403	6,710	594	70,011
December	66,948	3,568	6,724	955	78,194
Total	**758,372**	**41,910**	**76,252**	**7,130**	**883,664**
1989 January	66,619	3,568	6,671	632	77,491
February	62,613	3,295	6,619	693	73,220
March	61,906	3,722	6,595	512	72,735
April	55,929	3,613	6,088	511	66,140
May	58,359	3,525	6,050	336	68,270
June	63,623	3,368	6,073	296	73,361
July	69,705	3,527	5,875	496	79,603
August	70,471	3,336	5,891	449	80,148
September	62,889	3,320	5,865	318	72,393
October	60,541	3,599	6,829	210	71,180
November	60,896	3,301	6,815	530	71,543
December	72,267	3,195	6,764	1,184	83,410
Total	**765,820**	**41,369**	**76,134**	**6,167**	**889,491**
1990 January	66,060	3,354	6,524	712	76,650
February	58,003	3,025	6,567	655	68,249
March	60,616	3,369	6,495	550	71,030
April	57,661	NA	NA	NA	NA
May	59,042	NA	NA	NA	NA
June	65,167	NA	NA	NA	NA
6-Month Total	**366,548**	**NA**	**NA**	**NA**	**NA**
1989 6-Month Total	**369,050**	**21,091**	**38,096**	**2,980**	**431,216**
1988 6-Month Total	**364,016**	**20,904**	**38,203**	**3,411**	**426,533**

[a]See Note 2 at end of section.
NA=Not available.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Data through 1988 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Table 6.3 Coal Stocks, End of Period
(Thousand Short Tons)

	Consumer				Producers and Distributors	Total[a]
	Electric Utilities	Coke Plants	Other Industrial	Total[a]		
1973 Year	**86,967**	**6,998**	**10,370**	**104,335**	**NA**	**NA**
1974 Year	**83,509**	**6,209**	**6,605**	**96,323**	**NA**	**NA**
1975 Year	**110,724**	**8,797**	**8,529**	**128,050**	**NA**	**NA**
1976 Year	**117,436**	**9,902**	**7,100**	**134,438**	**NA**	**NA**
1977 Year	**133,219**	**12,816**	**11,063**	**157,098**	**NA**	**NA**
1978 Year	**128,225**	**8,278**	**9,048**	**145,551**	**NA**	**NA**
1979 Year	**159,714**	**10,155**	**11,777**	**181,646**	**20,826**	**202,472**
1980 Year	**183,010**	**9,067**	**11,951**	**204,028**	**24,379**	**228,407**
1981 Year	**168,893**	**6,475**	**9,906**	**185,274**	**24,149**	**209,423**
1982 Year	**181,132**	**4,642**	**9,479**	**195,253**	**36,784**	**232,037**
1983 Year	**155,598**	**4,346**	**8,710**	**168,654**	**33,931**	**202,585**
1984 Year	**179,727**	**6,166**	**11,317**	**197,210**	**34,090**	**231,300**
1985 Year	**156,376**	**3,420**	**10,438**	**170,234**	**33,133**	**203,367**
1986 Year	**161,806**	**2,992**	**10,429**	**175,226**	**32,093**	**207,319**
1987 Year	**170,797**	**3,884**	**10,777**	**185,459**	**28,321**	**213,780**
1988 January	163,561	3,942	10,058	177,561	31,135	208,697
February	160,424	4,000	9,339	173,762	33,950	207,712
March	162,603	4,057	8,619	175,279	36,764	212,044
April	165,750	3,959	8,523	178,232	36,536	214,768
May	166,328	3,861	8,427	178,616	36,307	214,923
June	161,215	3,763	8,331	173,308	36,079	209,386
July	148,234	3,467	8,428	160,130	34,506	194,636
August	141,389	3,172	8,526	153,087	32,933	186,020
September	142,830	2,877	8,624	154,331	31,360	185,691
October	147,130	2,964	8,672	158,766	31,046	189,812
November	150,016	3,051	8,720	161,786	30,732	192,518
December	146,507	3,137	8,768	158,413	30,418	188,831
1989 January	142,403	3,264	8,073	153,741	32,076	185,816
February	137,354	3,391	7,378	148,124	33,734	181,858
March	138,949	3,518	6,683	149,150	35,392	184,542
April	144,596	3,466	6,679	154,741	33,759	188,500
May	150,970	3,413	6,675	161,059	32,127	193,185
June	148,968	3,361	6,671	159,001	30,494	189,495
July	134,859	3,476	7,054	145,389	29,946	175,335
August	133,932	3,591	7,436	144,959	29,397	174,356
September	135,629	3,707	7,818	147,154	28,848	176,002
October	142,270	3,426	7,666	153,362	28,899	182,261
November	147,131	3,145	7,515	157,790	28,949	186,739
December	135,894	2,864	7,363	146,120	29,000	175,120
1990 January	138,358	3,123	7,237	148,718	30,945	179,663
February	143,413	3,382	7,110	153,905	32,891	186,796
March	150,808	3,641	6,984	161,433	34,836	196,270
April	156,318	NA	NA	NA	NA	NA
May	163,233	NA	NA	NA	NA	NA
June	162,745	NA	NA	NA	NA	NA

[a]Excludes stocks held at retail dealers for consumption by the residential and commercial sector.
NA=Not available.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Data through 1988 are final. Subsequent data are preliminary.
• Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Coal Notes and Sources

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 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.

- Electric Utilities--Both monthly and quarterly consumption data for electric utility plants are directly from reported data.
- Coke Plants--Prior to 1980, monthly coke plant consumption data were directly from reported data. From 1980 forward, coke plant consumption estimates were derived by proportioning reported quarterly data 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 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 forward, monthly figures were estimated by proportioning quarterly data 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 were included where appropriate. Starting in January 1988, monthly consumption for the other industrial sector is estimated from reported quarterly data 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 (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, using the 1977 proportion as the weights.
- 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 forward, monthly estimates were derived by proportioning reported quarterly data 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 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 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 directly from reported data.

3. Stocks: Coal stocks data are reported by major end-use sector.

- Electric Utilities--Both monthly and quarterly stocks at electric utility plants are directly from reported data.
- Coke Plants--Prior to 1980, monthly stocks at coke plants were 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 through 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 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.
- Residential and Commercial--Prior to 1980, monthly and quarterly stock data for the residential and commercial sector were directly from reported data. Monthly and quarterly stock data are not available for the residential and commercial sector after December 1979.
- Producers and Distributors--Quarterly stocks at producers and distributors are 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 directly from data reported monthly by the Bureau of the Census.

5. Additional Information: More information concerning coal production, consumption, and stocks data and estimation procedures may be obtained in EIA's *Quarterly Coal Report.*

Sources

Production: 1973 through September 1977: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook* and *Mineral Industry Surveys;* October 1977 forward: Energy Information Administration (EIA), *Weekly Coal Production.*

Consumption and Stocks: 1973 through September 1977: DOI, BOM, *Minerals Yearbook* and *Mineral Industry Surveys* (except Residential and Commercial Consumption and Stocks and Producers and Distributors Stocks).

- Electric Utilities--October 1977 forward: EIA, Form EIA-759 (formerly Form FPC-4), "Monthly Power Plant Report."
- Coke Plants--October 1977 through December 1980: EIA, Form EIA-5/5A, "Coke and Coal Chemicals-Monthly/Annual"; January 1981 through December 1984: EIA, Form EIA-5/5A, "Coke Plant Report-Quarterly/Annual Supplement"; January 1985 forward: EIA, Form EIA-5, "Coke Plant Report," quarterly.
- Other Industrial--October 1977 through December 1979: EIA, Form EIA-3, "Monthly Coal Consumption Report-Manufacturing Plants"; January 1980 forward: EIA, Form EIA-3, "Quarterly Coal Consumption Report-Manufacturing Plants" and Form EIA-6, "Coal Distribution Report."
- Residential and Commercial Consumption and Stocks-1973 through 1976: DOI, BOM, *Minerals Yearbook;* January 1977 through September 1977: DOI, BOM, Form 6-1400-M, "Monthly Coal Report, Retail Dealers-Upper Lake Docks"; October 1977 through December 1979: EIA, Form EIA-2, "Monthly Coal Report, Retail Dealers-Upper Lake Docks"; January 1980 forward: EIA, Form EIA-6, "Coal Distribution Report," (stock data are not collected).
- Producers and Distributors Stocks--January 1980 forward: EIA, Form EIA-6, "Coal Distribution Report."

Imports and Exports: U.S. Department of Commerce, Bureau of the Census, Monthly Reports IM-145 (Imports) and EM-522 (Exports).

Section 7. Electric Utilities

During June 1990, electric utilities generated 249 billion kilowatthours of electricity, 6 percent[24] above the June 1989 generation level. Coal-fired generation totaled 132 billion kilowatthours, 3 percent higher than the June 1989 level. Nuclear generation totaled 46 billion kilowatthours, 8 percent above the level 1 year earlier. Hydroelectric generation totaled 28 billion kilowatthours, 7 percent above the June 1989 level. Natural gas-fired generation was 28 billion kilowatthours, 15 percent higher than the June 1989 level. Petroleum-fired generation totaled 13 billion kilowatthours, 6 percent above the level 1 year earlier.

During the first half of 1990, electric utilities generated 1,358 billion kilowatthours of electricity, 1 percent above the first half 1989 generation level. Coal-fired generation totaled 741 billion kilowatthours, 1 percent below the first half 1989 level. Nuclear generation totaled 279 billion kilowatthours, 16 percent above the level 1 year earlier. Hydroelectric generation was 156 billion kilowatthours in the first half of 1990, 11 percent above the first half 1989 level. Natural gas-fired generation was 113 billion kilowatthours, 6 percent below the level 1 year earlier. Petroleum-fired generation totaled 64 billion kilowatthours, 24 percent below the first half 1989 level.

Sales of electricity to all ultimate consumers in the United States in June 1990 were 225 billion kilowatthours, 2 percent above June 1989 sales. Sales to industrial consumers totaled 80 billion kilowatthours in June 1990, 2 percent above the level in June 1989. Sales to residential consumers during June 1990 were 73 billion kilowatthours, 3 percent above the level of sales during the previous June. Commercial sales were 64 billion kilowatthours, 3 percent above the amount sold to commercial consumers 1 year earlier. In June 1990, other sales totaled 8 billion kilowatthours, 2 percent above the June 1989 level.

During the first half of 1990, sales of electricity to all ultimate consumers in the United States were 1,304 billion kilowatthours, 2 percent above the level 1 year earlier. Sales to industrial consumers totaled 460 billion kilowatthours during the first half of 1990, 4 percent more than during the first half of 1989. Residential sales were 442 billion kilowatthours, 1 percent above the level 1 year earlier. Sales to commercial consumers were 355 billion kilowatthours, 2 percent higher than the level 1 year earlier. Other sales totaled 46 billion kilowatthours, 4 percent above the level of sales during the first half of 1989.

Electric utility consumption of petroleum (excluding petroleum coke) during June 1990 was 22 million barrels, 4 percent above the June 1989 level. Coal consumption during June 1990 was 65 million short tons, 2 percent higher than consumption in June 1989. During June 1990, electric utilities consumed 295 billion cubic feet of natural gas, 14 percent above the June 1989 consumption level.

During the first half of 1990 electric utility consumption of petroleum (excluding petroleum coke) was 107 million barrels, 23 percent below the first half 1989 level. Coal consumption during the first half of 1990 was 367 million short tons, 1 percent lower than consumption during the first half 1989 rate. During the first half of 1990, electric utilities consumed 1,189 billion cubic feet of natural gas, 6 percent below the first half 1989 consumption level.

On June 30, 1990, electric utility stocks of all types of coal totaled 163 million short tons, 9 percent higher than the level on June 30, 1989. Stocks of petroleum (excluding petroleum coke) on June 30, 1990, totaled 68 million barrels, 3 percent above the level on June 30, 1989.

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

Table 7.1 Net Generation of Electricity by Electric Utilities
(Million Kilowatthours)

	Coal	Petroleum[a]	Natural Gas[b]	Nuclear Electric Power	Hydro-electric Power	Other[c]	Total
1973 Total	**847,651**	**314,343**	**340,858**	**83,479**	**272,083**	**2,294**	**1,860,710**
1974 Total	**828,433**	**300,931**	**320,065**	**113,976**	**301,032**	**2,703**	**1,867,140**
1975 Total	**852,786**	**289,095**	**299,778**	**172,505**	**300,047**	**3,437**	**1,917,649**
1976 Total	**944,391**	**319,988**	**294,624**	**191,104**	**283,707**	**3,883**	**2,037,696**
1977 Total	**985,219**	**358,179**	**305,505**	**250,883**	**220,475**	**4,063**	**2,124,323**
1978 Total	**975,742**	**365,060**	**305,391**	**276,403**	**280,419**	**3,315**	**2,206,331**
1979 Total	**1,075,037**	**303,525**	**329,485**	**255,155**	**279,783**	**4,387**	**2,247,372**
1980 Total	**1,161,562**	**245,994**	**346,240**	**251,116**	**276,021**	**5,506**	**2,286,439**
1981 Total	**1,203,203**	**206,421**	**345,777**	**272,674**	**260,684**	**6,054**	**2,294,812**
1982 Total	**1,192,004**	**146,797**	**305,260**	**282,773**	**309,213**	**5,164**	**2,241,211**
1983 Total	**1,259,424**	**144,499**	**274,098**	**293,677**	**332,130**	**6,456**	**2,310,285**
1984 Total	**1,341,681**	**119,808**	**297,394**	**327,634**	**321,150**	**8,638**	**2,416,304**
1985 Total	**1,402,128**	**100,202**	**291,946**	**383,691**	**281,149**	**10,724**	**2,469,841**
1986 Total	**1,385,831**	**136,585**	**248,508**	**414,038**	**290,844**	**11,503**	**2,487,310**
1987 Total	**1,463,781**	**118,493**	**272,621**	**455,270**	**249,695**	**12,267**	**2,572,127**
1988 January	137,845	16,090	16,237	44,658	22,033	1,033	237,897
February	126,267	11,890	16,530	42,246	19,105	898	216,937
March	120,034	9,769	19,744	43,912	19,514	1,041	214,013
April	109,135	7,494	19,241	40,067	19,104	959	196,000
May	115,195	7,211	23,155	40,650	21,238	922	208,371
June	132,268	9,754	26,808	44,079	18,833	1,004	232,747
July	144,301	14,059	31,284	49,828	16,904	1,084	257,461
August	152,377	16,068	32,702	49,035	16,447	1,064	267,693
September	124,410	10,014	22,213	46,270	16,270	1,001	220,179
October	121,339	13,236	17,316	42,591	15,112	1,014	210,608
November	121,054	14,962	14,543	39,583	18,466	985	209,593
December	136,427	18,352	13,027	44,052	19,913	980	232,752
Total	**1,540,653**	**148,900**	**252,801**	**526,973**	**222,940**	**11,984**	**2,704,250**
1989 January	134,968	15,333	13,876	46,328	20,930	961	232,396
February	127,194	17,748	16,550	38,725	18,620	874	219,711
March	126,706	16,668	19,928	39,636	22,642	1,000	226,580
April	115,271	11,569	22,451	33,495	24,077	886	207,749
May	118,956	9,940	23,595	38,339	28,049	942	219,820
June	128,454	12,591	24,546	42,976	25,881	945	235,394
July	138,467	12,081	30,211	52,331	22,670	977	256,737
August	141,710	10,983	29,548	54,948	20,187	959	258,336
September	126,730	10,072	25,381	44,837	18,919	909	226,848
October	122,212	8,262	24,524	43,558	20,076	956	219,587
November	124,154	11,343	17,971	43,399	21,186	927	218,980
December	147,030	21,652	16,377	50,784	21,823	972	258,637
Total	**1,551,852**	**158,241**	**264,957**	**529,355**	**265,061**	**11,309**	**2,780,775**
1990 January	132,496	11,515	13,548	55,119	23,436	933	237,047
February	115,898	9,385	12,449	49,963	24,162	861	212,717
March	122,958	10,167	17,509	46,087	28,048	947	225,716
April	117,111	10,142	18,862	38,516	25,393	773	210,796
May	119,644	9,351	22,752	42,945	27,002	868	222,563
June	132,459	13,348	28,238	46,332	27,634	882	248,895
6-Month Total	**740,566**	**63,909**	**113,359**	**278,963**	**155,675**	**5,264**	**1,357,735**
1989 6-Month Total	**751,550**	**83,848**	**120,946**	**239,499**	**140,200**	**5,608**	**1,341,650**
1988 6-Month Total	**740,745**	**62,208**	**121,716**	**255,613**	**119,828**	**5,856**	**1,305,965**

[a]Includes fuel oil Nos. 2, 4, 5, and 6, crude oil, kerosene, and petroleum coke.
[b]Includes supplemental gaseous fuels.
[c]Other is electricity produced from geothermal, wood, waste, wind, photovoltaic, and solar thermal energy sources connected to electric utility distribution systems.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: • 1973 through September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977 through 1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1982 forward: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Table 7.2 Electricity Sales[a] by End-Use Sector
(Million Kilowatthours)

	Residential		Commercial		Industrial		Other[b]		Total	
	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 Total	**579,231**		**388,266**		**686,085**		**59,326**		**1,712,909**	
1974 Total	**578,184**		**384,826**		**684,875**		**58,039**		**1,705,924**	
1975 Total	**588,140**		**403,049**		**687,680**		**68,222**		**1,747,091**	
1976 Total	**606,452**		**425,094**		**754,069**		**69,631**		**1,855,246**	
1977 Total	**645,239**		**446,514**		**786,037**		**70,571**		**1,948,361**	
1978 Total	**674,466**		**461,163**		**809,078**		**73,215**		**2,017,922**	
1979 Total	**682,819**		**473,307**		**841,903**		**73,070**		**2,071,099**	
1980 Total	**717,495**		**488,155**		**815,067**		**73,732**		**2,094,449**	
1981 Total	**722,265**		**514,338**		**825,743**		**84,756**		**2,147,103**	
1982 Total	**729,520**		**526,397**		**744,949**		**85,575**		**2,086,441**	
1983 Total	**750,948**		**543,788**		**775,999**		**80,219**		**2,150,955**	
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 January	89,508		57,543		70,989		6,881		224,921	
February	80,232		55,468		71,750		6,797		214,247	
March	71,406		53,886		72,487		6,577		204,356	
April	61,390		52,272		71,794		6,385		191,840	
May	57,569		52,911		73,782		6,438		190,700	
June	68,775		60,177		76,255		6,941		212,148	
July	87,007		66,067		76,304		7,246		236,625	
August	94,207		68,374		79,611		7,370		249,561	
September	77,531		63,159		77,573		7,159		225,421	
October	63,761		57,358		76,560		6,982		204,661	
November	63,629		53,889		74,147		6,654		198,319	
December	77,111		56,607		74,500		6,933		215,151	
Total	**892,125**	**892,866**	**697,711**	**699,100**	**895,751**	**896,498**	**82,362**	**89,598**	**2,567,949**	**2,578,062**
1989 January	85,616		59,397		72,315		7,553		224,881	
February	78,189		57,508		71,003		7,141		213,841	
March	77,290		58,461		72,105		7,446		215,301	
April	64,685		54,786		74,168		7,074		200,713	
May	61,065		55,997		76,330		7,258		200,651	
June	71,470		62,476		78,376		7,733		220,054	
July	85,893		67,185		77,780		8,022		238,879	
August	86,100		67,647		80,488		8,025		242,262	
September	78,684		64,953		78,764		7,811		230,211	
October	65,248		58,843		79,760		7,535		211,386	
November	64,815		56,167		76,950		7,374		205,306	
December	85,444		60,366		76,795		7,744		230,348	
Total	**904,499**	**NA**	**723,785**	**NA**	**914,834**	**NA**	**90,715**	**NA**	**2,633,833**	**NA**
1990 January	95,225		62,009		74,879		8,012		240,125	
February	74,348		56,672		74,366		7,542		212,928	
March	71,633		57,684		76,544		7,506		213,367	
April	65,032		56,097		75,998		7,305		204,431	
May	62,715		58,541		78,509		7,697		207,462	
June	73,496		64,073		79,950		7,861		225,379	
6-Month Total	**442,449**		**355,075**		**460,246**		**45,923**		**1,303,693**	
1989 6-Month Total	**438,315**		**348,625**		**444,297**		**44,205**		**1,275,441**	
1988 6-Month Total	**428,880**		**332,257**		**437,057**		**40,018**		**1,238,211**	

[a]Electricity sales to all ultimate consumers.
[b]Includes sales of electricity to Government, railways, street lighting authorities, and sales not included elsewhere.
[c]Annual totals are the sums of the monthly values.
NA=Not available.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: **Monthly Series:** • 1973 through September 1977: Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income." • October 1977 through February 1980: Energy Information Administration (EIA), Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income." • March 1980 through 1982: Federal Energy Regulatory Commission, Form FERC-5, "Electric Utility Company Monthly Statement." • 1983 through 1986: EIA, Form EIA-826, "Electric Utility Company Monthly Statement." • 1987 forward: EIA, Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions." • Data through 1988 reflect revisions received on subsequent form submissions.
Annual Series: • 1984 forward: EIA, Form EIA-861, "Annual Electric Utility Report."

Figure 7.1 Coal Consumed to Produce Electricity

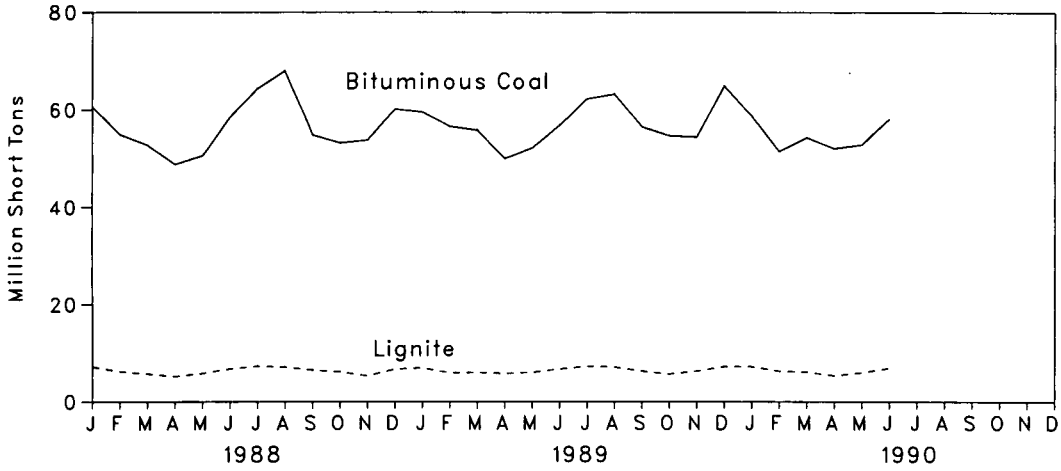


Figure 7.2 Petroleum Consumed to Produce Electricity

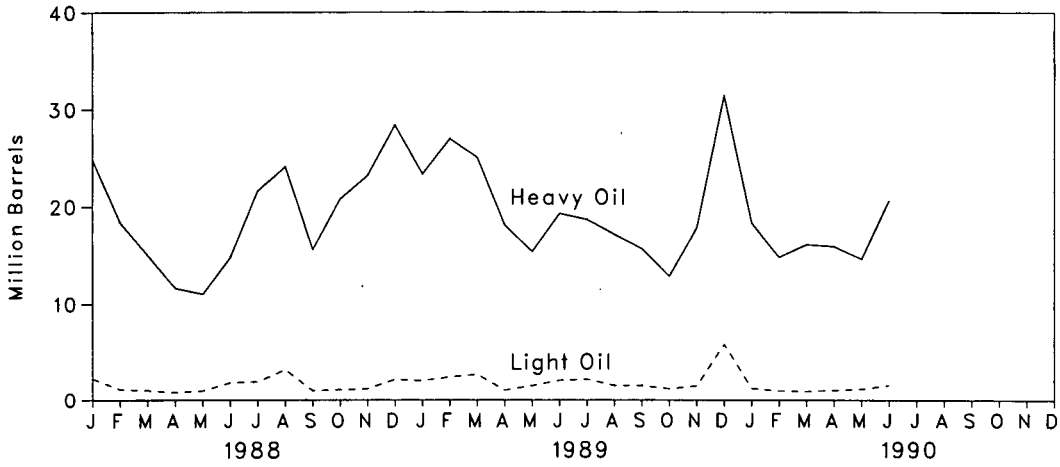


Figure 7.3 Natural Gas Consumed to Produce Electricity

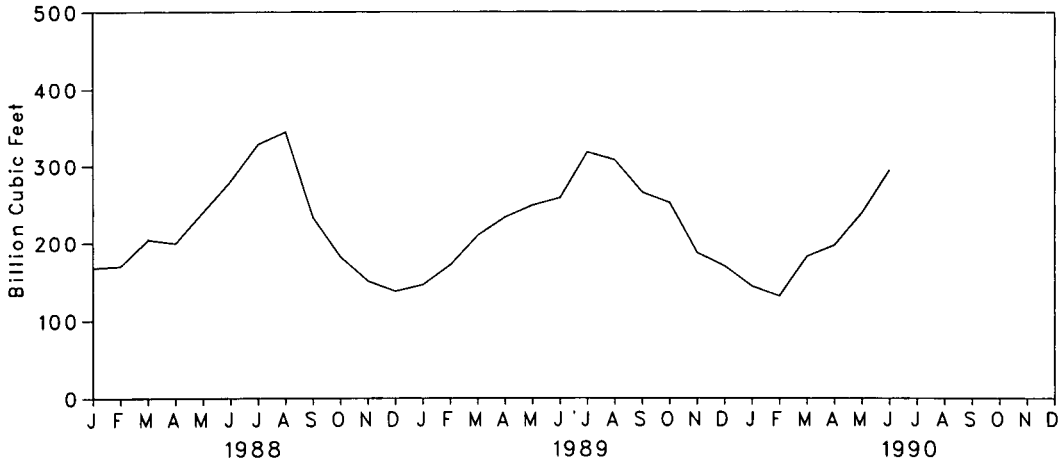


Table 7.3 Fossil Fuels Consumed by Electric Utilities To Generate Electricity

	Coal				Petroleum				
	Anthracite	Bituminous Coal	Lignite	Total	Heavy Oil[a]	Light Oil[b]	Total Liquids	Petroleum Coke	Natural Gas[c]
	Thousand Short Tons				Thousand Barrels			Thousand Short Tons	Million Cubic Feet
1973 Total	1,443	376,975	10,794	389,212	[d]	[d]	560,248	507	3,660,172
1974 Total	1,498	378,643	11,670	391,811	[d]	[d]	536,274	625	3,443,428
1975 Total	1,480	388,523	15,960	405,962	[d]	[d]	506,128	70	3,157,669
1976 Total	1,350	425,205	21,817	448,371	[d]	[d]	555,920	68	3,080,868
1977 Total	1,425	451,051	24,650	477,126	[d]	[d]	623,705	98	3,191,200
1978 Total	1,064	448,763	31,407	481,235	[d]	[d]	635,839	398	3,188,363
1979 Total	1,046	488,129	37,876	527,051	[d]	[d]	523,297	268	3,490,523
1980 Total	951	526,680	41,642	569,274	391,163	29,051	420,214	179	3,681,595
1981 Total	1,221	550,784	44,792	596,797	329,798	21,313	351,111	139	3,640,154
1982 Total	1,075	543,346	49,245	593,666	234,434	15,337	249,771	149	3,225,518
1983 Total	1,036	570,108	54,067	625,211	228,984	16,512	245,497	261	2,910,767
1984 Total	1,070	606,339	56,990	664,399	189,289	15,190	204,479	252	3,111,342
1985 Total	1,033	631,885	60,923	693,841	158,779	14,635	173,414	231	3,044,083
1986 Total	829	616,134	68,093	685,056	216,156	14,326	230,482	313	2,602,370
1987 Total	972	647,824	69,098	717,894	184,011	15,367	199,378	348	2,844,051
1988 January	77	60,602	7,171	67,850	24,801	2,299	27,101	24	167,607
February	85	55,053	6,263	61,401	18,382	1,137	19,518	27	169,688
March	92	52,891	5,775	58,758	15,014	1,045	16,058	36	204,042
April	87	48,791	5,258	54,135	11,632	805	12,438	33	199,394
May	88	50,595	5,847	56,529	11,024	998	12,022	33	239,871
June	74	58,495	6,774	65,343	14,783	1,857	16,640	42	280,490
July	99	64,340	7,309	71,749	21,638	1,943	23,581	47	328,088
August	106	67,991	7,156	75,253	24,097	3,207	27,304	41	344,214
September	86	54,936	6,519	61,540	15,594	1,004	16,598	31	232,665
October	83	53,316	6,162	59,561	20,780	1,100	21,880	30	181,673
November	80	53,879	5,346	59,305	23,198	1,202	24,400	31	150,432
December	108	60,159	6,681	66,948	28,383	2,173	30,556	36	137,449
Total	**1,063**	**681,048**	**76,260**	**758,372**	**229,327**	**18,769**	**248,096**	**409**	**2,635,613**
1989 January	98	59,559	6,962	66,619	23,325	2,053	25,379	47	145,552
February	75	56,593	5,945	62,613	26,977	2,426	29,403	33	170,969
March	82	55,838	5,986	61,906	25,019	2,690	27,709	35	209,343
April	96	50,045	5,789	55,929	18,058	1,044	19,102	38	233,116
May	98	52,252	6,009	58,359	15,358	1,520	16,879	36	248,869
June	75	56,829	6,719	63,623	19,253	2,070	21,322	38	258,343
July	97	62,306	7,302	69,705	18,643	2,180	20,822	58	318,005
August	95	63,256	7,121	70,471	17,133	1,530	18,663	58	307,804
September	81	56,513	6,295	62,889	15,642	1,526	17,168	54	266,052
October	87	54,755	5,699	60,541	12,807	1,180	13,987	39	252,494
November	85	54,518	6,294	60,896	17,762	1,484	19,247	33	187,381
December	81	64,971	7,215	72,267	31,374	5,781	37,156	50	169,975
Total	**1,049**	**687,436**	**77,335**	**765,820**	**241,351**	**25,485**	**266,836**	**517**	**2,767,903**
1990 January	92	58,748	7,220	66,060	18,294	1,234	19,528	40	143,634
February	85	51,605	6,313	58,003	14,769	974	15,743	62	131,273
March	91	54,425	6,101	60,616	16,068	912	16,979	62	182,435
April	81	52,203	5,376	57,661	15,882	1,035	16,917	61	196,830
May	90	52,964	5,988	59,042	14,573	1,146	15,720	77	239,415
June	90	58,184	6,892	65,167	20,601	1,555	22,156	66	295,305
6-Month Total	**529**	**328,128**	**37,890**	**366,548**	**100,187**	**6,857**	**107,043**	**369**	**1,188,891**
1989 6-Month Total	**524**	**331,117**	**37,409**	**369,050**	**127,990**	**11,803**	**139,794**	**226**	**1,266,191**
1988 6-Month Total	**501**	**326,427**	**37,087**	**364,016**	**95,637**	**8,140**	**103,777**	**194**	**1,261,092**

[a]Heavy oil includes Grade Nos. 4, 5, and 6, and residual fuel oils.
[b]Light oil includes Grade No. 2 heating oil, kerosene, and jet fuel.
[c]Includes supplemental gaseous fuels.
[d]Prior to 1980, petroleum consumption data were not disaggregated by type of fuel. Disaggregation by prime mover type is provided in Table 7.5.

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

Sources: • 1973 through September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977 through 1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1982 forward: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 7.4 Coal Stocks at Electric Utilities, End of Period

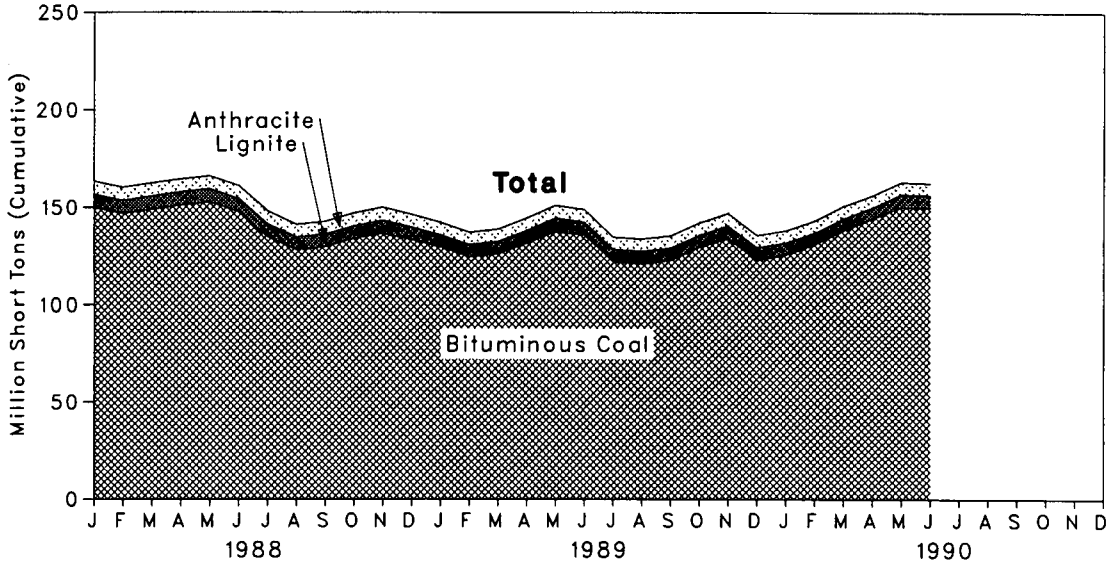


Figure 7.5 Petroleum Stocks at Electric Utilities, End of Period

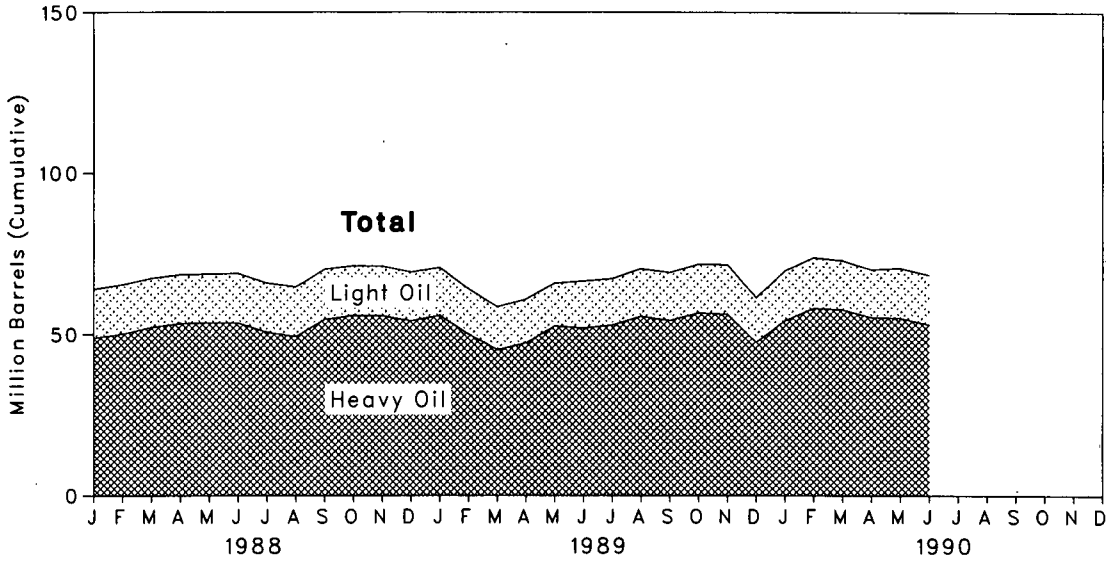


Table 7.4 Coal and Petroleum Stocks at Electric Utilities, End of Period

	Coal				Petroleum			
	Anthracite	Bituminous Coal	Lignite	Total	Heavy Oil[a]	Light Oil[b]	Total Liquids	Petroleum Coke
	Thousand Short Tons				Thousand Barrels			Thousand Short Tons
1973 Year	**1,066**	**84,941**	**961**	**86,967**	**(c)**	**(c)**	**89,216**	**312**
1974 Year	**930**	**81,712**	**867**	**83,509**	**(c)**	**(c)**	**112,917**	**35**
1975 Year	**982**	**107,927**	**1,815**	**110,724**	**(c)**	**(c)**	**125,257**	**31**
1976 Year	**1,000**	**114,130**	**2,306**	**117,436**	**(c)**	**(c)**	**121,696**	**32**
1977 Year	**2,321**	**128,210**	**2,688**	**133,219**	**(c)**	**(c)**	**144,031**	**44**
1978 Year	**2,178**	**123,020**	**3,027**	**128,225**	**(c)**	**(c)**	**118,788**	**198**
1979 Year	**3,274**	**152,981**	**3,459**	**159,714**	**(c)**	**(c)**	**131,422**	**183**
1980 Year	**4,741**	**174,154**	**4,115**	**183,010**	**105,351**	**30,023**	**135,374**	**52**
1981 Year	**5,537**	**158,258**	**5,098**	**168,893**	**102,042**	**26,094**	**128,136**	**42**
1982 Year	**6,080**	**170,480**	**4,573**	**181,132**	**95,515**	**23,369**	**118,884**	**41**
1983 Year	**6,507**	**145,250**	**3,841**	**155,598**	**70,573**	**18,801**	**89,375**	**55**
1984 Year	**6,710**	**167,118**	**5,899**	**179,727**	**68,503**	**19,116**	**87,619**	**50**
1985 Year	**7,189**	**142,144**	**7,043**	**156,376**	**57,304**	**16,386**	**73,689**	**49**
1986 Year	**7,099**	**148,665**	**6,042**	**161,806**	**56,841**	**16,269**	**73,111**	**40**
1987 Year	**6,940**	**156,670**	**7,187**	**170,797**	**55,069**	**15,759**	**70,827**	**51**
1988 January	6,905	149,999	6,657	163,561	48,872	15,142	64,014	56
February	6,864	146,977	6,583	160,424	50,168	15,311	65,479	55
March	6,821	148,955	6,826	162,603	52,197	15,256	67,453	58
April	6,780	152,121	6,848	165,750	53,375	15,182	68,557	54
May	6,732	152,743	6,853	166,328	53,579	15,131	68,709	56
June	6,785	147,752	6,677	161,215	53,533	15,370	68,902	77
July	6,659	134,933	6,641	148,234	50,681	15,228	65,910	73
August	6,614	128,139	6,635	141,389	49,308	15,410	64,718	63
September	6,601	129,707	6,522	142,830	54,636	15,526	70,162	82
October	6,611	134,148	6,371	147,130	55,830	15,344	71,174	83
November	6,595	136,882	6,539	150,016	55,752	15,332	71,085	90
December	6,561	133,434	6,512	146,507	54,187	15,099	69,285	86
1989 January	6,513	129,802	6,088	142,403	55,845	14,809	70,654	58
February	6,494	124,643	6,217	137,354	50,063	13,980	64,043	56
March	6,475	126,107	6,367	138,949	45,142	13,370	58,512	62
April	6,447	131,672	6,477	144,596	47,237	13,607	60,844	102
May	6,416	137,787	6,767	150,970	52,595	13,279	65,873	64
June	6,427	136,113	6,428	148,968	51,922	14,621	66,544	77
July	6,413	122,221	6,226	134,859	52,883	14,405	67,289	81
August	6,440	121,266	6,227	133,932	55,608	14,724	70,332	69
September	6,437	122,901	6,291	135,629	54,346	14,825	69,171	92
October	6,437	129,668	6,164	142,270	56,660	15,090	71,750	107
November	6,423	134,233	6,475	147,131	56,258	15,332	71,590	115
December	6,403	123,001	6,490	135,894	47,586	13,824	61,410	105
1990 January	6,360	125,829	6,169	138,358	54,332	15,458	69,790	114
February	6,315	131,176	5,922	143,413	58,136	15,622	73,758	108
March	6,294	138,636	5,879	150,808	57,706	15,117	72,823	104
April	6,298	144,537	5,482	156,318	55,331	14,811	70,142	93
May	6,315	150,362	6,557	163,233	55,149	15,459	70,608	102
June	6,376	149,945	6,424	162,745	53,106	15,338	68,444	110

[a]Heavy oil includes Grade Nos. 4, 5, and 6, and residual fuel oils.
[b]Light oil includes Grade No. 2 heating oil, kerosene, and jet fuel.
[c]Prior to 1980, petroleum stock data were not disaggregated by type of fuel. Disaggregation by prime mover type is provided in Table 7.5.
Notes: Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.
Sources: • 1973 through September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977 through 1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1982 forward: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Table 7.5 Petroleum Consumption and Stocks at Electric Utilities by Prime Mover Type
(Thousand Barrels)

	Petroleum Consumption			Petroleum Stocks, End of Period		
	Steam Plants	GT/IC[a]	Total Liquids	Steam Plants	GT/IC[a]	Total Liquids
1973 Total	**513,190**	**47,058**	**560,248**	**79,121**	**10,095**	**89,216**
1974 Total	**483,146**	**53,128**	**536,274**	**97,718**	**15,199**	**112,917**
1975 Total	**467,221**	**38,907**	**506,128**	**108,825**	**16,432**	**125,257**
1976 Total	**514,077**	**41,843**	**555,920**	**106,993**	**14,703**	**121,696**
1977 Total	**574,869**	**48,837**	**623,705**	**124,750**	**19,281**	**144,031**
1978 Total	**588,319**	**47,520**	**635,839**	**102,402**	**16,386**	**118,788**
1979 Total	**492,606**	**30,691**	**523,297**	**111,121**	**20,301**	**131,422**
1980 Total	**401,863**	**18,351**	**420,214**	**117,227**	**18,147**	**135,374**
1981 Total	**339,680**	**11,431**	**351,111**	**112,380**	**15,756**	**128,136**
1982 Total	**243,537**	**6,234**	**249,771**	**105,287**	**13,597**	**118,884**
1983 Total	**237,845**	**7,652**	**245,497**	**78,285**	**11,090**	**89,375**
1984 Total	**197,050**	**7,429**	**204,479**	**76,836**	**10,784**	**87,619**
1985 Total	**166,842**	**6,572**	**173,414**	**64,704**	**8,985**	**73,689**
1986 Total	**222,500**	**7,983**	**230,482**	**64,258**	**8,853**	**73,111**
1987 Total	**190,818**	**8,560**	**199,378**	**61,705**	**9,123**	**70,827**
1988 January	25,545	1,556	27,101	55,254	8,760	64,014
February	18,951	567	19,518	56,470	9,008	65,479
March	15,586	473	16,058	58,708	8,745	67,453
April	12,113	325	12,438	59,765	8,792	68,557
May	11,615	407	12,022	59,904	8,806	68,709
June	15,332	1,308	16,640	60,048	8,855	68,902
July	22,168	1,413	23,581	57,133	8,777	65,910
August	24,592	2,712	27,304	55,896	8,822	64,718
September	16,057	542	16,598	60,991	9,170	70,162
October	21,278	602	21,880	62,002	9,172	71,174
November	23,686	714	24,400	61,990	9,094	71,085
December	28,894	1,661	30,556	60,311	8,974	69,285
Total	**235,817**	**12,279**	**248,096**			
1989 January	24,172	1,206	25,379	61,627	9,027	70,654
February	27,900	1,502	29,403	55,683	8,360	64,043
March	25,785	1,924	27,709	50,500	8,013	58,512
April	18,564	538	19,102	52,789	8,055	60,844
May	15,922	956	16,879	57,994	7,879	65,873
June	19,832	1,490	21,322	57,610	8,934	66,544
July	19,233	1,590	20,822	58,368	8,921	67,289
August	17,623	1,040	18,663	61,248	9,085	70,332
September	16,126	1,041	17,168	60,233	8,938	69,171
October	13,334	653	13,987	62,708	9,042	71,750
November	18,371	875	19,247	62,610	8,980	71,590
December	32,835	4,320	37,156	53,448	7,961	61,410
Total	**249,701**	**17,136**	**266,836**			
1990 January	18,900	628	19,528	60,288	9,501	69,790
February	15,194	549	15,743	64,420	9,338	73,758
March	16,541	438	16,979	63,723	9,100	72,823
April	16,364	554	16,917	61,225	8,917	70,142
May	15,101	619	15,720	61,217	9,391	70,608
June	21,128	1,028	22,156	59,160	9,283	68,444
6-Month Total	**103,228**	**3,815**	**107,043**			
1989 6-Month Total	**132,177**	**7,616**	**139,794**			
1988 6-Month Total	**99,142**	**4,635**	**103,777**			

[a]GT/IC=Gas turbine and internal combustion plants.

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

Sources: • 1973 through September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977 through 1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1982 forward: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Section 8. Nuclear

In June 1990, U.S. nuclear generating units produced a total of 46 net terawatthours (billion kilowatthours) of electricity, 8 percent[25] more than in June 1989. Nuclear units generated at an average capacity factor of 64.2 percent, 3 percentage points more than the level in June 1989. Nuclear power supplied 18.6 percent of the total electricity generated in June 1990, compared with 18.3 percent in June 1989.

Nuclear generation during the first 6 months of 1990 increased 16 percent compared with generation in the first 6 months of 1989. The average monthly nuclear share of electricity for the first 6 months of 1990 was 20.5 percent compared with 17.9 percent for the same period in 1989. During the first half of 1990, the average monthly nuclear capacity factor for U.S. nuclear units was 64.7 percent compared with 57.3 percent in 1989.

No low or full-power licenses were issued by the Nuclear Regulatory Commission (NRC) during June 1990.

On June 30, 1990, there were 112 operable nuclear generating units in the United States, with a collective net summer generating capability of 100.2 million kilowatts of electricity. Of the 112 operable units, 24 units (including the shutdown but not yet officially retired Rancho Seco unit) generated at less than 25 percent of capacity, 17 of which were out of service for at least part or all of the month for maintenance, refueling, or repairs.

Six units with full-power licenses have been shut down by the NRC for an extended period (1 year or more). The unit names, capacities, and dates of shutdown are as follow: Nine Mile Point 1, (610 MWe), December 1987; Browns Ferry 1 and 3, each (1,065 MWe), June 1985; Browns Ferry 2, (1,065 MWe), September 1984; Calvert Cliffs 2, (825 MWe), March 1989; and Palo Verde 1 (1,221 MWe), March 1989.

As of June 30, there were 121 domestic nuclear generating units in all stages of construction and operation, with an aggregate design capacity of 113 million net kilowatts.

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

Figure 8.1 Nuclear and Total Net Generation of Electricity

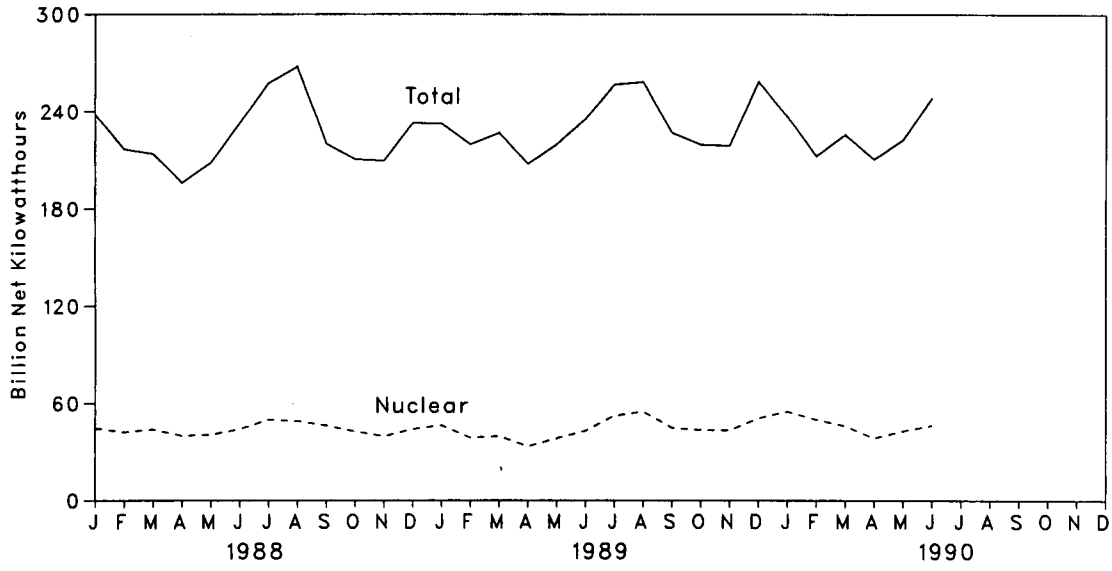


Figure 8.2 Nuclear Power Plants' Capacity Factor and Share of Total Net Generation

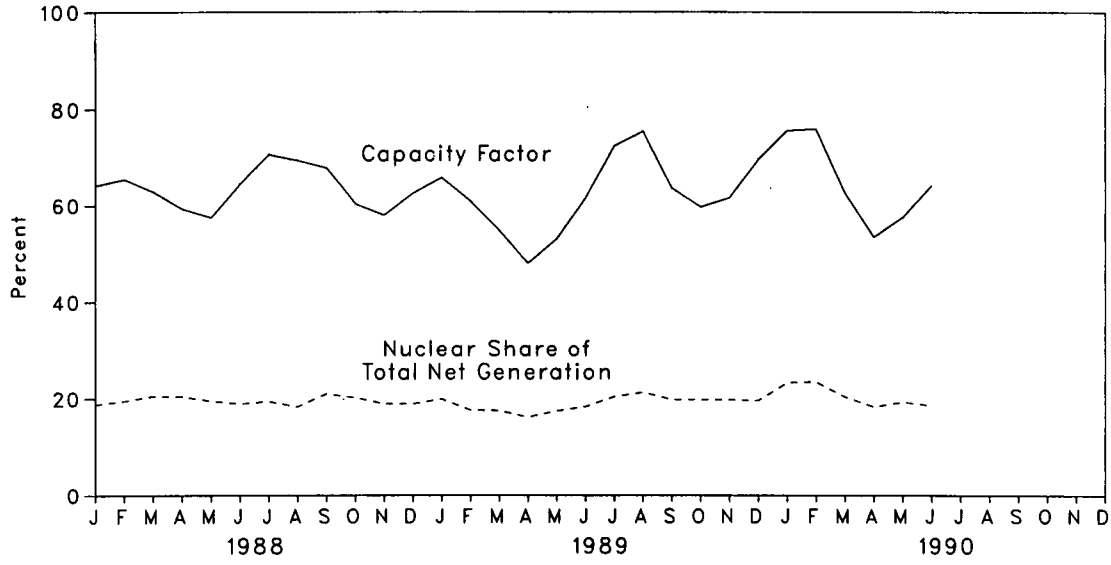


Table 8.1 Nuclear Power Plant Operations

	Operable Units[a] [b]	Nuclear Electricity Generation	Nuclear Portion of Domestic Electricity Generation	Net Summer Capability of Operable Units[a] [c]	Capacity Factor[d]
	Number	Million Net Kilowatthours	Percent	Million Net Kilowatts	Percent
1973 Year	**39**	**83,479**	**4.5**	**22.615**	**53.7**
1974 Year	**48**	**113,976**	**6.1**	**31.803**	**47.9**
1975 Year	**54**	**172,505**	**9.0**	**37.161**	**56.0**
1976 Year	**61**	**191,104**	**9.4**	**43.657**	**54.9**
1977 Year	**65**	**250,883**	**11.8**	**46.202**	**63.4**
1978 Year	**70**	**276,403**	**12.5**	**50.709**	**64.7**
1979 Year	**68**	**255,155**	**11.4**	**49.630**	**58.5**
1980 Year	**70**	**251,116**	**11.0**	**51.668**	**56.4**
1981 Year	**74**	**272,674**	**11.9**	**55.914**	**58.4**
1982 Year	**77**	**282,773**	**12.6**	**59.927**	**56.7**
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 January	107	44,658	18.8	93.583	64.1
February	106	42,246	19.5	92.743	65.4
March	107	43,912	20.5	93.982	62.8
April	107	40,067	20.4	93.982	59.3
May	108	40,650	19.5	95.089	57.5
June	108	44,079	18.9	95.089	64.4
July	108	49,828	19.4	94.695	70.7
August	108	49,035	18.3	94.695	69.5
September	108	46,270	21.0	94.695	67.9
October	108	42,591	20.2	94.695	60.4
November	108	39,583	18.9	94.695	58.0
December	108	44,052	18.9	94.695	62.5
Year	**108**	**526,973**	**19.5**	**94.695**	**63.5**
1989 January	108	46,328	19.9	94.695	65.8
February	108	38,725	17.6	94.695	60.9
March	110	39,636	17.5	97.031	54.9
April	110	33,495	16.1	97.031	48.0
May	110	38,339	17.4	97.031	53.1
June	110	42,976	18.3	97.031	61.5
July	110	52,331	20.4	97.031	72.5
August	110	54,948	21.3	97.869	75.5
September	110	44,837	19.8	97.869	63.6
October	110	43,558	19.8	97.869	59.7
November	110	43,399	19.8	97.869	61.6
December	110	50,784	19.6	97.869	69.7
Year	**110**	**529,355**	**19.0**	**97.869**	**62.3**
1990 January	110	55,119	23.3	97.869	75.7
February	110	49,963	23.5	97.869	76.0
March	111	46,087	20.4	99.019	62.6
April	112	38,516	18.3	100.169	53.5
May	112	42,945	19.3	100.169	57.6
June	112	46,332	18.6	100.169	64.2
6-Month Total	**112**	**278,963**	**20.5**	**100.169**	**64.7**
1989 6-Month Total	**110**	**239,499**	**17.9**	**97.031**	**57.3**
1988 6-Month Total	**108**	**255,613**	**19.6**	**95.089**	**62.2**

[a] At end of period.
[b] See Note 1 at end of section.
[c] See Note 3 at end of section for the definition of net summer capability.
[d] For an explanation of the method of calculating the capacity factor, see Note 4 at end of section.
Note: Geographic coverage is the 50 States and the District of Columbia. Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Table 8.2 Status of Nuclear Generating Units[a]

	Licensed for Operation		Construction Permits		On Order	Announced	Total	Total Design Capacity[d]
	Operable[b]	In Startup[c]	Granted	Pending				
	Number of Units							Million Net Kilowatts
1973 Year	**39**	**3**	**51**	**58**	**48**	**20**	**219**	**212**
1974 Year	**48**	**5**	**58**	**80**	**28**	**16**	**235**	**234**
1975 Year	**54**	**2**	**69**	**73**	**19**	**19**	**236**	**236**
1976 Year	**61**	**0**	**72**	**66**	**16**	**19**	**234**	**236**
1977 Year	**65**	**1**	**80**	**52**	**13**	**9**	**220**	**220**
1978 Year	**70**	**0**	**90**	**32**	**9**	**4**	**205**	**204**
1979 Year	**68**	**0**	**91**	**21**	**3**	**0**	**183**	**179**
1980 Year	**70**	**2**	**82**	**12**	**3**	**0**	**169**	**163**
1981 Year	**74**	**0**	**75**	**11**	**3**	**0**	**163**	**157**
1982 Year	**77**	**2**	**60**	**3**	**2**	**0**	**144**	**135**
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 January	107	4	14	0	2	0	127	119
February	106	4	14	0	2	0	126	118
March	107	3	14	0	2	0	126	118
April	107	3	14	0	2	0	126	118
May	108	2	14	0	2	0	126	118
June	108	2	14	0	2	0	126	118
July	108	2	14	0	2	0	126	118
August	108	2	14	0	2	0	126	118
September	108	2	14	0	[e] 0	0	124	116
October	108	2	[f] 13	0	0	0	123	115
November	108	2	13	0	0	0	123	115
December	108	3	12	0	0	0	123	115
1989 January	108	3	12	0	0	0	123	115
February	108	3	12	0	0	0	123	115
March	110	2	11	0	0	0	123	115
April	[g] 110	1	11	0	0	0	[g] 122	114
May	110	1	11	0	0	0	122	114
June	110	1	11	0	0	0	122	114
July	110	2	10	0	0	0	122	114
August	110	1	10	0	0	0	121	113
September	110	1	10	0	0	0	121	113
October	110	1	10	0	0	0	121	113
November	110	1	10	0	0	0	121	113
December	110	1	10	0	0	0	121	113
1990 January	110	1	10	0	0	0	121	113
February	110	2	9	0	0	0	121	113
March	111	1	9	0	0	0	121	113
April	112	0	9	0	0	0	121	113
May	112	0	9	0	0	0	121	113
June	112	0	9	0	0	0	121	113

[a]Monthly data are the status as of the last day of the month. Annual data are the status as of December 31 of each year.
[b]See Note 1 at end of section.
[c]See Note 2 at end of section.
[d]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.
[e]On the December 31, 1988, Form EIA-254 "Semiannual Report on Status of Reactor Construction," the two planned units were reported cancelled as of September 1988.
[f]Seabrook 2 has been deleted from this category because its construction permit expired in October 1988.
[g]Shoreham received a full-power license in April 1989. Since the unit is not currently scheduled to operate, it is deleted from the total.
Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: See end of section.

Nuclear Notes and Sources

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 MWe) and the Hanford-N (840 MWe) 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 through August 1977, due to a major core modification outage. Hanford-N, an unlicensed unit used for defense material production, was included in the operable category because power was produced as by-product and sold commercially. Three Mile Island 2 (880 MWe) 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. The Department of Energy-operated Experimental Breeder Reactor 2 (EBR-2) unit is not a commercial reactor and is therefore not included in the operable category.

In addition, six units have been retired and therefore removed from the operable category. Those units are: Peach Bottom 1 (40 MWe) and Indian Point 1 (265 MWe), both retired in 1974; Humboldt Bay (65 MWe), officially retired in 1976; Dresden 1 (200 MWe), retired in August 1979; LaCrosse (51 MWe), retired in May 1987; and Fort Saint Vrain (217 MWe), retired in August 1989.

2. Low-Power Testing: The period of time between a plant's initial fuel loading date and the issuance of its full-power license. The maximum level of operation during this period 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 the 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 monthly net summer capability. That fraction is then multiplied by 100 to obtain a percentage. Annual capacity factors are averages of the monthly values for that year.

Sources

Nuclear Units Licensed for Operation: Nuclear Regulatory Commission, "Licensed Operating Reactors" (NUREG-0020).

Electricity Generation: 1973 through September 1977--Federal Power Commission (FPC), Form FPC-4, "Monthly Power Plant Report." October 1977 through 1981--Federal Energy Regulatory Commission, Form FPC- 4, "Monthly Power Plant Report." 1982 forward--Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report."

Net Summer Capability: EIA, Form EIA-860, "Annual Electric Generator Report."

Capacity Factor: Calculated by EIA, Office of Coal, Nuclear, Electric and Alternate Fuels.

Unit Construction and Planning Data: 1973 through June 1982--Compiled from various sources, primarily Department of Energy, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones"; Nuclear Regulatory Commission, "Licensed Operating Reactors" (NUREG-0020); and EIA, Office of Coal, Nuclear, Electric and Alternate Fuels. July 1982 forward--Nuclear Regulatory Commission, "Summary Information Report" (NUREG-0871); Nuclear Regulatory Commission, "Licensed Operating Reactors" (NUREG-0020); and various trade journals.

Total Design Capacity: Nuclear Regulatory Commission, "Licensed Operating Reactors" (NUREG-0020); Nuclear Regulatory Commission, "Summary Information Report" (NUREG-0871); and EIA, Form EIA-860, "Annual Electric Generator Report."

Section 9. Price

Crude Oil. The average price of domestic crude oil purchased at the wellhead was $12.79 per barrel in June 1990, 22 percent below the level in June 1989. The refiner acquisition cost of imported crude oil in June 1990 was $14.95 per barrel, 18 percent below the June 1989 level. The cost of domestic crude oil in June 1990 was $15.07, a decrease of 19 percent from the June 1989 average.

Motor Gasoline. The national city average retail price of leaded regular gasoline at all types of stations was $1.09 per gallon in July 1990, 1 percent higher than the price in July 1989. The price of unleaded regular gasoline at all types of stations was $1.08 per gallon in July 1990, 1 percent lower than the price in July 1989. The price of unleaded premium gasoline averaged $1.27 per gallon in July 1990, 1 percent higher than the price in July 1989.

Residual Fuel Oil. The average price, excluding taxes, of residual fuel oil sold to end users in June 1990 was 30 cents per gallon, 11 percent lower than the previous month's price and 23 percent below the June 1989 average. The average resale price, excluding taxes, of residual fuel oil in June 1990 was 27 cents per gallon, 11 percent lower than the May 1990 average and 23 percent lower than the price 1 year earlier.

Aviation Fuel. The average price, excluding taxes, of aviation gasoline sold to end users in June 1990 was $1.04 per gallon, slightly higher than the price in the previous month but 3 percent lower than the price in June 1989. The average price, excluding taxes, of kerosene-type jet fuel sold to end users in June 1990 was 56 cents per gallon, 4 percent below the previous month's price and 1 percent below the June 1989 average.

No. 2 Distillate Fuel Oil. The June 1990 national average price, excluding taxes, of heating oil sold to residential customers was 86 cents per gallon, 5 percent below the May 1990 price but 3 percent higher than the June 1989 price. The average price of No. 2 fuel oil sold to all end users was 52 cents per gallon in June 1990, 10 percent below the May 1990 price but 3 percent higher than the June 1989 price.

Electricity. 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.

The mean price of electricity sold to all ultimate consumers in the United States in June 1990 was 6.72 cents per kilowatthour, 2 percent above the June 1989 mean price. The price of electricity sold to residential consumers in June 1990 averaged 8.13 cents per kilowatthour, 1 percent higher than the price 1 year earlier. The price of electricity sold to commercial consumers averaged 7.51 cents per kilowatthour in June 1990, 2 percent above the June 1989 price. The price of electricity sold to other consumers in June 1990 averaged 6.19 cents per kilowatthour, 9 percent above the June 1989 price. The price of electricity sold to industrial users in June 1990 averaged 4.85 cents per kilowatthour, slightly higher than the price 1 year earlier.

Natural Gas. In May 1990 (latest data available) the average wellhead price of natural gas was $1.53 per thousand cubic feet, 5 percent below the May 1989 price.

The average price of natural gas delivered to electric utility plants was $2.19 per thousand cubic feet in May 1990, 8 percent below the May 1989 price. The average price of natural gas used by residential consumers in June 1990 was $6.55 per thousand cubic feet, slightly lower than the June 1989 price. The average price of natural gas used by commercial consumers in June 1990 was $4.59 per thousand cubic feet, slightly higher than the June 1989 price. The average price of natural gas used by industrial consumers in June 1990 was $2.55 per thousand cubic feet, 5 percent below the June 1989 price.

Figure 9.1 Crude Oil Prices

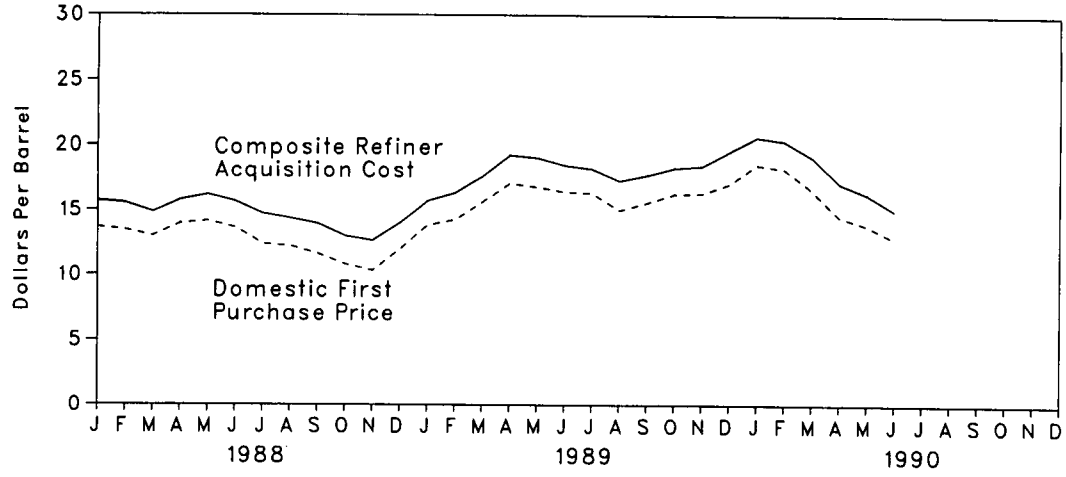


Figure 9.2 Refiner Sales Prices to End Users: Motor Gasoline, Diesel Fuel, and Jet Fuel

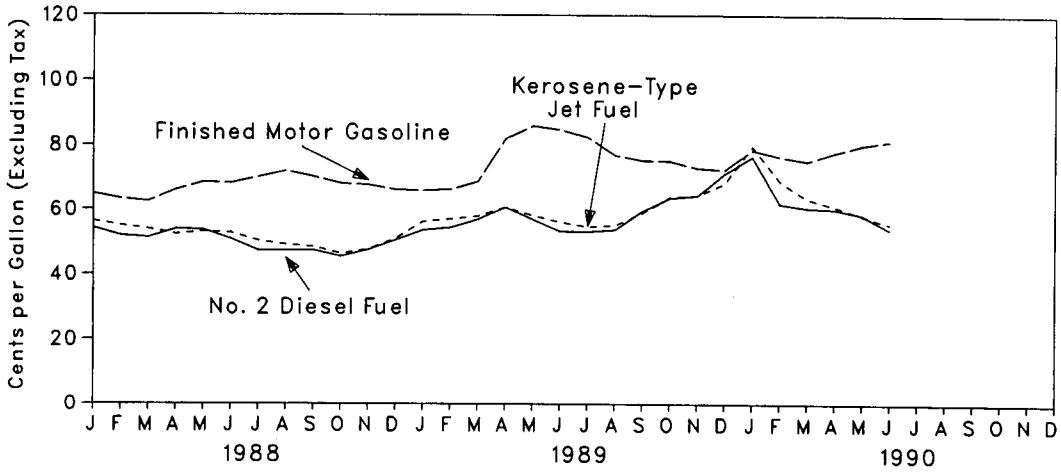


Figure 9.3 Refiner Sales Prices to End Users: No. 2 Fuel Oil, Propane, and Residual Fuel Oil

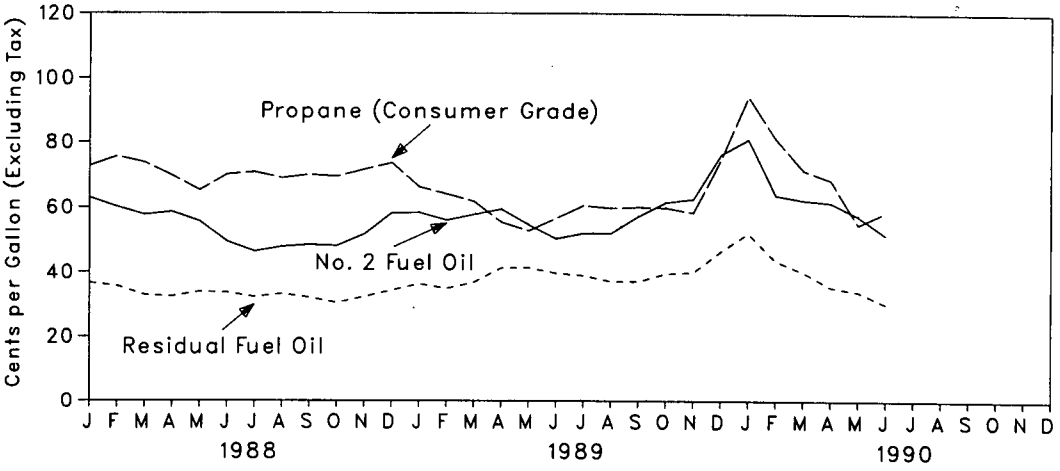


Table 9.1 Crude Oil Price Summary
(Dollars per Barrel)

	Domestic First Purchase Price[a]	F.O.B. Cost of Imports[b]	Landed Cost of Imports[c]	Refiner Acquisition Cost[d]		
				Domestic	Imported	Composite
1973 Average	**3.89**	• 5.21	• 6.41	**4.17**	**4.08**	**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**	**12.17**	**13.34**	**8.84**	**13.48**	**10.89**
1977 Average	**8.57**	**13.24**	**14.31**	**9.55**	**14.53**	**11.96**
1978 Average	**9.00**	**13.30**	**14.38**	**10.61**	**14.57**	**12.46**
1979 Average	**12.64**	**20.19**	**21.65**	**14.27**	**21.67**	**17.72**
1980 Average	**21.59**	**32.27**	**33.95**	**24.23**	**33.89**	**28.07**
1981 Average	**31.77**	**35.10**	**36.52**	**34.33**	**37.05**	**35.24**
1982 Average	**28.52**	**32.11**	**33.18**	**31.22**	**33.55**	**31.87**
1983 Average	**26.19**	**27.73**	**28.93**	**28.87**	**29.30**	**28.99**
1984 Average	**25.88**	**27.44**	**28.46**	**28.53**	**28.88**	**28.63**
1985 Average	**24.09**	**25.83**	**26.66**	**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 January	13.64	13.66	14.92	15.80	15.45	15.68
February	13.43	13.79	14.72	15.58	15.43	15.53
March	12.96	13.43	14.47	14.91	14.73	14.84
April	13.92	14.28	15.17	15.87	15.62	15.77
May	14.12	14.49	15.52	16.35	15.93	16.18
June	13.59	13.97	14.87	15.74	15.50	15.65
July	12.38	13.25	14.07	14.64	14.81	14.71
August	12.22	12.84	13.64	14.36	14.32	14.34
September	11.63	12.24	13.03	13.96	13.84	13.91
October	10.62	11.69	12.42	12.90	13.05	12.96
November	10.31	11.94	12.49	12.61	12.66	12.63
December	11.99	13.21	14.10	13.88	14.11	13.98
Average	**12.58**	**13.25**	**14.08**	**14.74**	**14.56**	**14.67**
1989 January	13.79	14.67	15.69	15.49	15.98	15.70
February	14.23	15.49	16.40	16.11	16.59	16.31
March	15.63	16.72	17.48	17.39	17.77	17.55
April	17.01	18.23	18.97	18.92	19.59	19.22
May	16.75	17.52	18.33	19.02	19.06	19.03
June	16.40	16.80	17.61	18.56	18.27	18.43
July	16.32	16.47	17.39	18.31	17.97	18.16
August	15.01	16.12	16.83	17.23	17.23	17.23
September	15.58	16.49	17.28	17.70	17.62	17.66
October	16.24	17.10	17.92	18.20	18.29	18.24
November	16.30	17.34	18.16	18.46	18.32	18.39
December	17.00	18.83	19.55	19.16	20.04	19.54
Average	**15.85**	**16.89**	**17.68**	**17.88**	**18.08**	**17.97**
1990 January	18.50	18.84	19.82	20.75	20.51	20.64
February	18.18	18.01	18.97	20.75	19.84	20.35
March	16.58	16.91	17.96	19.32	18.94	19.14
April	14.52	R 14.94	R 15.98	17.37	16.71	17.06
May	13.82	R 14.80	R 15.52	16.46	16.03	16.26
June	12.79	13.32	14.26	15.07	14.95	15.01

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

Notes: • Geographic coverage is the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and all U.S. Territories and Possessions. • Values for Domestic First Purchase Price and Refiner Acquisition Cost of Crude Oil for the current month and for F.O.B. and Landed Cost of Crude Oil Imports for the current 2 months are preliminary. • F.O.B. and landed costs through 1980 reflect the period of reporting; prices since then reflect the period of loading. • Annual averages are the weighted average of the 12 monthly prices.

Sources: See end of section.

Table 9.2 F.O.B. Cost of Crude Oil Imports from Selected Countries[a]
(Dollars per Barrel)

	Algeria	Indonesia	Iran	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**	**NA**	**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**	**11.69**	**13.09**	**11.32**	**11.92**	**12.06**	**12.23**
1977 Average	**14.36**	**13.57**	**12.67**	**13.42**	**14.44**	**12.37**	**14.11**	**12.68**	**13.19**	**13.13**	**13.29**
1978 Average	**14.10**	**13.64**	**12.65**	**13.24**	**14.04**	**12.70**	**13.82**	**12.45**	**13.35**	**13.28**	**13.30**
1979 Average	**20.65**	**19.35**	**23.71**	**20.29**	**21.80**	**17.63**	**21.20**	**17.37**	**21.43**	**19.25**	**19.91**
1980 Average	**36.57**	**32.37**	R **27.20**	**31.11**	**35.82**	**28.53**	**34.58**	**24.78**	**34.24**	**31.61**	**32.25**
1981 Average	**39.09**	**35.93**	**(*)**	**33.13**	**38.53**	**32.48**	**36.08**	**28.86**	**36.69**	**34.73**	**35.11**
1982 Average	**34.23**	**35.27**	**30.93**	**28.07**	**35.13**	**33.50**	**33.46**	**23.77**	**31.96**	**33.84**	**33.45**
1983 Average	**30.06**	**29.93**	**28.25**	**25.19**	**29.78**	**28.03**	**29.84**	**21.48**	**27.96**	**28.38**	**28.45**
1984 Average	**28.04**	**29.10**	**26.93**	**26.37**	**29.39**	**27.60**	**28.90**	**24.16**	**27.65**	**27.68**	**27.59**
1985 Average	**26.84**	**27.12**	**W**	**25.33**	**28.04**	**22.04**	**27.63**	**23.64**	**26.11**	**24.30**	**25.66**
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 January	W	16.62	NA	12.79	17.04	11.41	16.23	12.37	14.96	12.17	13.26
February	W	16.16	NA	12.91	15.80	12.78	W	12.31	14.59	13.16	13.73
March	W	13.65	NA	11.81	15.72	12.90	14.68	12.67	13.82	13.18	13.80
April	W	14.59	NA	13.65	16.10	12.77	15.20	13.44	14.70	13.37	14.23
May	W	15.63	NA	13.68	16.06	W	16.10	13.54	14.91	13.61	14.44
June	W	15.26	NA	12.82	15.60	12.75	15.32	13.80	14.17	13.23	14.12
July	W	14.06	NA	12.17	15.14	11.27	14.43	13.18	13.57	12.23	13.40
August	W	13.58	NA	12.37	14.93	10.15	14.86	12.65	13.07	11.57	12.72
September	W	12.84	NA	11.69	13.71	9.44	W	12.38	12.33	10.32	12.15
October	W	11.47	NA	10.00	13.66	W	12.69	12.93	11.51	11.36	12.32
November .	W	11.48	NA	10.16	13.74	W	W	12.45	11.80	12.92	12.80
December .	W	W	NA	12.31	15.56	W	13.59	13.46	12.78	13.51	13.85
Average	**W**	**13.81**	**NA**	**12.18**	**15.16**	**12.16**	**14.80**	**12.96**	**13.45**	**12.57**	**13.43**
1989 January	W	14.52	NA	13.98	16.11	W	W	13.10	15.08	14.91	14.77
February	W	17.14	NA	14.25	17.15	W	16.33	14.00	15.83	16.35	15.98
March	W	17.05	NA	14.98	18.37	W	W	16.62	17.29	17.45	17.37
April	W	17.78	NA	17.44	19.81	W	W	17.77	18.73	16.85	18.34
May	W	W	NA	16.97	18.60	W	W	16.78	17.97	15.98	17.28
June	W	17.78	NA	16.62	17.68	15.54	W	15.42	17.12	16.01	16.49
July	W	17.61	NA	16.41	17.67	W	17.66	14.34	16.74	15.66	16.02
August	W	W	NA	15.22	17.25	W	17.11	15.82	16.08	15.91	16.36
September	W	16.37	NA	15.37	18.00	W	17.22	16.02	16.62	16.50	16.68
October	W	16.35	NA	16.12	18.99	W	17.78	15.45	17.37	17.06	17.20
November .	W	17.28	NA	16.44	19.11	18.09	18.37	15.56	17.45	17.53	17.52
December .	W	W	NA	17.74	19.93	W	19.57	19.32	18.50	18.85	19.30
Average	**W**	**17.01**	**NA**	**15.96**	**18.31**	**16.29**	**17.89**	**16.09**	**17.13**	**16.73**	**17.06**
1990 January	W	19.25	NA	18.03	21.22	W	21.00	16.73	19.20	18.03	18.71
February	W	19.43	NA	16.68	20.41	W	W	16.01	18.36	16.64	18.11
March	W	18.98	NA	16.24	18.41	W	W	15.95	16.82	14.98	16.85
April	W	17.38	NA	13.30	R 16.79	R 12.37	16.13	15.57	R 14.77	R 13.24	R 15.10
May	W	R 16.19	NA	R 12.11	R 16.50	12.19	15.69	R 14.60	R 15.07	R 14.16	R 15.21
June	W	15.30	NA	10.58	15.47	W	W	13.30	13.64	12.19	13.76

[a]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.
[b]The Arab members of OPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates.
[c]"Total OPEC" consists of Ecuador, Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members. 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.
[*]No crude oil was imported.
R=Revised data. NA=Not available. W=Value withheld to avoid disclosure of individual company data.
Notes: • 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 the weighted average of the 12 monthly prices, including those prices that were not published. • 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.
Sources: See end of section.

Table 9.3 Landed Cost of Crude Oil Imports from Selected Countries[a]
(Dollars per Barrel)

	Algeria	Canada	Indonesia	Iran	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	**12.72**	**12.72**	**13.79**	**12.21**	**12.61**	**12.62**	**12.30**	**NA**	**11.65**	**12.66**	**12.71**	**12.70**
1976 Average	**13.81**	**13.57**	**13.82**	**12.82**	**12.64**	**13.80**	**13.04**	**W**	**11.80**	**13.31**	**13.31**	**13.32**
1977 Average	**15.20**	**14.21**	**14.63**	**13.80**	**13.75**	**15.25**	**13.61**	**14.83**	**13.13**	**14.56**	**14.30**	**14.35**
1978 Average	**14.91**	**14.50**	**14.64**	**13.88**	**13.54**	**14.86**	**13.92**	**14.53**	**12.83**	**14.58**	**14.36**	**14.34**
1979 Average	**21.90**	**20.43**	**20.69**	**25.02**	**20.86**	**22.96**	**19.15**	**22.16**	**18.18**	**23.18**	**20.79**	**21.29**
1980 Average	**37.90**	**30.47**	**33.92**	R 29.33	**31.80**	**37.05**	**30.02**	**35.88**	**25.86**	**36.02**	**32.97**	**33.56**
1981 Average	**40.49**	**32.16**	**37.57**	(*)	**33.78**	**39.70**	**34.19**	**37.24**	**29.87**	**38.54**	**36.22**	**36.60**
1982 Average	**35.28**	**26.92**	**36.75**	**32.40**	**28.64**	**36.17**	**35.00**	**34.28**	**24.82**	**34.03**	**35.15**	**34.81**
1983 Average	**31.26**	**25.63**	**31.57**	**29.81**	**25.78**	**30.84**	**29.76**	**30.87**	**22.94**	**29.68**	**30.03**	**29.87**
1984 Average	**29.08**	**26.59**	**30.64**	**28.67**	**26.87**	**30.50**	**29.50**	**29.60**	**25.15**	**29.20**	**29.12**	**28.93**
1985 Average	**27.46**	**25.71**	**28.67**	**25.79**	**25.63**	**28.96**	**24.72**	**28.35**	**24.43**	**27.33**	**25.88**	**26.85**
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 January	W	14.58	17.99	W	13.16	17.91	13.23	17.59	13.10	16.28	14.16	14.61
February	W	14.37	17.44	NA	13.30	16.59	14.00	16.70	13.05	15.91	14.23	14.59
March	W	13.66	15.13	NA	12.22	16.47	14.07	15.72	13.50	15.13	14.29	14.74
April	W	14.39	16.30	NA	13.97	16.88	14.12	16.11	14.18	15.77	14.70	15.27
May	W	15.12	16.94	NA	14.09	17.00	14.51	16.97	14.24	16.04	15.05	15.50
June	W	14.67	16.40	NA	13.21	16.59	13.91	16.29	14.32	15.20	14.31	15.00
July	W	13.31	15.11	NA	12.58	15.68	13.17	15.52	13.78	14.68	13.63	14.25
August	W	13.13	14.90	NA	12.77	15.55	12.44	15.72	13.28	14.07	13.12	13.69
September	W	12.89	14.05	NA	12.09	14.49	11.78	14.38	12.96	13.21	12.05	12.92
October	W	11.73	12.60	NA	10.42	14.32	11.93	13.33	13.58	12.66	11.99	12.74
November .	W	11.58	12.82	NA	10.56	14.49	12.79	14.02	13.12	12.51	12.44	12.87
December .	W	12.57	14.05	NA	12.81	16.31	14.62	15.12	14.34	13.97	14.44	14.67
Average	**W**	**13.50**	**15.15**	**W**	**12.58**	**15.88**	**13.37**	**15.82**	**13.66**	**14.45**	**13.60**	**14.18**
1989 January	W	14.47	16.30	NA	14.48	17.54	15.91	17.17	14.05	15.88	15.74	15.99
February	W	14.97	17.86	NA	14.55	18.19	16.60	17.82	14.62	17.22	16.52	16.74
March	W	15.88	18.67	NA	15.37	19.32	17.00	17.90	17.30	18.33	17.33	17.80
April	22.13	17.42	19.11	NA	17.78	20.53	18.89	20.00	18.45	19.40	18.91	19.24
May	W	17.81	19.37	NA	17.37	19.64	17.43	20.04	17.32	18.79	17.58	18.15
June	W	17.69	18.92	NA	16.99	18.90	16.82	18.74	16.13	17.96	17.00	17.45
July	W	17.89	18.92	NA	16.84	18.66	16.72	18.81	15.13	17.45	16.73	17.12
August	W	16.62	W	NA	15.62	18.01	16.42	18.20	16.50	16.89	16.45	16.86
September	W	17.00	17.82	NA	15.76	18.72	16.84	18.11	16.67	17.54	16.97	17.29
October	W	17.43	17.70	NA	16.52	19.82	17.90	18.71	16.13	18.25	17.82	17.97
November .	18.55	17.08	18.16	NA	16.85	20.14	18.08	19.31	16.38	18.74	18.16	18.27
December .	W	17.48	19.20	NA	18.01	20.98	19.27	20.32	20.16	19.88	19.55	19.96
Average	**19.13**	**16.81**	**18.35**	**NA**	**16.35**	**19.19**	**17.33**	**18.74**	**16.78**	**18.08**	**17.41**	**17.78**
1990 January	W	18.52	20.86	NA	18.48	22.36	19.18	21.56	17.86	20.50	19.36	19.79
February	W	18.52	21.21	NA	17.13	21.46	18.32	W	16.69	19.59	18.28	18.99
March	W	17.30	20.65	NA	16.64	19.69	16.67	20.71	16.64	18.28	16.69	17.72
April	W	15.65	18.98	NA	13.83	R 18.06	R 14.58	17.92	16.30	R 16.19	R 14.74	R 15.86
May	W	R 15.52	R 17.79	NA	R 12.78	R 17.53	R 14.11	17.14	R 15.47	R 15.80	R 14.45	R 15.48
June	W	14.00	16.42	NA	11.11	16.56	13.24	17.01	14.19	14.68	13.48	14.46

[a]See Note 3 at end of section.
[b]The Arab members of OPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates.
[c]"Total OPEC" consists of Ecuador, Gabon, Indonesia, Iran, Nigeria, and Venezuela, as well as the Arab members. 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 crude oil was imported.
R=Revised data. NA=Not available. W=Value withheld to avoid disclosure of individual company data.
Notes: • 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 the weighted average of the 12 monthly prices, including those prices that were not published. • 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.
Sources: See end of section.

Table 9.4 U.S. City Average Retail Prices of Motor Gasoline[a]
(Cents per Gallon, Including Taxes)

	Leaded Regular	Unleaded Regular	Unleaded Premium	Average for All Types[b]
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[c]	**131.1**	**137.8**	**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 January	88.1	93.3	109.5	94.7
February	85.9	91.3	108.2	92.8
March	85.0	90.4	107.4	92.0
April	88.3	93.0	108.8	94.6
May	91.1	95.5	110.5	97.0
June	91.0	95.5	111.1	97.1
July	92.3	96.7	112.3	98.4
August	94.5	98.7	113.8	100.4
September	93.3	97.4	113.0	99.2
October	91.0	95.6	111.9	97.5
November	90.4	94.9	111.6	97.2
December	88.5	93.0	110.1	95.3
Average	**89.9**	**94.6**	**110.7**	**96.3**
1989 January	87.6	91.8	109.1	94.4
February	88.6	92.6	110.0	95.5
March	90.7	94.0	111.5	97.4
April	104.7	106.5	122.1	109.8
May	109.8	111.9	127.8	115.2
June	109.3	111.4	127.8	115.0
July	107.5	109.2	126.4	113.2
August	103.4	105.7	123.3	109.6
September	100.7	102.9	121.3	107.3
October	100.1	102.7	120.9	107.1
November	97.5	99.9	118.7	104.6
December	96.1	98.0	117.0	103.0
Average	**99.8**	**102.1**	**119.7**	**106.0**
1990 January	100.6	104.2	123.0	109.0
February	101.1	103.7	122.7	108.6
March	99.9	102.3	121.8	107.6
April	102.7	104.4	123.3	109.6
May	104.4	106.1	124.8	111.4
June	107.7	108.8	127.1	114.0
July	108.9	108.4	127.2	113.9

[a]See Note 5 at end of section.
[b]Also includes types of gasoline not shown separately.
[c]In September 1981, the Bureau of Labor Statistics changed the weights used in the calculation of average motor gasoline prices. From September 1981 forward, in the average for all types category, gasohol is included and unleaded premium is weighted more heavily.
NA=Not available.
Note: Geographic coverage for 1974 through 1977 is 56 urban areas. For 1978 forward, it is 85 urban areas. • Annual values shown in this table are calculated by EIA as the simple average of the monthly data.
Sources: See end of section.

Table 9.5 Refiner Sales Prices of Residual Fuel Oil[a]
(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 January	36.5	41.9	27.7	31.8	32.4	36.7
February	35.2	40.2	27.4	31.4	32.2	35.6
March	32.4	36.9	25.0	29.0	28.6	32.9
April	33.5	35.8	27.5	30.2	30.2	32.4
May	34.0	36.8	29.8	32.2	31.5	33.9
June	32.9	35.3	29.0	32.3	31.0	33.6
July	31.8	35.7	27.7	30.0	29.5	32.3
August	32.7	36.0	28.4	30.7	30.6	33.2
September	31.4	34.7	28.4	30.1	29.5	32.1
October	29.2	34.4	23.5	26.7	25.6	30.5
November	31.9	36.1	24.5	27.2	28.0	32.3
December	35.6	38.8	27.0	28.6	29.8	34.3
Average	**33.3**	**37.2**	**27.1**	**30.0**	**30.0**	**33.4**
1989 January	37.8	41.7	29.2	31.3	32.6	36.3
February	36.5	39.8	28.9	30.2	32.3	34.9
March	38.0	41.8	27.5	30.1	32.2	36.8
April	43.9	46.6	33.2	35.5	38.2	41.2
May	42.9	46.5	34.5	37.0	37.7	41.3
June	38.1	42.8	34.0	36.6	35.3	39.6
July	38.4	42.1	33.5	35.7	35.7	38.9
August	36.7	39.4	32.9	34.8	34.6	37.1
September	37.9	40.2	31.8	34.7	35.1	37.1
October	39.6	43.2	33.8	36.5	36.7	39.5
November	40.3	44.1	33.7	36.7	36.7	39.9
December	46.9	53.4	37.7	39.9	42.3	46.4
Average	**40.0**	**43.6**	**32.5**	**34.9**	**35.8**	**39.1**
1990 January	56.0	60.0	41.9	45.1	48.1	52.0
February	44.6	51.3	34.7	37.2	38.2	43.6
March	39.8	45.3	31.2	35.4	34.4	40.1
April	36.1	39.6	31.1	32.5	33.3	35.5
May	34.2	37.9	R 28.5	31.4	R 30.5	34.1
June	31.4	34.2	24.8	27.3	27.2	30.3

[a]Sales for resale, that is, wholesale sales, are those made to purchasers who are other than ultimate consumers. Sales to end users are those made directly to the ultimate consumer, including bulk customers such as agriculture, industry, and utilities, as well as commercial customers.

R=Revised data.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration estimates. See Note 6 at end of section.

Sources: See end of section.

Table 9.6 Refiner Sales Prices of Petroleum Products for Resale[a]
(Cents per Gallon, Excluding Taxes)

	Finished Motor Gasoline[b]	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 January	53.4	85.9	53.2	59.2	52.0	51.0	26.8
February	53.8	84.2	52.4	57.1	48.9	49.0	26.6
March	53.9	84.2	50.4	54.3	47.6	49.2	25.6
April	58.6	84.2	50.4	54.2	50.7	51.9	25.2
May	59.9	85.0	51.4	53.3	50.1	51.3	24.9
June	59.3	85.1	51.0	50.0	46.6	47.9	24.3
July	62.4	86.1	47.5	48.3	43.3	44.0	21.8
August	61.4	86.7	47.9	48.9	44.3	45.0	22.1
September	58.0	85.7	46.9	49.8	43.3	44.7	22.5
October	57.3	83.8	45.2	49.4	41.9	42.0	22.1
November	58.1	83.5	46.4	52.8	45.1	44.6	22.1
December	54.9	83.7	50.1	57.8	49.9	48.0	22.9
Average	**57.7**	**85.0**	**49.5**	**54.9**	**47.3**	**47.3**	**24.0**
1989 January	56.3	84.0	56.3	63.1	53.2	51.1	24.0
February	57.5	86.0	55.2	59.5	51.0	52.9	22.7
March	61.2	86.6	56.5	61.3	54.4	56.0	22.5
April	74.2	94.2	59.4	60.3	56.5	59.9	22.6
May	76.5	101.8	56.6	55.9	52.5	54.1	22.1
June	74.0	101.2	54.5	53.8	49.6	51.0	21.3
July	69.1	100.9	53.5	57.0	50.3	50.6	20.7
August	62.7	97.6	54.4	59.8	51.2	52.5	21.6
September	65.8	96.2	58.6	63.6	56.4	58.6	23.1
October	64.3	93.3	63.1	67.4	60.1	62.4	24.4
November	61.5	92.5	63.4	68.4	60.4	62.2	24.4
December	61.6	92.8	67.4	81.7	72.8	68.4	36.4
Average	**65.5**	**95.0**	**58.4**	**66.9**	**56.5**	**56.8**	**24.6**
1990 January	69.2	96.8	77.0	87.0	73.8	69.3	54.5
February	67.2	95.0	66.9	67.9	57.7	57.1	34.0
March	66.3	93.8	61.7	64.8	57.9	57.7	27.1
April	69.7	96.4	59.9	62.4	57.5	57.5	25.2
May	72.6	97.4	57.4	59.2	54.5	55.4	24.0
June	72.2	99.6	54.8	53.9	49.5	50.5	24.9

[a]Sales for resale, that is, wholesale sales, are those made to purchasers who are other than ultimate consumers. Sales to end users are those made directly to the ultimate consumer, including bulk customers such as agriculture, industry, and utilities, as well as residential and commercial customers.

[b]See Note 5 at end of section.

R=Revised data.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration estimates. See Note 6 at end of section.

Sources: See end of section.

Table 9.7 Refiner Sales Prices of Petroleum Products to End Users[a]
(Cents per Gallon, Excluding Taxes)

	Finished Motor Gasoline[b]	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 January	64.9	88.4	56.4	84.1	63.0	54.2	72.6
February	63.3	88.2	55.0	84.6	60.1	51.9	75.5
March	62.5	87.7	53.9	77.5	57.6	51.3	73.6
April	66.0	87.6	52.3	82.2	58.5	53.8	68.9
May	68.4	89.2	53.1	61.2	55.5	53.6	65.2
June	68.1	87.2	52.7	55.4	49.3	50.8	70.0
July	69.9	89.7	50.3	56.0	46.3	47.2	70.7
August	71.8	92.2	49.1	56.3	47.7	47.3	68.9
September	70.0	90.8	48.4	66.1	48.3	47.3	69.9
October	68.0	88.7	46.3	71.8	48.0	45.4	69.4
November	67.6	89.2	47.6	71.1	51.5	47.4	71.5
December	66.1	89.2	51.0	74.1	58.1	50.5	73.5
Average	**67.3**	**89.1**	**51.3**	**73.8**	**54.4**	**50.0**	**71.4**
1989 January	65.8	89.1	56.2	71.4	58.3	53.5	66.2
February	66.2	89.7	57.0	72.2	55.9	54.3	64.1
March	68.6	90.5	57.9	67.6	57.7	56.9	61.8
April	81.9	99.0	60.6	66.2	59.4	60.6	55.3
May	85.8	106.9	58.1	59.7	54.5	56.9	52.7
June	84.7	107.1	56.1	53.9	50.2	53.2	56.6
July	82.4	105.4	54.7	55.3	51.9	53.1	60.6
August	76.9	102.0	55.1	58.0	51.9	53.7	59.8
September	75.2	100.7	58.9	66.8	57.2	59.5	60.1
October	75.0	100.4	63.8	73.6	61.6	63.6	59.9
November	72.9	98.6	64.4	77.7	62.6	64.3	58.4
December	72.4	97.3	68.2	89.7	76.2	71.2	74.6
Average	**75.8**	**99.5**	**59.2**	**71.0**	**59.1**	**58.4**	**61.9**
1990 January	78.6	102.0	79.7	99.9	81.0	76.4	94.5
February	76.5	102.4	68.9	81.2	63.9	61.9	81.2
March	75.0	100.9	63.5	82.3	62.4	60.6	71.5
April	77.8	101.4	61.1	74.2	61.6	60.2	68.5
May	80.1	103.5	58.1	R 65.4	57.4	58.4	R 54.8
June	81.3	104.0	55.6	58.5	51.5	53.9	58.7

[a]Sales for resale, that is, wholesale sales, are those made to purchasers who are other than ultimate consumers. Sales to end users are those made directly to the ultimate consumer, including bulk customers such as agriculture, industry, and utilities, as well as residential and commercial customers.

[b]See Note 5 at end of section.

R=Revised data.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration estimates. See Note 6 at end of section.

Sources: See end of section.

Table 9.8a Sales Prices of No. 2 Distillate to Residences for Selected States[a]
(Cents per Gallon, Excluding Taxes)

	CT	ME	MA	NH	RI	VT	DE	DC
1978 Average	**50.1**	**48.6**	**48.8**	**50.3**	**50.7**	**50.8**	**47.8**	**50.7**
1979 Average	**72.0**	**68.8**	**70.9**	**72.5**	**72.8**	**72.5**	**68.2**	**74.2**
1980 Average	**98.3**	**96.3**	**97.8**	**100.4**	**101.1**	**101.5**	**95.4**	**102.6**
1981 Average	**121.7**	**120.4**	**121.3**	**123.7**	**123.8**	**125.4**	**117.3**	**127.4**
1982 Average	**118.3**	**116.5**	**117.6**	**117.4**	**120.1**	**120.1**	**111.3**	**124.5**
1983 Average	**109.1**	**102.8**	**109.1**	**104.1**	**110.5**	**112.9**	**106.0**	**117.0**
1984 Average	**112.1**	**103.9**	**111.6**	**108.4**	**111.4**	**111.9**	**109.6**	**118.7**
1985 Average	**108.0**	**99.7**	**107.0**	**102.4**	**106.7**	**107.7**	**104.6**	**114.3**
1986 Average	**89.0**	**74.4**	**82.1**	**75.9**	**82.8**	**86.6**	**85.0**	**93.1**
1987 Average	**83.4**	**74.7**	**80.6**	**76.5**	**82.5**	**81.1**	**79.3**	**91.8**
1988 January	88.9	80.3	85.6	82.5	87.1	85.9	83.9	95.8
February	89.0	79.7	84.1	81.6	86.4	85.9	83.2	96.0
March	87.4	79.2	83.3	80.3	84.7	85.0	81.5	93.1
April	88.1	78.7	83.2	79.0	85.4	85.0	82.5	91.8
May	87.6	77.6	82.3	78.3	85.1	84.4	82.5	93.9
June	86.4	75.4	78.3	79.3	81.4	83.8	80.9	89.7
July	83.5	73.3	77.1	76.6	76.3	81.3	73.4	87.6
August	81.9	75.7	74.2	73.8	79.7	80.3	73.9	85.9
September	80.8	71.7	80.0	73.3	78.4	78.5	72.6	85.8
October	79.9	69.0	77.7	71.5	75.5	77.0	71.8	84.1
November	80.5	72.0	77.9	72.3	79.7	77.8	74.8	85.6
December	84.4	80.2	82.8	77.3	83.4	81.6	79.6	89.8
Average	**85.3**	**77.7**	**82.1**	**78.2**	**83.6**	**82.6**	**80.1**	**91.6**
1989 January	88.5	85.5	87.1	83.0	87.4	86.0	84.4	94.0
February	88.8	87.3	86.3	83.8	88.3	86.9	84.1	95.1
March	89.8	88.2	88.1	84.8	90.0	88.2	82.9	96.0
April	89.4	87.2	87.8	83.2	89.9	87.8	84.8	95.0
May	88.1	81.0	86.8	83.1	88.8	86.9	83.4	92.1
June	85.7	73.5	83.4	79.4	87.6	84.3	80.3	92.0
July	85.0	71.9	81.1	77.8	85.4	82.9	78.9	90.7
August	84.6	70.0	81.1	78.2	84.1	82.0	78.8	90.1
September	85.2	74.6	84.9	79.2	86.5	82.5	78.8	91.4
October	88.9	82.7	88.5	82.9	90.3	85.1	82.4	92.0
November	89.9	86.7	91.1	86.7	92.4	86.3	86.1	94.7
December	112.5	106.0	115.2	111.7	114.0	109.8	111.6	110.8
Average	**92.9**	**89.4**	**92.6**	**89.3**	**93.9**	**90.8**	**88.1**	**98.5**
1990 January	119.8	115.4	116.9	118.6	122.6	121.5	119.8	119.0
February	100.8	84.8	99.7	96.0	98.5	98.4	97.1	104.9
March	97.7	83.4	98.6	92.9	97.3	95.6	93.2	94.4
April	96.3	82.9	95.1	89.9	95.9	94.2	91.8	93.1
May	92.7	81.0	92.4	86.9	R 93.9	R 91.7	R 89.9	94.2
June	87.0	76.3	88.9	82.9	89.1	86.8	85.5	93.2

[a]The States are listed by geographic region of the country. State names are abbreviated as follows: CT - Connecticut, ME - Maine, MA - Massachusetts, NH - New Hampshire, RI - Rhode Island, VT - Vermont, DE - Delaware, DC - District of Columbia, MD - Maryland, NJ - New Jersey, NY - New York, PA - Pennsylvania, VA - Virginia, WV - West Virginia, IL - Illinois, IN - Indiana, MI - Michigan, MN - Minnesota, OH - Ohio, WI - Wisconsin, ID - Idaho, AK - Alaska, OR - Oregon, WA - Washington.

Footnotes continued on following page.

Table 9.8b Sales Prices of No. 2 Distillate to Residences for Selected States[a] (Continued)
(Cents per Gallon, Excluding Taxes)

	MD	NJ	NY	PA	VA	WV	IL	IN
1978 Average	**49.2**	**49.6**	**50.1**	**48.8**	**49.1**	**46.2**	**46.5**	**48.5**
1979 Average	**70.1**	**71.0**	**71.2**	**69.8**	**70.4**	**65.1**	**68.8**	**72.7**
1980 Average	**97.9**	**97.9**	**98.2**	**96.4**	**98.5**	**92.2**	**95.8**	**99.6**
1981 Average	**121.4**	**121.5**	**123.2**	**118.1**	**120.5**	**115.0**	**114.9**	**118.5**
1982 Average	**117.1**	**117.4**	**120.5**	**113.7**	**117.7**	**109.3**	**110.9**	**114.3**
1983 Average	**110.3**	**107.9**	**112.1**	**105.8**	**108.7**	**101.0**	**100.4**	**100.7**
1984 Average	**113.5**	**111.0**	**115.5**	**107.9**	**110.5**	**102.1**	**100.1**	**103.1**
1985 Average	**108.8**	**105.9**	**111.3**	**102.3**	**106.3**	**98.0**	**97.5**	**99.1**
1986 Average	**91.4**	**90.2**	**91.1**	**81.4**	**86.6**	**74.6**	**NA**	**74.8**
1987 Average	**86.6**	**84.3**	**85.2**	**76.9**	**79.5**	**76.4**	**79.8**	**75.4**
1988 January	90.9	88.1	89.1	82.9	82.7	78.7	85.4	78.3
February	90.3	87.7	88.4	82.0	83.4	76.1	86.1	76.7
March	88.2	86.8	87.3	81.1	83.8	75.6	86.1	77.4
April	89.1	85.8	86.7	80.5	83.0	74.6	87.4	79.0
May	87.9	85.4	84.9	79.1	81.7	73.6	86.7	76.6
June	86.8	82.5	83.5	74.6	79.1	71.8	82.9	80.1
July	85.0	80.9	81.7	71.1	77.3	70.3	83.8	74.0
August	84.2	78.6	78.0	63.9	77.0	67.9	80.3	74.1
September	76.0	76.3	83.0	68.6	75.8	69.3	68.6	69.5
October	78.3	77.8	81.7	69.5	74.8	71.3	69.4	71.2
November	81.3	78.8	83.3	70.9	77.1	74.1	70.6	72.1
December	85.0	84.0	87.8	76.5	79.6	73.9	73.1	75.3
Average	**87.0**	**84.8**	**86.3**	**77.8**	**80.5**	**74.2**	**77.6**	**75.4**
1989 January	88.0	87.3	90.9	81.6	82.9	76.1	76.6	77.9
February	88.7	87.0	92.1	82.2	82.3	76.0	75.8	77.2
March	89.3	88.9	93.2	83.2	82.4	77.1	76.5	77.9
April	90.6	87.8	93.7	83.2	82.1	77.0	79.8	80.2
May	89.6	87.2	92.7	82.2	81.4	77.4	78.5	78.1
June	88.4	83.0	91.7	77.6	79.4	80.9	77.0	76.4
July	85.7	82.3	90.5	74.1	78.7	78.1	74.5	76.1
August	85.3	80.1	90.1	72.6	78.1	73.6	78.3	75.8
September	83.4	81.8	86.5	74.2	79.9	79.3	77.4	80.1
October	88.5	87.3	91.0	78.9	83.8	81.7	81.9	83.3
November	91.5	89.7	93.7	81.6	86.1	83.1	82.9	84.0
December	110.8	108.5	113.0	103.1	105.2	100.0	94.0	98.6
Average	**93.8**	**91.8**	**95.7**	**85.1**	**86.9**	**83.1**	**80.9**	**83.3**
1990 January	120.0	117.3	122.2	113.7	118.1	109.2	95.2	99.7
February	101.4	99.5	103.1	93.4	101.7	89.4	83.2	85.6
March	98.8	98.5	101.6	90.3	96.8	87.1	83.4	83.1
April	97.5	96.5	100.2	87.6	95.8	83.7	82.2	83.7
May	R 95.0	94.4	R 99.2	R 84.4	R 90.6	83.0	78.3	R 82.4
June	89.5	88.6	94.8	78.3	88.2	83.4	73.6	72.7

Footnotes continued on following page.

Table 9.8c Sales Prices of No. 2 Distillate to Residences for Selected States[a] (Continued)
(Cents per Gallon, Excluding Taxes)

	MI	MN	OH	WI	ID	AK	OR	WA	U.S. Average
1978 Average	**47.9**	**47.8**	**47.4**	**44.7**	**43.6**	**53.2**	**45.8**	**48.6**	**49.0**
1979 Average	**70.9**	**72.4**	**68.6**	**67.3**	**62.1**	**68.2**	**68.0**	**69.7**	**70.4**
1980 Average	**97.8**	**99.9**	**91.9**	**91.5**	**91.6**	**97.8**	**97.3**	**100.8**	**97.4**
1981 Average	**118.3**	**118.4**	**113.2**	**109.1**	**110.4**	**118.0**	**111.4**	**116.5**	**119.4**
1982 Average	**113.9**	**115.1**	**110.2**	**107.8**	**110.4**	**117.4**	**111.6**	**117.6**	**116.0**
1983 Average	**106.4**	**103.1**	**101.3**	**101.2**	**101.8**	**108.8**	**103.6**	**109.0**	**107.8**
1984 Average	**105.0**	**104.1**	**102.1**	**101.0**	**98.5**	**106.9**	**99.3**	**102.6**	**109.1**
1985 Average	**102.1**	**101.9**	**99.7**	**98.3**	**97.2**	**108.3**	**97.1**	**101.1**	**105.3**
1986 Average	**81.0**	**79.2**	**77.7**	**75.6**	**73.8**	**94.9**	**70.4**	**77.5**	**83.6**
1987 Average	**77.5**	**74.6**	**74.7**	**75.1**	**68.8**	**86.5**	**72.5**	**79.5**	**80.3**
1988 January	81.2	75.5	77.2	76.9	74.4	88.3	76.0	83.2	84.7
February	80.9	74.4	77.1	76.0	71.7	85.6	74.9	82.1	83.9
March	78.2	72.6	76.1	75.8	70.6	88.7	73.5	81.3	83.1
April	78.8	73.1	77.1	77.7	73.3	86.6	75.0	82.1	83.1
May	77.5	74.3	74.5	76.8	71.9	88.9	74.6	82.3	81.9
June	73.7	73.5	71.9	74.6	70.5	88.1	73.9	78.0	79.1
July	73.3	75.7	70.0	72.7	67.7	85.5	66.4	73.5	76.7
August	73.9	72.2	69.2	71.2	64.3	85.7	64.3	70.1	73.7
September	74.2	72.4	72.0	68.8	67.4	89.7	64.8	73.9	75.9
October	75.4	71.1	71.2	68.0	66.8	86.2	62.4	71.0	75.5
November	75.6	72.7	73.0	69.9	66.6	85.3	63.4	73.4	77.2
December	77.0	73.0	75.2	71.6	66.9	85.6	64.2	75.7	81.4
Average	**77.5**	**73.5**	**74.7**	**73.9**	**68.8**	**86.9**	**70.9**	**78.5**	**81.3**
1989 January	79.1	75.4	78.0	73.9	68.0	87.0	66.7	76.5	85.0
February	79.4	75.7	76.7	74.0	71.4	91.2	76.8	86.0	85.5
March	81.6	77.0	77.5	75.6	78.2	96.0	84.3	92.9	87.1
April	83.1	82.3	79.4	76.3	85.8	99.5	87.4	94.1	87.8
May	83.0	82.1	78.5	78.0	83.5	100.0	79.7	87.2	86.7
June	80.1	81.1	79.3	78.0	79.1	101.5	75.0	78.0	84.2
July	80.3	80.8	79.4	75.7	77.3	105.8	71.2	74.6	82.1
August	79.1	79.4	78.1	75.5	77.0	108.1	71.2	78.1	81.6
September	82.9	80.8	77.5	76.5	80.3	96.3	81.5	83.9	81.4
October	86.4	82.4	78.4	79.5	82.7	103.9	86.5	91.7	85.6
November	88.2	86.4	78.8	82.7	84.8	98.0	86.4	93.4	88.3
December	102.3	95.6	97.2	97.0	84.4	98.2	86.0	93.1	107.6
Average	**85.6**	**82.4**	**81.7**	**81.0**	**77.7**	**97.4**	**80.3**	**87.3**	**90.0**
1990 January	103.5	100.9	96.0	91.6	85.7	98.6	88.7	96.0	114.0
February	92.0	88.1	82.8	83.9	80.8	99.6	83.9	89.0	96.3
March	88.7	85.5	81.2	83.1	80.9	104.2	84.4	88.6	94.7
April	86.5	85.6	80.8	82.9	81.7	97.9	85.1	90.0	93.1
May	83.7	R 85.2	R 81.9	81.0	79.4	R 101.7	R 84.6	R 84.3	90.7
June	81.1	80.5	81.5	79.5	74.6	102.1	81.9	84.1	86.4

Footnotes continued.
R=Revised data. NA=Not available.
Notes: • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration estimates. See Note 6 at end of section.
Sources: See end of section.

Table 9.9 Retail Prices[a] of Electricity
(Cents per kilowatthour)

	Residential		Commercial		Industrial		Other		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	**2.54**		**2.41**		**1.25**		**2.10**		**1.96**	
1974 Average	**3.10**		**3.04**		**1.69**		**2.75**		**2.49**	
1975 Average	**3.51**		**3.45**		**2.07**		**3.08**		**2.92**	
1976 Average	**3.73**		**3.69**		**2.21**		**3.27**		**3.09**	
1977 Average	**4.05**		**4.09**		**2.50**		**3.51**		**3.42**	
1978 Average	**4.31**		**4.36**		**2.79**		**3.62**		**3.69**	
1979 Average	**4.64**		**4.68**		**3.05**		**3.96**		**3.99**	
1980 Average	**5.36**		**5.48**		**3.69**		**4.76**		**4.73**	
1981 Average	**6.20**		**6.29**		**4.29**		**5.28**		**5.46**	
1982 Average	**6.86**		**6.86**		**4.95**		**5.92**		**6.13**	
1983 Average	**7.18**		**7.02**		**4.96**		**6.38**		**6.30**	
1984 Average	**7.54**	**7.15**	**7.33**	**7.13**	**5.04**	**4.83**	**6.78**	**5.90**	**6.52**	**6.25**
1985 Average	**7.79**	**7.39**	**7.47**	**7.27**	**5.16**	**4.97**	**6.96**	**6.09**	**6.71**	**6.44**
1986 Average	**7.41**	**7.42**	**7.13**	**7.20**	**4.90**	**4.93**	**6.64**	**6.11**	**6.42**	**6.44**
1987 Average	**7.41**	**7.45**	**7.01**	**7.08**	**4.72**	**4.77**	**6.64**	**6.21**	**6.32**	**6.37**
1988 January	6.92		6.82		4.52		6.37		6.11	
February	6.99		6.88		4.52		6.47		6.11	
March	7.14		6.93		4.48		6.35		6.11	
April	7.30		6.89		4.47		6.07		6.08	
May	7.58		6.99		4.46		5.87		6.14	
June	7.84		7.23		4.69		5.87		6.44	
July	7.90		7.24		4.87		5.51		6.62	
August	7.93		7.25		4.85		5.35		6.65	
September	7.84		7.30		4.80		5.93		6.56	
October	7.70		7.27		4.69		6.23		6.39	
November	7.46		6.99		4.52		6.33		6.18	
December	7.28		6.91		4.52		6.61		6.19	
Average	**7.49**	**7.48**	**7.07**	**7.04**	**4.62**	**4.70**	**6.02**	**6.20**	**6.31**	**6.35**
1989 January	7.16		6.89		4.55		6.46		6.21	
February	7.17		6.97		4.62		6.83		6.25	
March	7.24		6.98		4.61		6.62		6.25	
April	7.52		7.08		4.61		6.45		6.28	
May	7.72		7.14		4.62		6.24		6.31	
June	8.03		7.39		4.83		5.68		6.59	
July	8.08		7.44		5.02		5.63		6.79	
August	8.11		7.48		5.00		5.56		6.79	
September	8.02		7.45		4.96		6.09		6.73	
October	7.87		7.48		4.72		6.47		6.51	
November	7.53		7.10		4.51		6.48		6.23	
December	7.28		7.02		4.56		6.58		6.27	
Average	**7.64**	**NA**	**7.21**	**NA**	**4.72**	**NA**	**6.19**	**NA**	**6.44**	**NA**
1990 January	7.18		6.94		4.60		5.81		6.27	
February	7.49		7.13		4.60		5.95		6.33	
March	7.59		7.21		4.61		6.07		6.36	
April	7.70		7.19		4.57		6.36		6.35	
May	7.98		7.31		4.63		6.22		6.46	
June	8.13		7.51		4.85		6.19		6.72	
6-Month Average	**7.64**	**NA**	**7.22**	**NA**	**4.65**	**NA**	**6.10**	**NA**	**6.42**	**NA**
1989 6-Month Average	**7.45**		**7.07**		**4.64**		**6.33**		**6.32**	
1988 6-Month Average	**7.26**		**6.96**		**4.53**		**6.15**		**6.17**	

[a]Prices are calculated by dividing revenue by sales. Revenue may not correspond to sales for a particular month because of utility billing and accounting procedures. This could result in uncharacteristic increases or decreases in the monthly prices. See Note 7 at end of section.

[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 through 1985 cover selected privately owned electric utilities in Class A whose electric operating revenue was $100 million or more during the previous year.

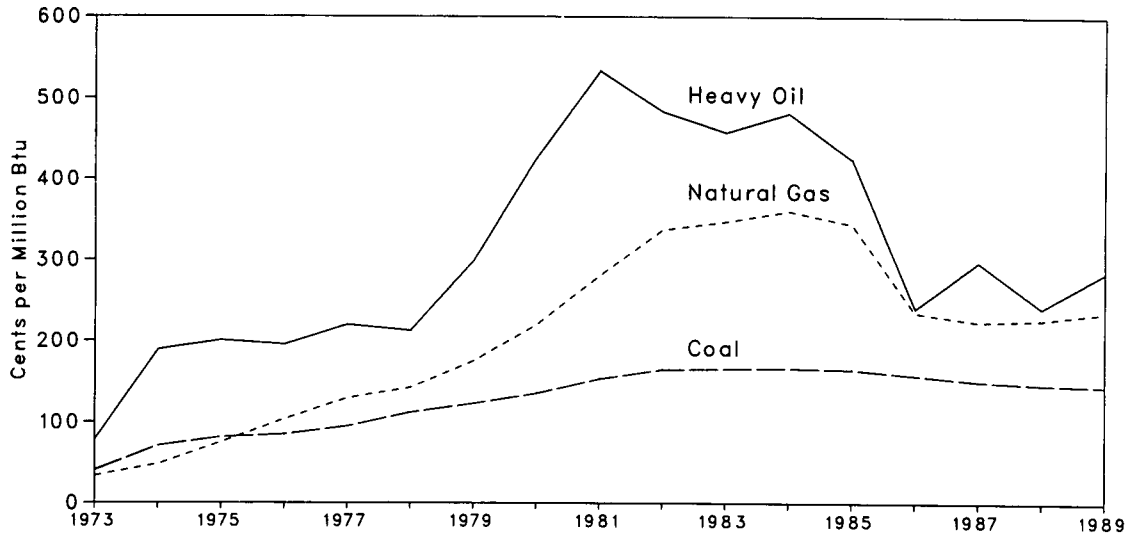
NA=Not available.

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

Sources: See end of section.

Figure 9.4 Cost of Fossil Fuels Delivered to Steam-Electric Utility Plants

Yearly



Monthly

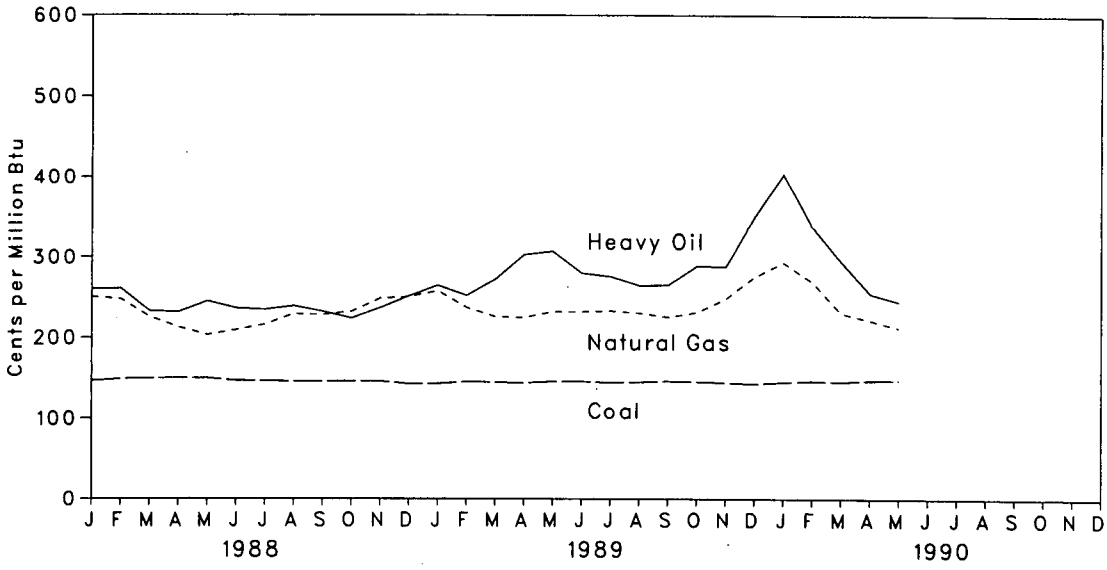


Table 9.10 Quantity and Cost of Fossil-Fuel Receipts at Steam-Electric Utility Plants[a]

	Coal		Petroleum				Gas[b]		All Fossil Fuels[c]
			Heavy Oil[c]		Total[c d]				
	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 January	58,626	146.5	19,517	260.0	20,190	264.1	151,366	250.4	167.1
February	56,871	148.7	19,473	260.5	19,943	263.2	153,286	247.7	169.0
March	59,021	149.3	17,567	232.7	18,171	236.9	185,781	225.4	165.2
April	56,136	149.8	12,418	231.6	12,761	235.8	179,872	212.8	162.7
May	57,920	149.5	11,905	245.0	12,378	250.5	214,688	203.3	162.6
June	59,337	146.3	14,642	236.2	15,238	241.1	251,104	209.2	162.2
July	58,989	146.0	18,599	234.5	19,156	237.7	294,679	216.0	165.7
August	68,696	145.3	23,898	239.0	24,703	242.5	303,867	229.1	167.0
September	63,103	145.3	19,659	232.0	20,162	234.9	211,068	228.0	162.9
October	63,574	145.6	23,220	223.6	23,694	225.8	162,176	232.2	161.6
November	62,015	145.6	23,484	236.8	23,989	239.3	133,900	248.3	163.4
December	63,487	142.3	25,853	251.2	26,537	254.3	120,934	250.3	162.1
Average	**727,775**	**146.6**	**230,234**	**240.5**	**236,924**	**243.9**	**2,362,721**	**226.3**	**164.3**
1989 January	62,443	142.7	25,855	264.1	26,516	267.4	124,572	257.5	164.8
February	56,634	145.0	20,489	251.9	21,179	256.0	150,950	237.2	164.6
March	63,218	144.4	22,427	271.8	23,199	276.0	180,668	225.7	165.0
April	62,076	143.6	19,831	303.0	20,292	305.6	207,401	224.6	166.7
May	64,796	145.3	20,569	307.2	21,211	310.1	226,859	232.0	169.7
June	61,272	145.5	18,677	279.9	19,354	283.5	234,010	232.1	168.5
July	55,429	144.1	19,778	275.6	20,364	278.6	285,117	233.3	172.2
August	70,147	144.7	19,701	264.2	20,563	268.9	282,481	230.6	166.6
September	64,539	146.0	14,967	264.8	15,609	270.6	239,696	225.4	164.9
October	66,578	145.4	15,779	289.1	16,495	295.6	230,629	231.6	166.1
November	65,570	144.2	16,862	288.0	17,602	294.5	162,361	248.1	164.9
December	60,515	142.8	22,734	350.2	24,040	359.0	147,763	275.4	176.7
Average	**753,217**	**144.5**	**237,668**	**284.6**	**246,422**	**289.3**	**2,472,506**	**235.5**	**167.5**
1990 January	67,637	145.0	26,481	403.8	27,416	409.5	126,832	293.8	182.6
February	62,280	146.4	19,190	338.2	19,683	340.7	113,436	269.3	171.0
March	67,518	145.5	15,028	295.2	15,499	299.3	165,802	231.0	162.9
April	63,888	147.1	13,521	254.7	13,978	260.5	180,912	221.9	161.9
May	64,958	147.5	15,003	244.8	15,551	250.8	220,164	212.4	162.2
5 Months	**326,281**	**146.3**	**89,223**	**321.8**	**92,127**	**326.6**	**807,147**	**239.1**	**168.2**
1989 5 Months	**309,167**	**144.2**	**109,171**	**278.6**	**112,395**	**282.0**	**890,449**	**233.4**	**166.2**
1988 5 Months	**288,573**	**148.8**	**80,880**	**247.6**	**83,444**	**251.6**	**884,993**	**225.6**	**165.3**

[a]Data through 1982 cover all steam-electric utility plants with a generator nameplate capacity of 25 megawatts or greater. From 1974 through 1982, data include peaking units. Beginning with 1983, data cover steam-electric utility plants with a generator nameplate capacity of 50 megawatts or greater.

[b]Includes supplemental gaseous fuels.

[c]Heavy fuel oil includes fuel oils No. 4, No. 5, and No. 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.

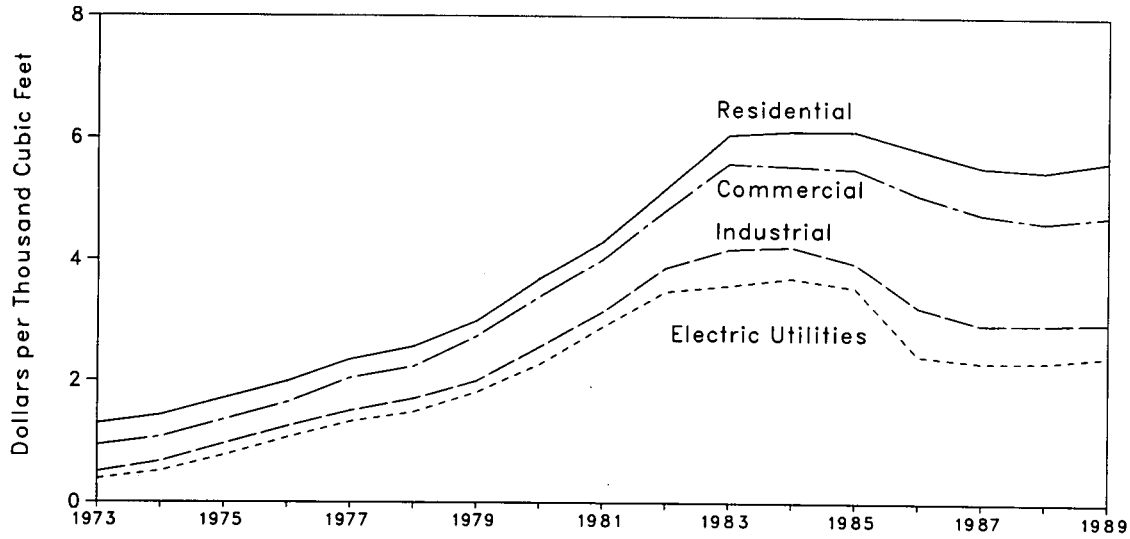
[d]Data for 1973 through 1982 do not include small quantities of rerefined motor oil, bunker oil, and liquefied petroleum gas.

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

Sources: See end of section.

Figure 9.5 Natural Gas Prices

Yearly



Monthly

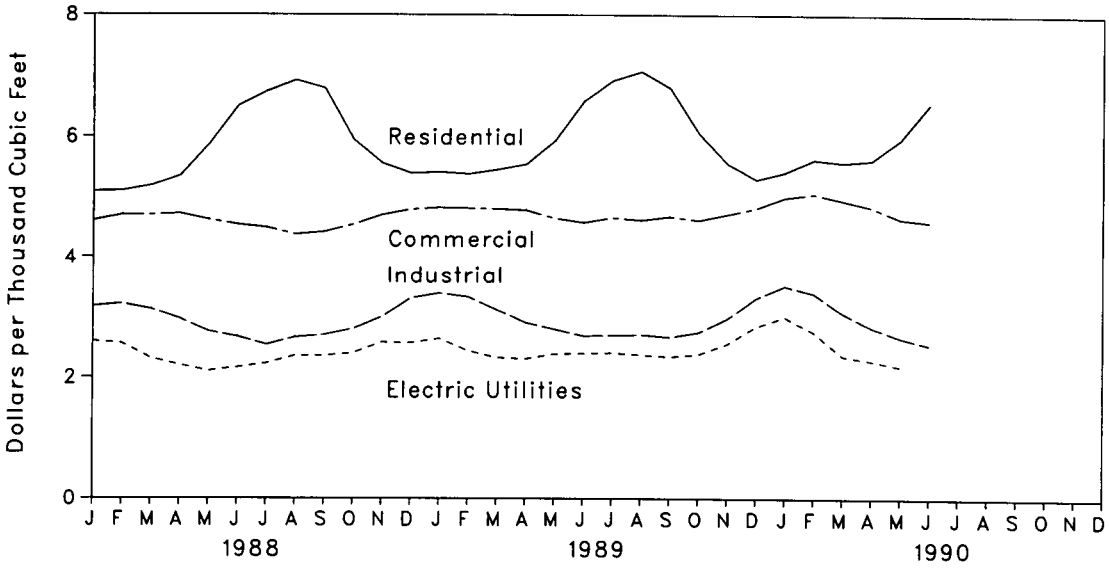


Table 9.11 Natural Gas Prices[a]
(Dollars per Thousand Cubic Feet)

	Wellhead	Major Interstate Pipeline Companies		City Gate	Delivered to Consumers[b] [c]				
		Imports	Purchases from Producers		Residential	Commercial	Industrial	Electric Utilities[d]	Average
1973 Average	0.22	NA	NA	NA	1.29	0.94	0.50	0.38	0.73
1974 Average	.30	NA	NA	NA	1.43	1.07	.67	.51	.89
1975 Average	.44	NA	NA	NA	1.71	1.35	.96	.77	1.19
1976 Average	.58	NA	NA	NA	1.98	1.64	1.24	1.06	1.47
1977 Average	.79	NA	NA	NA	2.35	2.04	1.50	1.32	1.78
1978 Average	.91	2.21	0.83	NA	2.56	2.23	1.70	1.48	1.98
1979 Average	1.18	2.60	1.22	NA	2.98	2.73	1.99	1.81	2.34
1980 Average	1.59	4.42	1.63	NA	3.68	3.39	2.56	2.27	2.91
1981 Average	1.98	4.84	2.15	NA	4.29	4.00	3.14	2.89	3.51
1982 Average	2.46	4.94	2.72	NA	5.17	4.82	3.87	3.48	4.32
1983 Average	2.59	4.51	2.93	NA	6.06	5.59	4.18	3.58	4.82
1984 Average	2.66	4.08	2.91	3.95	6.12	5.55	4.22	3.70	4.85
1985 Average	2.51	3.19	2.85	3.75	6.12	5.50	3.95	3.55	4.72
1986 Average	1.94	2.53	2.39	3.22	5.83	5.08	3.23	2.43	4.13
1987 Average	1.67	2.17	2.10	2.87	5.54	4.77	2.94	2.32	4.05
1988 January	1.96	1.64	2.04	R 2.91	5.08	R 4.60	3.18	2.60	4.41
February	1.84	2.03	2.22	2.95	R 5.09	R 4.69	3.22	2.56	4.39
March	1.70	2.09	2.03	2.87	5.18	4.69	R 3.13	2.32	R 4.25
April	1.59	2.01	2.12	2.79	5.35	R 4.71	2.97	2.20	4.10
May	1.52	2.02	2.17	2.75	R 5.87	4.61	2.76	2.10	3.84
June	1.53	1.98	2.05	R 2.87	6.50	R 4.53	2.67	2.16	3.54
July	1.56	2.34	1.94	2.87	6.74	R 4.48	R 2.54	2.23	3.36
August	1.62	1.88	2.09	R 2.92	R 6.92	R 4.37	R 2.66	2.36	3.39
September	1.53	2.00	2.13	3.05	6.79	4.41	2.70	2.36	R 3.61
October	1.68	1.94	2.31	2.92	5.95	R 4.53	2.80	2.40	R 3.95
November	1.76	1.98	2.19	2.98	5.56	4.69	3.00	2.58	4.31
December	1.89	2.14	2.25	3.08	5.39	R 4.78	3.31	2.57	R 4.56
Average	**1.69**	**2.00**	**2.13**	**R 2.92**	**5.47**	**4.63**	**2.95**	**R 2.33**	**4.09**
1989 January	R 1.99	1.77	2.35	R 3.17	5.41	R 4.81	R 3.39	2.64	R 4.67
February	R 1.81	2.21	2.16	3.10	5.38	R 4.80	R 3.33	2.44	R 4.60
March	R 1.69	1.99	2.17	2.89	R 5.45	R 4.79	R 3.12	R 2.33	R 4.46
April	R 1.56	2.01	2.22	2.83	R 5.54	R 4.77	R 2.91	2.31	R 4.18
May	R 1.61	2.02	2.11	2.94	R 5.93	R 4.64	R 2.80	2.39	R 3.94
June	1.65	2.04	2.04	2.98	R 6.58	R 4.57	R 2.69	2.40	R 3.72
July	R 1.65	1.88	1.99	3.08	R 6.92	R 4.65	R 2.70	2.40	R 3.59
August	R 1.61	2.24	2.05	3.04	R 7.07	R 4.61	R 2.71	2.38	R 3.57
September	R 1.55	2.02	2.07	2.99	R 6.80	R 4.67	R 2.67	2.33	R 3.67
October	R 1.58	2.17	2.04	2.84	6.06	R 4.61	R 2.75	2.39	R 3.86
November	R 1.66	2.13	2.23	2.98	R 5.56	R 4.71	R 2.98	2.56	R 4.30
December	R 1.92	2.08	2.39	3.10	5.30	R 4.81	R 3.32	2.85	R 4.61
Average	**R 1.69**	**2.04**	**2.17**	**3.01**	**R 5.64**	**R 4.74**	**R 2.97**	**2.43**	**R 4.22**
1990 January	2.23	2.04	2.42	3.25	5.42	4.99	R 3.52	3.01	R 4.77
February	1.87	2.25	2.18	3.10	5.63	5.05	R 3.40	2.76	R 4.82
March	R 1.58	1.99	1.94	2.95	5.58	4.94	R 3.08	2.37	R 4.50
April	R 1.56	2.00	2.17	2.84	5.62	R 4.83	R 2.84	2.29	R 4.23
May	1.53	2.08	1.98	2.81	5.97	R 4.64	R 2.67	2.19	3.84
June	NA	1.91	2.18	3.00	6.55	4.59	2.55	NA	NA
6-Month Average	**NA**	**1.75**	**1.84**	**3.02**	**5.64**	**4.90**	**3.06**	**NA**	**NA**
1989 6-Month Average	**NA**	**1.99**	**2.15**	**3.01**	**5.59**	**4.76**	**3.02**	**NA**	**NA**
1988 6-Month Average	**NA**	**2.02**	**2.08**	**2.87**	**5.33**	**4.64**	**2.96**	**NA**	**NA**

[a]Prices shown on this page are intended to include all taxes. See Note 9 at end of section.

[b]Includes supplemental gaseous fuels.

[c]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 4.3. Additional information is available in the Energy Information Administration *Natural Gas Monthly,* Appendix C.

[d]Data through December 1982 cover all steam-electric utility plants with a capacity of 25 megawatts or greater. From 1974 through 1982, data include peaking units. Beginning with January 1983, data cover steam-electric utility plants with a capacity of 50 megawatts or greater.

R=Revised data. NA=Not available.

Notes: • Geographic coverage is the 50 States and the District of Columbia. • Data through 1988 are final. Subsequent data are preliminary.

Sources: See end of section.

Price Notes and Sources

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, the "Refiners' Monthly Cost Report." These prices were previously published from data collected on Form ERA-49, the "Domestic Crude Oil Entitlements Program Refiners Monthly Report." The 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 in 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, the "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 the Form FEA-P110-M-1 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 through 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 and Gas Plant Operator Sales 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, as well as 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 annual data series have been generated for 1978-1980, and monthly series for 1981 and 1982, by estimating the prices that would have been published had the Form EIA-782 survey and system been in operation at that time. This form of estimation was performed after detailed adjustment 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 200 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 using cut-off rather than stratification techniques.

8. Heavy fuel oil prices include fuel oils No. 4, No. 5, and No. 6, and topped crude fuel oil prices. The weighted average for all fossil fuels includes both residual fuel oil prices and light oil (No. 2 fuel oil, kerosene, and jet fuel) prices.

9. Natural gas prices are intended to include all taxes. Instructions on the data collection forms specifically direct that all U.S., 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.

Sources

Petroleum and Petroleum Products:

- Domestic First Purchase Prices--1973: Bureau of Mines, *Minerals Yearbook,* "Crude Oil and Petroleum Products" chapter. 1974 through January 1976: Federal Energy Administration (FEA), Form FEA-90, "Crude Petroleum Production Monthly Report"; February 1976 through September 1979: FEA, Form FEA-P124, "Domestic Crude Oil Purchaser's Report"; October 1979 through 1982: Economic Regulatory Administration, Form ERA-182, "Domestic Crude Oil First Purchase Report"; 1983 forward: Energy Information Administration (EIA), Form EIA-182, "Domestic Crude Oil First Purchase Report."
- F.O.B. and Landed Costs of Crude Oil Imports--October 1973 through September 1977, FEA, Form FEA-F701-M-0, "Transfer Pricing Report"; October 1977 through January 1979: EIA, Form FEA-F701-M-0, "Transfer Pricing Report"; February 1979 through September 1982: EIA, Form ERA-51, "Transfer Pricing Report"; October 1982 through June 1984: EIA, Form EP-51, "Monthly Foreign Crude Oil Transaction Report"; July 1984 forward: EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report."
- Refiner Acquisition Costs--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 through January 1976: FEA, Form FEO-96, "Monthly Cost Allocation Report"; February 1976 through September 1977: FEA, Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report"; October 1977 through June 1978: EIA, Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report"; July 1978 through 1980: EIA, Form ERA-49, "Domestic Crude Oil Entitlements Program Refiners Monthly Report"; 1981 forward: EIA, Form EIA-14, "Refiners' Monthly Cost Report."
- U.S. City Average Retail Motor Gasoline Prices--U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Prices: Energy,* monthly.
- No. 2 Distillate to Residences--1978 through 1982: EIA estimates using data from Form FEA-P112-M-1/EIA-9, "No. 2 Heating Oil Supply/Price Monitoring Report" and EIA, Form EIA-9A, "No. 2 Distillate Price Monitoring Report." See Note 6 on the previous page for additional information on the estimated data. 1983 forward: EIA, Form EIA-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report" and EIA, Form EIA-782B, "Resellers/Retailers' Monthly Petroleum Product Sales Report."
- All Other Petroleum Products--1978 through 1982: EIA estimates using data from Form FEA-302-M-1/EIA-460, "Petroleum Industry Monthly Report for Product Prices." See Note 6 on the previous page for additional information on the estimated data. 1983 forward: EIA, Form EIA-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report."

Natural Gas:

- Average Wellhead Price--Annual data through 1982: EIA, *Natural Gas Annual 1973* through *1982.* Annual data for 1983 through 1987: EIA, *Natural Gas Annual,* EIA, Form EIA-627, "Annual Quantity and Value of Natural Gas Report" and the U.S. Department of the Interior, Minerals Management Service. Monthly data from January 1988 forward and the 1988 average are estimated primarily on the basis of values reported by State agencies in Mississippi, New Mexico, Oklahoma, and Texas. These States together account for almost 50 percent of total U.S. marketed production. The monthly and annual estimates are adjusted to conform with final reported annual data.
- Imports and Purchases from Producers by Major Interstate Pipeline Companies--Form FERC-11, "Interstate Pipeline Company Purchases, and Industrial Sales."
- City Gate--October 1983 forward: EIA, Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers."
- Residential, Commercial, Industrial and Consumer Average--Annual data from EIA, Form EIA-176 "Annual Report of Natural and Supplemental Gas Supply and Disposition." Monthly data from EIA, Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers." Monthly data are adjusted to conform to final reported annual data.
- Electric Utilities Average--EIA, Form FPC-423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Electricity:

- Cost of Fossil Fuels--EIA, Form FPC-423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."
- Retail Prices-- *Monthly Series* - 1973 through September 1977: Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income"; October 1977 through February 1980: EIA, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income"; March 1980 through December 1982: EIA, Form FERC-5, "Electric Utility Company Monthly Statement"; January 1983 through December 1986: EIA, Form EIA-826, "Electric Utility Company Monthly Statement"; January 1987 forward: EIA, Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions." *Annual Series* - 1984 forward: EIA, Form EIA-861, "Annual Electric Utility Report."

Section 10. International

Crude Oil Production. World crude oil production during June 1990 was 60 million barrels per day, down 0.6 million barrels per day from the level in the previous month. World crude oil production in the first half of 1990 averaged 61 million barrels per day, up 4 percent from the first half 1989 level.

Organization of Petroleum Exporting Countries (OPEC) production during June 1990 averaged 24 million barrels per day, down 0.2 million barrels per day from the level during the previous month. OPEC production in the first half of 1990 averaged 24 million barrels per day, a 12-percent increase from the first half 1989 average. Production by the Arab members of OPEC during June 1990 averaged 15 million barrels per day, down 0.2 million barrels per day from the May 1990 level. Production by the Arab members of OPEC during the first half of 1990 averaged 15 million barrels per day, 15 percent above the first half 1989 level. During June 1990, production increased in Iraq by 100 thousand barrels per day and in Saudi Arabia by 5 thousand barrels per day. Production decreased in Kuwait by 195 thousand barrels per day and in the United Arab Emirates by 60 thousand barrels per day. Production remained unchanged in Algeria, Libya, and Qatar. Among the non-Arab members of OPEC, production during June 1990 decreased in Iran by 100 thousand barrels per day. Production remained unchanged in Indonesia, Nigeria, and Venezuela from the previous month.

Among the non-OPEC nations, production during June 1990 increased in Canada by 45 thousand barrels per day and in China by 10 thousand barrels per day. Production decreased in the United States by 183 thousand barrels per day, in the United Kingdom by 55 thousand barrels per day, and in Mexico by 20 thousand barrels per day. Producion remained unchanged in the U.S.S.R. from the previous month.

Petroleum Consumption. In March 1990, consumption in all Organization for Economic Cooperation and Development (OECD) countries was 38.2 million barrels per day, 2 percent lower than the level in March 1989. Consumption was higher in both Canada and Japan by 1 percent, but lower in the United States by 5 percent, compared with levels 1 year earlier. In March 1990, consumption in all European OECD countries combined was 12.7 million barrels per day, 1 percent lower than in the previous March. Consumption was higher in the United Kingdom by 7 percent and higher in West Germany by 3 percent, but lower in Italy by 5 percent and lower in France by 1 percent, compared with levels 1 year earlier.

Petroleum Stocks. For all OECD countries, petroleum stocks at the end of March 1990 totaled 3.5 billion barrels, 4 percent higher than the ending stock level in March 1989. Stocks were higher in Canada by 8 percent and higher in both Japan and in the United States by 5 percent, compared with levels 1 year earlier. Stock levels in all European OECD countries as of March 1990 were 1.1 billion barrels, higher by 4 percent than in March 1989. Stocks were higher in France by 11 percent, higher in Italy by 10 percent, and higher in the United Kingdom by 6 percent, but lower in West Germany by 1 percent, compared with levels 1 year earlier.

Nuclear Electricity Generation. Based on *Nucleonics Week* information for June 1990, the 20 reporting countries with nuclear capacity generated 131 gross terawatthours (billion kilowatthours) of nuclear-generated electricity, 4 percent more than in June 1989.

On June 8, 1990, France's Golfech 1 unit became commercially operable.

As of June 30, 1990, there were 353 operable nuclear operating units in the 20 reporting countries. The units had a collective gross generating capacity of 293.7 gigawatts (million kilowatts). The 112 U.S. units accounted for 107.0 gross gigawatts, 36.4 percent of the total reported nuclear generating capacity.

Table 10.1a World Crude Oil[a] Production
(Thousand Barrels per Day)

	Algeria	Iraq	Kuwait[b]	Libya	Qatar	Saudi Arabia[b]	United Arab Emirates	Arab OPEC[c]	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**	**15,986**	**1,307**	**5,350**	**1,783**	**2,346**
1976 Average	**1,075**	**2,415**	**2,145**	**1,933**	**497**	**8,577**	**1,936**	**18,578**	**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**	**18,527**	**1,635**	**5,242**	**1,897**	**2,165**
1979 Average	**1,224**	**3,477**	**2,500**	**2,092**	**508**	**9,532**	**1,831**	**21,164**	**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 January	990	2,550	1,373	1,030	365	4,320	1,205	11,834	1,265	2,100	1,360	1,853
February	1,030	2,600	1,239	1,030	430	4,493	1,055	11,878	1,265	2,000	1,410	1,853
March	1,050	2,650	1,244	1,030	320	4,504	1,255	12,054	1,315	2,100	1,360	1,853
April	1,010	2,650	1,342	975	320	4,647	1,425	12,370	1,365	2,200	1,415	1,853
May	1,040	2,600	1,249	1,030	320	4,662	1,405	12,307	1,365	2,200	1,465	1,853
June	1,040	2,700	1,456	1,030	325	4,764	1,405	12,721	1,365	2,100	1,465	1,853
July	1,040	2,600	1,420	1,030	325	4,825	1,430	12,671	1,365	2,300	1,410	1,853
August	1,040	2,600	1,621	1,030	325	5,382	1,905	13,904	1,365	2,300	1,460	1,853
September	1,040	2,700	1,714	1,080	325	5,525	1,965	14,350	1,265	2,400	1,515	1,928
October	1,040	2,700	1,704	1,130	375	6,587	2,000	15,537	1,365	2,400	1,515	1,928
November	1,080	2,700	1,807	1,130	375	6,791	2,100	15,984	1,265	2,500	1,465	2,078
December	1,080	2,700	1,725	1,130	375	6,919	2,100	16,030	1,365	2,500	1,560	2,078
Average	**1,040**	**2,646**	**1,492**	**1,055**	**348**	**5,288**	**1,606**	**13,475**	**1,328**	**2,259**	**1,450**	**1,903**
1989 January	1,090	2,650	1,250	1,050	400	5,000	1,735	13,175	1,365	2,800	1,450	1,840
February	1,090	2,650	1,350	1,050	420	4,750	1,650	12,960	1,365	2,850	1,450	1,840
March	1,090	2,650	1,390	1,050	340	4,590	1,675	12,785	1,365	3,200	1,600	1,840
April	1,090	2,750	1,695	1,100	330	4,995	1,705	13,665	1,365	2,900	1,650	1,840
May	1,090	2,750	2,005	1,100	410	5,105	1,705	14,165	1,365	2,500	1,650	1,840
June	1,090	2,700	2,105	1,100	420	4,905	1,975	14,295	1,365	2,800	1,750	1,890
July	1,110	2,850	1,905	1,100	400	5,005	1,920	14,290	1,350	2,800	1,850	1,850
August	1,110	3,000	1,905	1,100	400	5,105	1,960	14,580	1,400	3,000	1,750	1,900
September	1,110	2,900	1,905	1,100	400	5,305	2,155	14,875	1,350	2,850	1,750	1,900
October	1,110	3,000	1,905	1,100	400	5,405	2,255	15,175	1,400	2,950	1,650	1,950
November	1,110	2,950	2,095	1,150	380	5,795	2,355	15,835	1,400	2,800	1,850	1,950
December	1,110	3,000	2,090	1,150	395	5,790	2,405	15,940	1,400	2,900	1,850	1,950
Average	**1,100**	**2,822**	**1,802**	**1,096**	**391**	**5,148**	**1,959**	**14,319**	**1,374**	**2,863**	**1,689**	**1,883**
1990 January	1,160	2,900	1,995	1,200	370	5,595	2,055	15,275	1,250	2,700	1,750	1,990
February	1,160	2,900	1,995	1,350	380	5,695	2,030	15,510	1,250	3,000	1,750	2,140
March	1,160	2,900	2,175	1,300	400	5,825	2,055	15,815	1,350	3,000	1,750	2,040
April	1,160	2,950	1,950	1,250	400	5,950	2,100	15,760	1,400	2,900	1,850	2,040
May	1,160	3,100	1,950	1,250	365	5,450	2,110	15,385	1,350	3,200	1,750	2,040
June	1,160	3,200	1,755	1,250	365	5,455	2,050	15,235	1,350	3,100	1,750	2,040
6-Mo. Avg.	**1,160**	**2,992**	**1,971**	**1,265**	**380**	**5,661**	**2,067**	**15,496**	**1,326**	**2,983**	**1,767**	**2,047**

[a]Includes lease condensate, excludes natural gas plant liquids.

[b]Includes about one-half of the production in the Kuwait-Saudi Arabia Neutral Zone. In June 1990, total production in that region amounted to approximately 310 thousand barrels per day.

[c]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" production.

Footnotes continued on following page.

Table 10.1b World Crude Oil[a] Production (Continued)
(Thousand Barrels per Day)

	Total OPEC[d]	Persian Gulf Nations[e]	Canada	Mexico	United Kingdom	United States	China	USSR	Other[f]	Market Economies[g]	World
1973 Average	**30,988**	**20,668**	**1,798**	**465**	**2**	**9,208**	**1,090**	**8,329**	**3,804**	**45,805**	**55,684**
1974 Average	**30,729**	**21,282**	**1,551**	**571**	**2**	**8,774**	**1,315**	**8,856**	**3,862**	**45,021**	**55,660**
1975 Average	**27,154**	**18,934**	**1,430**	**705**	**12**	**8,375**	**1,490**	**9,472**	**4,139**	**41,338**	**52,777**
1976 Average	**30,737**	**21,514**	**1,314**	**831**	**245**	**8,132**	**1,670**	**9,985**	**4,355**	**45,132**	**57,269**
1977 Average	**31,299**	**21,725**	**1,321**	**981**	**768**	**8,245**	**1,874**	**10,485**	**4,616**	**46,745**	**59,589**
1978 Average	**29,875**	**20,606**	**1,316**	**1,209**	**1,082**	**8,707**	**2,082**	**10,950**	**4,782**	**46,497**	**60,003**
1979 Average	**30,998**	**21,066**	**1,500**	**1,461**	**1,568**	**8,552**	**2,122**	**11,187**	**5,089**	**48,725**	**62,477**
1980 Average	**26,985**	**17,961**	**1,435**	**1,936**	**1,622**	**8,597**	**2,114**	**11,460**	**5,204**	**45,355**	**59,353**
1981 Average	**22,843**	**15,245**	**1,285**	**2,313**	**1,811**	**8,572**	**2,012**	**11,552**	**5,390**	**41,784**	**55,778**
1982 Average	**19,145**	**12,156**	**1,271**	**2,748**	**2,065**	**8,649**	**2,045**	**11,615**	**5,646**	**39,069**	**53,184**
1983 Average	**17,891**	**11,081**	**1,356**	**2,689**	**2,291**	**8,688**	**2,120**	**11,684**	**6,248**	**38,703**	**52,967**
1984 Average	**17,857**	**10,784**	**1,438**	**2,780**	**2,480**	**8,879**	**2,296**	**11,576**	**6,897**	**39,893**	**54,203**
1985 Average	**16,634**	**9,630**	**1,471**	**2,745**	**2,530**	**8,971**	**2,505**	**11,250**	**7,540**	**39,463**	**53,646**
1986 Average	**18,734**	**11,696**	**1,474**	**2,435**	**2,539**	**8,680**	**2,620**	**11,540**	**7,850**	**41,282**	**55,872**
1987 Average	**18,846**	**12,103**	**1,535**	**2,548**	**2,406**	**8,349**	**2,690**	**11,690**	**8,242**	**41,507**	**56,306**
1988 January	18,887	11,956	1,528	2,566	2,524	8,250	2,710	11,705	8,698	42,043	56,868
February	18,891	11,860	1,608	2,536	2,519	8,374	2,710	11,715	8,593	42,111	56,946
March	19,167	12,116	1,633	2,521	2,519	8,374	2,710	11,655	8,731	42,535	57,310
April	19,688	12,628	1,573	2,496	2,509	8,288	2,710	11,675	8,697	42,841	57,636
May	19,675	12,480	1,602	2,531	2,367	8,229	2,690	11,675	8,579	42,573	57,348
June	19,989	12,794	1,600	2,536	2,003	8,170	2,690	11,675	8,352	42,240	57,015
July	20,084	12,944	1,643	2,536	2,087	8,040	2,690	11,675	8,689	42,664	57,444
August	21,367	14,177	1,648	2,536	2,052	8,079	2,695	11,675	8,582	43,849	58,634
September	21,943	14,673	1,600	2,291	2,077	7,895	2,765	11,675	8,743	44,134	58,989
October	23,230	15,812	1,631	2,536	2,033	8,023	2,790	11,675	8,789	45,827	60,707
November	23,777	16,318	1,648	2,516	2,057	8,023	2,790	11,675	8,693	46,299	61,179
December	24,018	16,364	1,609	2,536	2,047	7,942	2,790	11,675	8,813	46,550	61,430
Average	**20,899**	**13,682**	**1,610**	**2,512**	**2,232**	**8,140**	**2,728**	**11,679**	**8,664**	**43,645**	**58,464**
1989 January	21,115	13,878	1,580	2,525	1,814	7,937	2,790	11,535	9,069	43,632	58,365
February	20,920	13,713	1,570	2,495	1,764	7,788	2,790	11,535	9,017	43,146	57,879
March	21,250	13,888	1,540	2,535	1,809	7,575	2,790	11,535	9,236	43,537	58,270
April	21,900	14,418	1,555	2,520	1,709	7,772	2,690	11,420	9,134	44,172	58,700
May	21,980	14,518	1,560	2,520	1,554	7,816	2,700	11,420	9,072	44,104	58,622
June	22,590	14,948	1,600	2,520	1,365	7,624	2,700	11,365	8,920	44,221	58,684
July	22,630	14,923	1,535	2,515	1,752	7,444	2,740	11,365	9,210	44,688	59,191
August	23,160	15,410	1,540	2,515	1,839	7,544	2,770	11,365	9,347	45,542	60,080
September	23,255	15,558	1,580	2,450	1,949	7,548	2,805	11,255	9,340	45,719	60,182
October	23,705	15,958	1,525	2,510	2,044	7,453	2,830	11,180	9,507	46,336	60,754
November	24,405	16,418	1,595	2,510	1,964	7,536	2,770	11,180	9,557	47,159	61,517
December	24,590	16,623	1,545	2,470	1,874	7,337	2,745	11,180	9,429	46,837	61,170
Average	**22,634**	**15,028**	**1,560**	**2,507**	**1,787**	**7,613**	**2,760**	**11,360**	**9,238**	**44,934**	**59,460**
1990 January	23,505	15,658	1,460	2,515	1,924	E 7,522	2,800	11,215	9,546	46,059	60,487
February	24,200	16,041	1,480	2,515	1,824	E 7,465	2,780	11,215	9,623	46,694	61,102
March	24,515	16,396	1,585	2,505	1,949	E 7,394	2,750	11,050	9,709	47,244	61,457
April	24,510	16,291	R 1,580	2,505	1,929	E 7,331	2,750	11,050	R 9,733	R 47,170	R 61,388
May	24,255	16,216	1,510	2,480	1,899	E 7,259	2,750	10,950	R 9,771	R 46,751	R 60,874
June	24,025	15,966	1,555	2,460	1,844	E 7,076	2,760	10,950	9,606	46,143	60,276
6-Mo. Avg.	**24,167**	**16,095**	**1,529**	**2,497**	**1,896**	**E 7,341**	**2,765**	**11,070**	**9,665**	**46,677**	**60,929**

Footnotes continued.

[d]"Total OPEC" consists of Algeria, Ecuador, 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" production.

[e]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" production.

[f]Other is a calculated total derived from the difference between World and the sum of production in Total OPEC, Canada, Mexico, the United Kingdom, the United States, China and the USSR.

[g]World excluding Albania, Bulgaria, Cambodia, China, Cuba, Czechoslovakia, East Germany, Hungary, Laos, Mongolia, North Korea, Poland, Romania, U.S.S.R., Vietnam, and Yugoslavia.

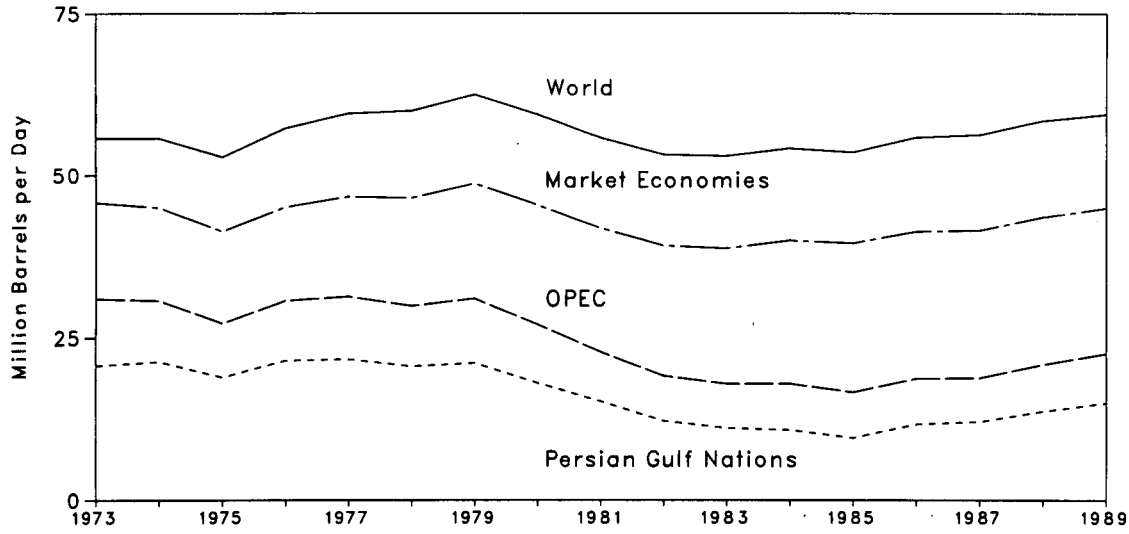
R=Revised data. E=Estimate.

Note: • U.S. geographic coverage is the 50 States and the District of Columbia. • 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: • **United States** — 1973 through 1988: Energy Information Administration (EIA), *Petroleum Supply Annual.* 1989 forward: EIA, *Petroleum Supply Monthly.* •**Other Countries** — 1973 through 1988 annual data: EIA, *International Energy Annual.* 1988 annual data: Average of monthly data. Monthly data: *Petroleum Intelligence Weekly,* the *Oil and Gas Journal,* and other industry sources. • **World** — 1973 through 1988: EIA, *International Energy Annual.* 1989 annual data: average of monthly data. Monthly data: Sum of all countries' monthly data.

Figure 10.1 World Crude Oil Production

Yearly



Monthly

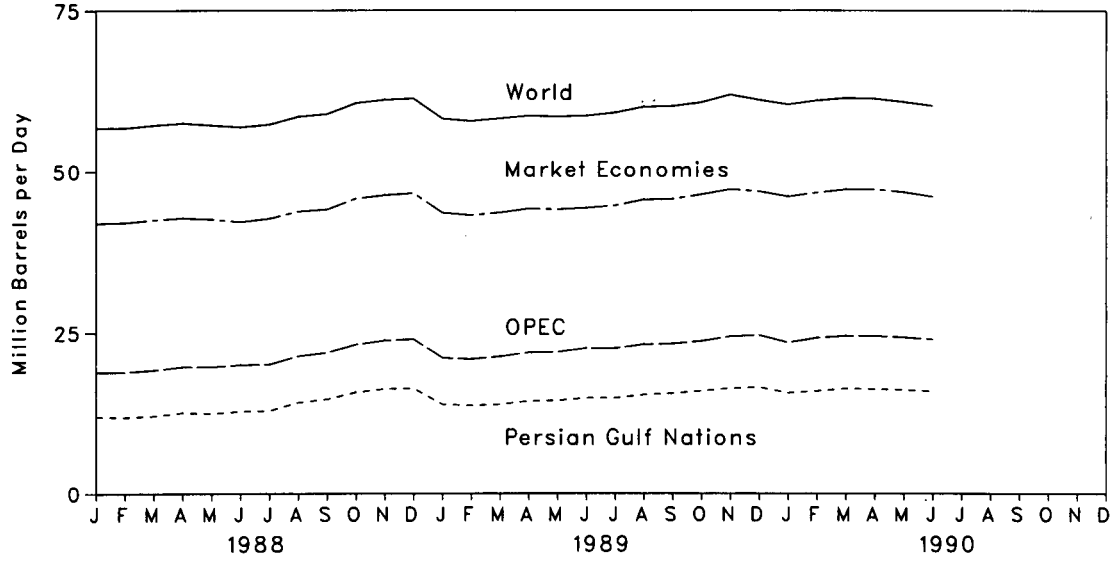
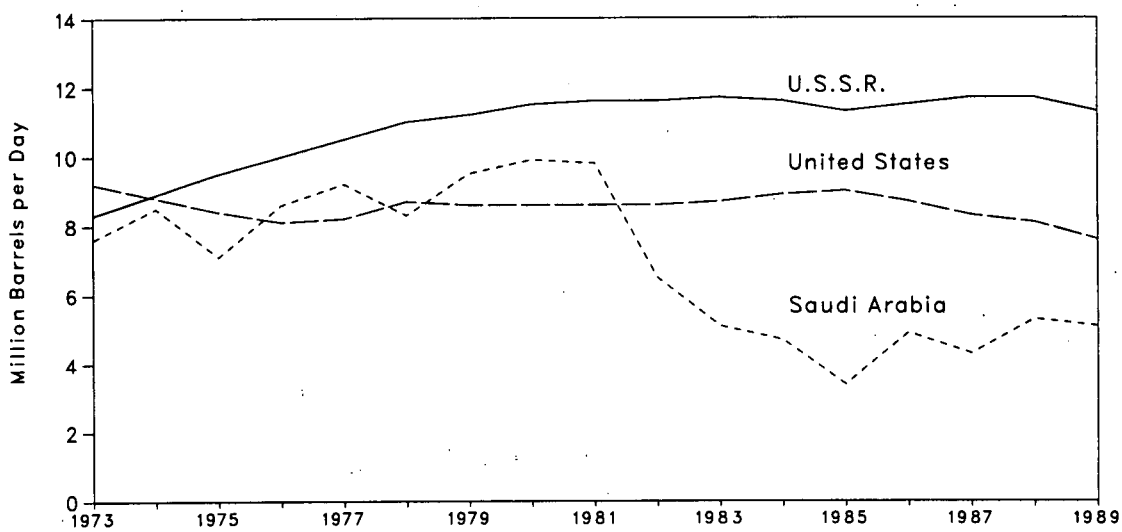


Figure 10.2 Crude Oil Production in Selected Countries

Yearly



Monthly

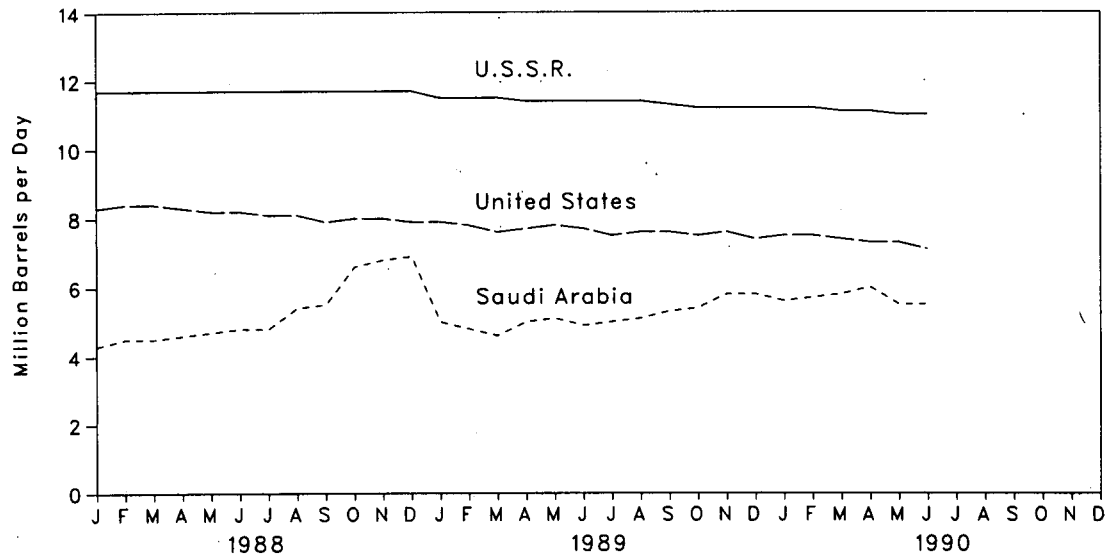


Figure 10.3 Petroleum Consumption in OECD Countries

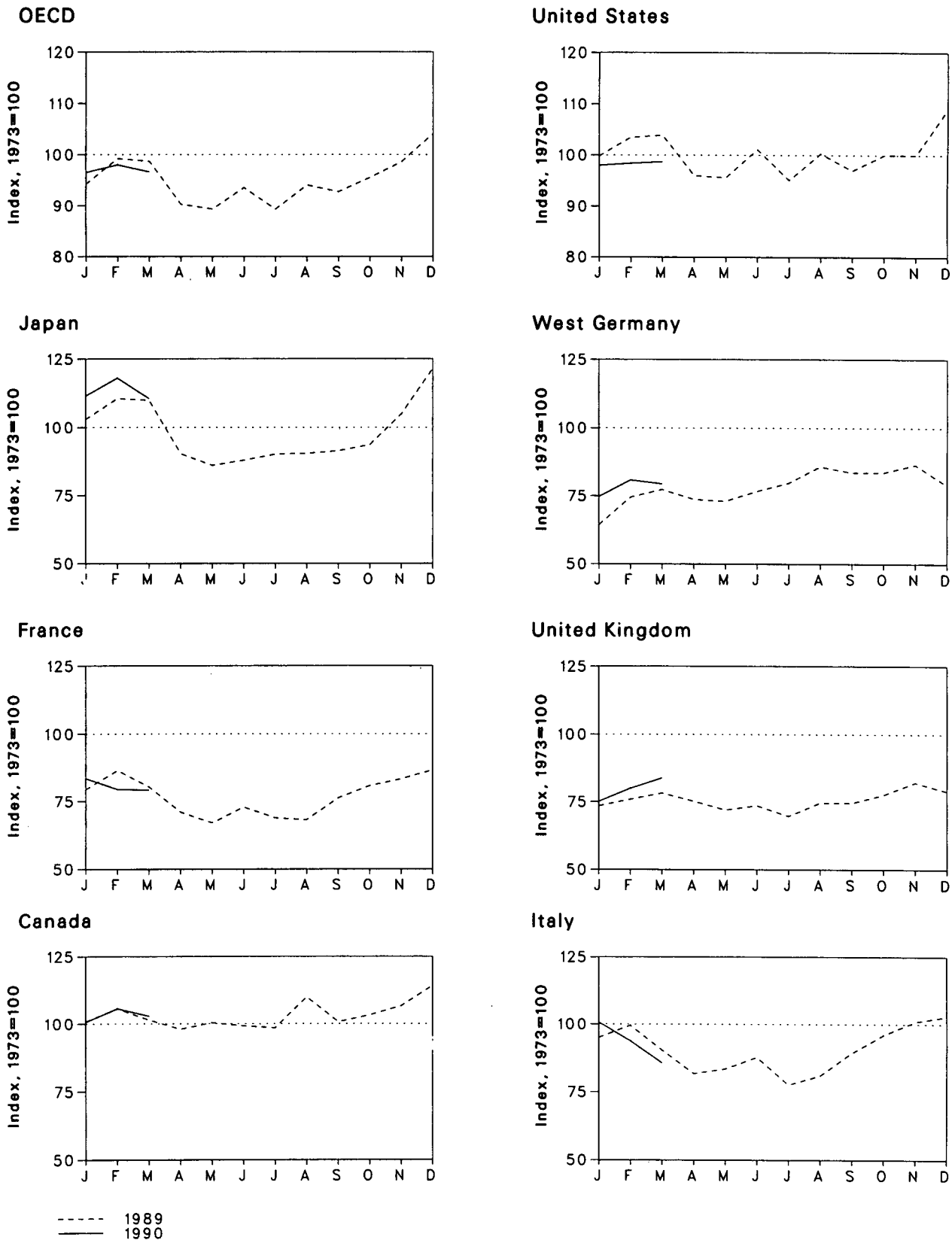


Table 10.2 Petroleum Consumption in OECD Countries[a]
(Thousand Barrels per Day)

	Canada	France	Italy	Japan	United Kingdom	United States	West Germany	OECD Europe[b]	Other OECD[c]	OECD[a]
1973 Average	**1,707**	**2,422**	**2,147**	**5,071**	**2,301**	**17,308**	**2,915**	**14,521**	**1,006**	**39,612**
1974 Average	**1,740**	**2,260**	**2,090**	**4,960**	**2,138**	**16,653**	**2,612**	**13,708**	**1,056**	**38,117**
1975 Average	**1,718**	**2,136**	**1,940**	**4,502**	**1,872**	**16,322**	**2,515**	**13,059**	**999**	**36,600**
1976 Average	**1,751**	**2,280**	**1,991**	**4,771**	**1,856**	**17,461**	**2,708**	**13,813**	**1,068**	**38,864**
1977 Average	**1,779**	**2,235**	**1,907**	**5,231**	**1,880**	**18,431**	**2,837**	**13,795**	**1,123**	**40,359**
1978 Average	**1,823**	**2,169**	**1,948**	**5,142**	**1,850**	**18,847**	**3,048**	**13,963**	**1,117**	**40,892**
1979 Average	**1,893**	**2,385**	**2,013**	**5,480**	**1,930**	**18,513**	**3,073**	**14,670**	**1,090**	**41,646**
1980 Average	**1,873**	**2,256**	**1,934**	**4,960**	**1,725**	**17,056**	**2,707**	**13,634**	**1,072**	**38,595**
1981 Average	**1,768**	**2,023**	**1,874**	**4,848**	**1,590**	**16,058**	**2,449**	**12,515**	**1,080**	**36,269**
1982 Average	**1,578**	**1,880**	**1,781**	**4,582**	**1,590**	**15,296**	**2,372**	**12,053**	**1,008**	**34,517**
1983 Average	**1,448**	**1,835**	**1,750**	**4,395**	**1,531**	**15,231**	**2,324**	**11,765**	**954**	**33,793**
1984 Average	**1,472**	**1,754**	**1,646**	**4,576**	**1,849**	**15,726**	**2,322**	**11,736**	**989**	**34,500**
1985 Average	**1,504**	**1,775**	**1,717**	**4,384**	**1,634**	**15,726**	**2,338**	**11,681**	**976**	**34,271**
1986 Average	**1,506**	**1,772**	**1,738**	**4,439**	**1,649**	**16,281**	**2,498**	**12,102**	**951**	**35,279**
1987 Average	**1,548**	**1,789**	**1,855**	**4,484**	**1,603**	**16,665**	**2,424**	**12,255**	**958**	**35,911**
1988 January	1,596	1,697	1,811	4,874	1,580	17,403	2,135	11,402	826	36,101
February	1,720	1,978	1,926	5,696	1,722	17,760	2,360	12,628	908	38,712
March	1,678	1,968	1,834	5,249	1,797	17,612	2,546	13,129	1,038	38,707
April	1,503	1,703	1,643	4,469	1,642	16,561	2,240	11,617	906	35,056
May	1,637	1,560	1,663	3,964	1,591	16,197	2,256	11,246	969	34,013
June	1,674	1,726	1,813	4,164	1,725	17,059	2,580	12,447	1,000	36,344
July	1,624	1,677	1,787	4,228	1,584	16,695	2,528	11,943	951	35,442
August	1,765	1,577	1,631	4,447	1,649	17,482	2,352	11,781	991	36,466
September	1,719	1,770	1,870	4,293	1,743	17,072	2,519	12,560	939	36,583
October	1,708	1,772	1,892	4,374	1,720	17,580	2,384	12,397	938	36,998
November	1,834	2,076	2,113	5,280	1,859	17,620	2,549	13,724	922	39,380
December	1,853	2,039	2,059	6,017	1,762	18,365	2,622	13,663	933	40,831
Average	**1,693**	**1,797**	**1,836**	**4,752**	**1,697**	**17,283**	**2,422**	**12,375**	**944**	**37,046**
1989 January	R 1,720	1,923	2,041	5,224	1,692	17,269	1,878	12,161	895	R 37,269
February	R 1,801	2,089	2,136	5,601	1,746	17,920	2,172	12,906	1,036	39,263
March	R 1,732	1,946	1,941	5,571	1,799	17,989	2,254	12,817	949	R 39,057
April	R 1,672	1,719	1,753	4,581	1,730	16,624	2,147	11,893	974	R 35,744
May	R 1,713	1,623	1,792	4,362	1,657	16,546	2,128	11,691	1,022	R 35,334
June	R 1,694	1,762	1,884	4,455	1,694	17,497	2,235	12,332	1,040	R 37,017
July	1,681	1,668	1,667	4,570	1,605	16,453	2,324	11,643	983	35,330
August	1,877	1,651	1,737	4,586	1,716	17,360	2,502	12,369	1,029	R 37,220
September	1,719	1,846	1,917	4,630	1,718	16,795	2,438	12,628	902	R 36,675
October	1,762	1,955	2,061	4,746	1,786	17,304	2,436	R 13,043	R 930	R 37,786
November	1,819	2,015	2,166	5,319	1,888	17,311	2,520	R 13,601	R 976	R 39,026
December	1,950	2,095	2,206	R 6,161	1,816	18,858	2,304	R 13,255	R 981	R 41,205
Average	**1,762**	**1,856**	**1,940**	**4,981**	**1,737**	**17,325**	**2,278**	**12,529**	**976**	**37,573**
1990 January	R 1,716	R 2,020	2,163	R 5,654	R 1,728	16,968	R 2,177	R 12,913	R 943	R 38,194
February	R 1,803	R 1,923	2,015	R 5,982	R 1,838	17,024	R 2,356	R 13,020	R 975	R 38,804
March	1,754	1,919	1,838	5,601	1,925	17,083	2,315	12,742	1,049	38,229
3-Mo. Average	**1,756**	**1,955**	**2,005**	**5,738**	**1,830**	**17,025**	**2,280**	**12,887**	**990**	**38,396**

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

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

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

R=Revised data.

Notes: • U.S. geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding. • Data through 1987 are final. Subsequent data are preliminary.

Sources: • U.S. data: Energy Information Administration, *Petroleum Supply Annual.* • OECD data: International Energy Agency, *Quarterly Oil Statistics, Monthly Oil Statistics.*

Figure 10.4 Petroleum Stocks in OECD Countries, End of Period

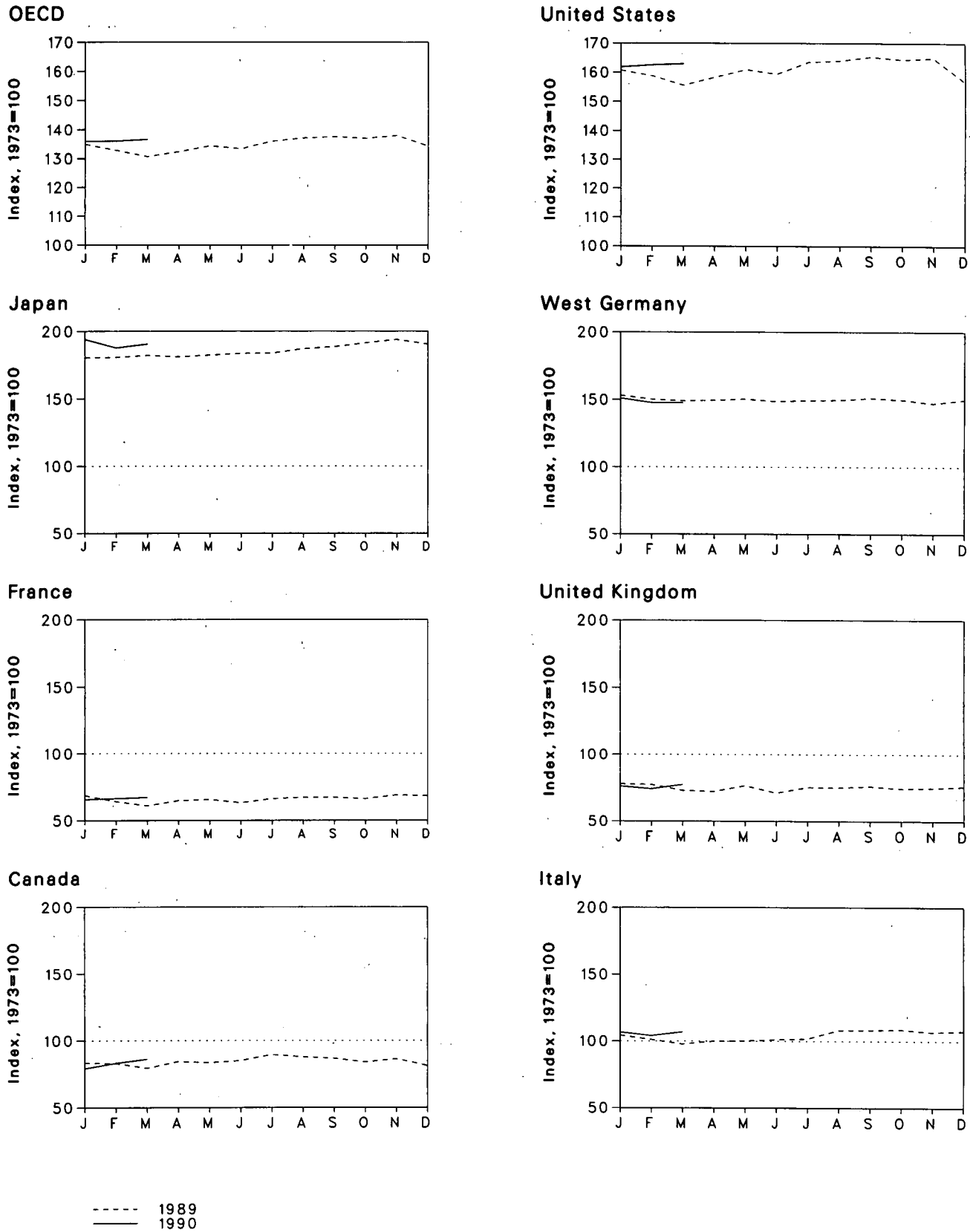


Table 10.3 Petroleum Stocks[a] in OECD Countries,[b] End of Period
(Million Barrels)

	Canada	France	Italy	Japan	United Kingdom	United States	West Germany	OECD Europe[c]	Other OECD[d]	OECD[b]
1973 Year	**140**	**201**	**152**	**303**	**156**	**1,008**	**181**	**1,070**	**67**	**2,588**
1974 Year	**145**	**249**	**167**	**370**	**161**	**1,074**	**213**	**1,227**	**64**	**2,880**
1975 Year	**174**	**225**	**143**	**375**	**165**	**1,133**	**187**	**1,154**	**67**	**2,903**
1976 Year	**153**	**234**	**143**	**380**	**165**	**1,112**	**208**	**1,205**	**68**	**2,918**
1977 Year	**167**	**239**	**161**	**409**	**148**	**1,312**	**225**	**1,268**	**68**	**3,224**
1978 Year	**144**	**201**	**154**	**413**	**157**	**1,278**	**238**	**1,219**	**68**	**3,122**
1979 Year	**150**	**226**	**163**	**460**	**169**	**1,341**	**272**	**1,353**	**75**	**3,379**
1980 Year	**164**	**243**	**170**	**495**	**168**	**1,392**	**319**	**1,464**	**72**	**3,587**
1981 Year	**161**	**214**	**167**	**482**	**143**	**1,484**	**297**	**1,337**	**67**	**3,531**
1982 Year	**136**	**193**	**179**	**484**	**125**	**1,430**	**272**	**1,258**	**68**	**3,376**
1983 Year	**121**	**153**	**149**	**470**	**118**	**1,454**	**249**	**1,142**	**68**	**3,255**
1984 Year	**128**	**152**	**159**	**479**	**112**	**1,556**	**239**	**1,130**	**69**	**3,362**
1985 Year	**113**	**139**	**157**	**494**	**123**	**1,519**	**233**	**1,092**	**66**	**3,284**
1986 Year	**111**	**127**	**155**	**509**	**124**	**1,593**	**252**	**1,133**	**72**	**3,418**
1987 Year	126	127	169	540	121	1,607	259	1,130	72	3,474
1988 January	130	129	163	544	117	1,597	268	1,131	68	3,469
February	124	118	159	530	120	1,576	271	1,107	69	3,406
March	127	108	146	522	113	1,559	266	1,065	65	3,338
April	127	110	148	519	114	1,578	270	1,066	66	3,355
May	123	117	156	533	122	1,614	269	1,098	65	3,433
June	118	120	152	556	118	1,612	266	1,099	64	3,450
July	125	123	158	593	117	1,629	270	1,103	67	3,517
August	123	126	164	566	120	1,624	271	1,127	66	3,506
September	124	126	162	559	119	1,628	270	1,127	66	3,504
October	124	131	164	557	119	1,630	276	1,142	64	3,517
November	122	128	158	558	113	1,631	269	1,103	69	3,482
December	116	140	155	538	112	1,597	266	1,118	71	3,440
1989 January	117	138	159	547	121	1,620	277	1,133	69	3,486
February	116	129	154	548	121	1,601	272	1,103	69	3,437
March	111	123	148	552	114	1,568	270	1,084	68	3,383
April	118	131	152	549	113	1,596	271	1,090	71	3,424
May	117	132	152	553	119	1,623	272	1,110	73	3,475
June	119	128	154	557	111	1,608	269	1,094	71	3,449
July	125	133	155	557	117	1,649	270	1,119	70	3,520
August	123	135	165	567	117	1,654	271	1,132	72	3,548
September	121	135	165	572	119	1,667	274	1,136	66	3,562
October	117	134	165	580	116	1,658	272	1,120	70	3,546
November	121	139	163	588	117	1,663	267	1,125	75	3,571
December	114	138	164	577	118	1,581	271	1,132	71	3,475
1990 January	111	132	162	588	119	1,632	273	R 1,118	68	R 3,517
February	116	R 134	158	569	116	1,639	267	R 1,121	73	R 3,518
March	120	136	163	577	121	1,643	267	1,123	71	3,535

[a]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 the United States), rail and truck cars, sea-going ships' bunkers, service stations, retail stores, and tankers at sea.

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

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

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

R=Revised data.

Notes: • U.S. geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding. • In the United States in January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys affecting subsequent stocks reported. Using the new basis, the end-of-year U.S. stocks, in million barrels, would have been 1,121 in 1974, 1,420 in 1980, and 1,462 in 1982. • Data through 1987 are final. Subsequent data are preliminary.

Sources: • U.S. data: Energy Information Administration, *Petroleum Supply Annual.* • OECD data: International Energy Agency, *Quarterly Oil Statistics, Monthly Oil Statistics.*

Table 10.4a Nuclear Electricity Generation by Reporting Countries[a]
(Billion Gross Kilowatthours)

	Argentina	Belgium	Brazil	Canada	Finland	France	India	Italy	Japan	Netherlands	Pakistan
1973 Total	0	0	0	15.3	0	14.7	2.5	3.1	9.4	1.1	0.5
1974 Total	1.0	0.1	0	15.4	0	14.7	1.9	3.4	18.9	3.3	.6
1975 Total	2.5	6.8	0	13.2	0	18.3	2.5	3.8	21.3	3.3	.5
1976 Total	2.6	10.0	0	18.0	0	15.8	3.2	3.8	36.6	3.9	.5
1977 Total	1.6	11.9	0	26.6	2.7	17.9	2.8	3.4	28.2	3.7	.3
1978 Total	2.9	12.5	0	33.0	3.3	30.6	2.3	4.5	53.1	4.1	.2
1979 Total	2.7	11.4	0	38.4	6.7	39.9	3.2	2.6	62.0	3.5	(s)
1980 Total	2.3	12.5	0	40.4	7.0	61.2	2.9	2.2	82.8	4.2	.1
1981 Total	2.8	12.8	0	43.3	14.5	105.2	3.1	2.7	86.0	3.7	.2
1982 Total	1.9	15.6	0.1	42.6	16.5	108.9	2.2	6.8	104.5	3.9	.1
1983 Total	3.4	24.1	.2	53.0	17.4	144.2	2.9	5.8	109.1	3.6	.2
1984 Total	4.5	27.7	2.1	53.8	18.5	191.2	4.1	6.9	127.2	3.8	.3
1985 Total	5.8	34.5	3.4	62.9	18.8	224.0	4.5	7.0	152.0	3.9	.3
1986 Total	5.7	38.6	.1	74.6	18.8	254.3	5.1	8.7	164.8	4.2	.5
1987 Total	5.2	41.9	1.0	80.6	19.4	265.5	5.5	.2	182.8	3.6	.3
1988 January	.5	3.9	0	7.7	1.8	26.1	.3	0	15.0	.3	.1
February	.5	3.2	0	7.5	1.6	24.5	.4	0	13.5	(s)	(s)
March	.5	3.7	0	7.9	1.8	26.0	.4	0	14.7	(s)	(s)
April	.2	3.4	0	6.9	1.7	21.0	.4	0	14.9	.2	0
May	.2	3.3	0	6.7	1.3	18.9	.5	0	15.7	.4	0
June	.2	2.7	0	6.6	1.4	20.1	.6	0	14.8	.4	(s)
July	.7	3.3	0	7.2	1.2	20.6	.7	0	15.5	.4	(s)
August	.5	3.8	0	7.4	1.5	20.9	.6	0	15.8	.4	0
September	.5	3.9	0	6.9	1.7	23.4	.5	0	14.1	.4	0
October	.5	3.9	0	6.6	1.8	24.0	.5	0	13.6	.4	0
November	.5	3.9	0	6.7	1.7	23.3	.4	0	11.5	.4	0
December	.5	4.1	.3	7.7	1.8	26.1	.5	0	14.6	.4	0
Total	5.1	43.1	.3	85.6	19.3	274.9	6.1	0	173.6	3.7	.2
1989 January	.5	4.1	.2	8.1	1.8	30.5	.3	0	15.2	.4	0
February	.4	3.4	.2	6.9	1.6	27.1	.3	0	14.4	(s)	0
March	.5	3.6	.2	7.7	1.8	27.8	.3	0	16.2	.2	0
April	.4	3.0	.3	7.3	1.7	25.5	.4	0	13.3	.4	0
May	.5	3.0	(s)	6.2	1.2	23.2	.4	0	13.8	.4	0
June	.5	3.0	.2	5.8	1.6	23.9	.4	0	14.3	.4	0
July	.5	3.2	.2	7.1	1.4	23.7	.3	0	17.4	.4	0
August	(s)	3.7	0	6.9	1.5	21.0	.2	0	18.1	.4	0
September	.5	3.3	.2	6.6	1.3	22.6	.3	0	15.5	.4	0
October	.5	3.6	0	6.6	1.4	24.6	.4	0	14.8	.4	(s)
November	.5	3.6	0	6.3	1.7	24.9	.5	0	14.7	.4	(s)
December	.4	3.6	0	7.6	1.8	27.8	.4	0	16.0	.4	(s)
Total	5.0	41.2	1.6	83.2	18.8	302.5	4.0	0	183.7	4.0	.1
1990 January	.5	3.9	.1	7.3	1.8	28.7	.4	0	15.0	.3	(s)
February	.4	3.5	.2	5.8	1.6	23.5	.5	0	12.0	(s)	(s)
March	.7	4.2	0	6.2	1.7	25.8	.5	0	14.6	(s)	(s)
April	.6	3.6	.1	5.4	1.7	E 26.5	.5	0	15.6	(s)	(s)
May	E .1	2.9	E 0	4.4	1.3	23.9	.4	0	16.6	.4	.1
June	E .2	2.9	E 0	5.1	1.3	E 23.8	.4	0	16.0	.3	.1
6-Month Total	E 2.6	21.0	E .5	34.1	9.4	E 152.3	2.8	0	89.8	1.1	.2
1989 6-Month Total	2.8	20.2	1.1	42.0	9.7	158.0	1.9	0	87.2	1.7	0
1988 6-Month Total	2.1	20.2	0	43.2	9.5	136.6	2.7	0	88.6	1.3	.2

[a]Figures are for gross generation, as opposed to net generation. Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves.

[b]Monthly data for the United Kingdom are totals for 4- or 5-week reporting periods, not calendar months.

[c]Total equals all countries with nuclear generating capacity except Bulgaria, China, Cuba, Czechoslovakia, the German Democratic Republic, Hungary, North Korea, Poland, Romania, the U.S.S.R., and Yugoslavia.

[d]Some Central Electricity Generating Board figures were unavailable for March 1988. This number does not reflect the total generation for March.

R=Revised data. E=Estimate. (s)=Less than 0.05 billion gross kilowatthours.

Footnotes continued on following page.

Table 10.4b Nuclear Electricity Generation by Reporting Countries[a] (Continued)
(Billion Gross Kilowatthours)

	South Africa	South Korea	Spain	Sweden	Switzerland	Taiwan	United Kingdom[b]	West Germany	Total[c] Excluding U.S.	United States	Total[c]
1973 Total	**0**	**0**	**6.5**	**2.1**	**6.2**	**0**	**28.2**	**11.9**	**101.4**	**87.8**	**189.3**
1974 Total	**0**	**0**	**7.2**	**2.3**	**7.0**	**0**	**33.8**	**12.0**	**121.7**	**124.3**	**246.0**
1975 Total	**0**	**0**	**7.5**	**12.0**	**7.7**	**0**	**30.5**	**21.7**	**151.8**	**182.3**	**334.1**
1976 Total	**0**	**0**	**7.6**	**16.0**	**7.9**	**0**	**36.8**	**24.5**	**187.1**	**201.8**	**388.9**
1977 Total	**0**	**0.1**	**6.5**	**19.9**	**8.1**	**0.1**	**38.1**	**36.0**	**207.8**	**264.2**	**472.0**
1978 Total	**0**	**2.3**	**7.6**	**23.8**	**8.3**	**2.7**	**36.6**	**35.7**	**263.5**	**292.4**	**555.9**
1979 Total	**0**	**3.2**	**6.7**	**21.0**	**11.8**	**6.3**	**38.5**	**42.2**	**300.1**	**270.6**	**570.7**
1980 Total	**0**	**3.5**	**5.2**	**26.7**	**14.3**	**8.2**	**37.2**	**43.7**	**354.3**	**265.4**	**619.8**
1981 Total	**0**	**2.9**	**9.4**	**37.7**	**15.2**	**10.7**	**38.9**	**53.4**	**442.4**	**288.5**	**730.9**
1982 Total	**0**	**3.8**	**8.8**	**38.8**	**15.0**	**13.1**	**44.1**	**63.4**	**489.9**	**298.6**	**788.5**
1983 Total	**0**	**9.0**	**10.7**	**40.4**	**15.5**	**18.9**	**49.6**	**65.8**	**573.9**	**313.6**	**887.5**
1984 Total	**4.2**	**11.8**	**23.1**	**51.3**	**16.3**	**24.3**	**54.1**	**92.6**	**717.7**	**343.8**	**1,061.5**
1985 Total	**5.7**	**16.5**	**28.0**	**58.6**	**22.4**	**28.7**	**59.6**	**125.8**	**862.4**	**402.6**	**1,265.0**
1986 Total	**9.3**	**26.1**	**37.5**	**69.9**	**22.5**	**26.9**	**58.2**	**118.9**	**944.8**	**432.9**	**1,377.8**
1987 Total	**6.6**	**37.8**	**41.3**	**67.2**	**23.0**	**33.1**	**56.2**	**130.2**	**1,001.3**	**478.5**	**1,479.8**
1988 January	.3	3.9	4.2	7.2	2.3	2.2	4.9	13.1	93.5	47.4	140.9
February	.7	3.1	3.4	6.8	2.2	2.0	4.3	12.4	86.1	44.5	130.5
March	1.1	2.8	3.5	7.2	2.3	2.7	[d] 1.8	13.5	90.0	46.2	136.1
April	1.3	2.9	3.7	6.8	2.2	2.6	4.5	11.4	84.1	42.2	126.3
May	1.4	2.8	4.4	5.4	2.0	2.2	4.3	11.0	80.3	42.7	123.0
June	1.3	3.1	4.4	4.3	1.2	2.6	5.7	10.6	80.0	46.3	126.4
July	1.3	3.6	3.8	3.7	1.3	2.9	5.1	10.6	82.1	51.7	133.8
August	.8	3.5	2.7	3.6	1.0	3.0	5.3	10.0	80.8	51.7	132.5
September	.7	3.1	4.6	4.5	1.5	2.9	6.0	12.2	86.8	48.7	135.5
October	.7	3.8	4.9	6.6	2.3	2.4	5.3	13.7	91.0	44.6	135.5
November	.7	3.0	5.0	6.7	2.2	2.2	5.0	13.4	86.7	41.7	128.4
December	.9	3.2	4.6	6.7	2.3	2.2	7.2	13.2	96.2	46.4	142.7
Total	**11.1**	**38.7**	**49.2**	**69.4**	**22.7**	**29.9**	**59.4**	**145.2**	**1,037.5**	**554.1**	**1,591.6**
1989 January	1.1	3.4	4.9	7.2	2.3	2.4	6.8	13.0	102.1	48.7	150.9
February	.5	3.7	4.2	6.5	2.1	1.8	6.3	13.5	92.9	40.8	133.7
March	.6	4.4	4.2	6.7	2.3	1.7	6.7	14.8	99.8	41.8	141.6
April	.7	3.7	4.8	5.6	2.2	2.2	5.9	13.4	90.9	35.3	126.2
May	.7	3.8	4.7	3.9	2.0	2.1	5.7	11.1	82.7	40.8	123.5
June	1.1	3.4	4.2	3.3	1.2	2.0	6.7	9.6	81.6	45.1	126.7
July	1.1	4.0	5.4	2.6	1.1	2.7	4.8	8.7	84.4	55.2	139.7
August	1.1	4.9	5.2	3.3	1.0	2.9	4.8	11.4	86.4	57.6	144.0
September	1.3	4.1	4.6	5.0	1.9	2.5	6.6	11.0	87.8	47.0	134.8
October	1.3	4.5	4.7	6.8	2.3	2.7	5.2	13.5	93.2	45.7	138.8
November	1.2	3.6	4.6	7.0	2.2	2.6	5.3	14.2	93.2	45.6	138.8
December	1.1	3.6	4.7	7.5	2.3	2.8	6.9	14.4	101.3	53.3	154.6
Total	**11.7**	**47.2**	**56.1**	**65.6**	**22.8**	**28.3**	**71.6**	**148.7**	**1,096.2**	**557.0**	**1,653.2**
1990 January	.6	4.0	5.4	7.4	2.3	2.6	6.0	15.4	101.7	57.7	159.4
February	.5	4.6	4.5	6.6	2.1	2.1	5.8	12.8	86.6	52.3	138.8
March	.5	4.1	4.5	6.4	2.3	2.6	6.2	13.2	93.5	48.4	141.9
April	.6	4.3	4.8	5.4	2.2	2.2	5.2	12.8	[E] 91.6	40.6	[E] 132.2
May	1.2	4.0	[R] 4.1	4.8	2.1	2.8	5.2	12.2	[R] 86.5	45.1	[RE] 131.6
June	1.2	4.4	3.5	4.3	1.3	2.9	5.2	9.8	82.8	[E] 48.5	[E] 131.3
6-Month Total	**4.7**	**25.4**	**26.7**	**34.9**	**12.2**	**15.2**	**33.5**	**76.2**	**[E] 542.6**	**[E] 292.5**	**[E] 835.1**
1989 6-Month Total	**4.7**	**22.5**	**27.0**	**33.3**	**12.0**	**12.2**	**38.1**	**75.5**	**550.0**	**252.6**	**802.6**
1988 6-Month Total	**6.0**	**18.6**	**23.6**	**37.7**	**12.1**	**14.2**	**25.4**	**72.0**	**514.0**	**269.3**	**783.2**

Footnotes continued.

Notes: • U.S. geographic coverage is the 50 States and the District of Columbia. • Monthly data may not sum to annual totals due to independent rounding, revisions in annual data not reflected in the monthly data, or both. Data for countries may not sum to world totals due to independent rounding.

Source: *Nucleonics Week* (New York: McGraw-Hill Publishing Company).

Appendix. Conversion Factors

Using Conversion Factors

Physical conversion factors can be used to compare energy quantities expressed in units of volume and weight. For example, 6.65 barrels of crude oil weighs approximately 1 short ton, as indicated in Table A1.

However, the heat content of a "short ton" of crude oil is greater than the heat content of a short ton of coal. The heat content, measured in British thermal units (Btu), of a given quantity of energy can be calculated using the thermal conversion factors presented in Tables A2 through A9.

Based on the thermal conversion factor shown for crude oil (production) in Table A2, a short ton of crude oil has a heat content of approximately 39 million Btu (6.65 barrels $\times$ 5.8 million Btu per barrel = 38.57 million Btu, which rounds to 39). As calculated from the thermal conversion factor for coal (production) in Table A6, a short ton of coal has a heat content of 22 million Btu (1 short ton $\times$ 21.922 million Btu per short ton = 21.922 million Btu, which rounds to 22). A short ton of crude oil, therefore, has a heat content almost two times greater than does a short ton of coal.

The thermal conversion factors in Tables A2 through A9 are computed from final annual data. When the current year's final data are not yet available 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 a section entitled "Thermal Conversion Factor Source Documentation," which follows Table A9 in this appendix.

Thermal conversion factors for hydrocarbon mixes (Table A2) 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.

Table A1. Physical Conversion Factors for Energy Units

Unit	Equivalent	
Crude Oil (Average Gravity)		
1 U.S. barrel	42	U.S. gallons
1 short ton	6.65	barrels
1 metric ton	7.33	barrels
Coal		
1 short ton	2,000	pounds
1 long ton	2,240	pounds
1 metric ton	2,204.62	pounds
1 metric ton	1,000	kilograms
Uranium		
1 short ton U_3O_8	0.769	metric ton of uranium
1 short ton UF_6	0.613	metric ton of uranium
1 metric ton UF_6	0.676	metric ton of uranium
Wood (Average Dry Hardwood)		
1 cord	1.25	short tons
1 cord	128	cubic feet
1 cubic foot	0.028	cubic meters

Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A2. 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.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A3. Approximate Heat Content of Crude Oil,[a] Crude Oil and Products, and Natural Gas Plant Liquids
(Million Btu per Barrel)

	Crude Oil Only			Crude Oil and Products		Natural Gas Plant Liquids
	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[b]	5.800	5.901	5.800	5.837	5.871	3.826
1990[b]	5.800	5.901	5.800	5.837	5.871	3.826

[a]Includes lease condensate.
[b]Preliminary.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A4. Approximate Heat Content of Petroleum Product Weighted Averages[a] (Million Btu per Barrel)

	Consumption					Imports	Exports	LPG Consumption
	Residential and Commercial	Industrial	Transportation	Electric Utilities	Total			
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	5.261	5.253	5.424	6.251	5.395	5.613	5.867	3.599
1985	5.203	5.258	5.424	6.247	5.387	5.572	5.819	3.603
1986	5.238	5.330	5.425	6.257	5.418	5.624	5.839	3.640
1987	5.245	5.285	5.427	6.249	5.403	5.599	5.860	3.659
1988	5.216	5.293	5.430	6.250	5.411	5.618	5.842	3.652
1989[b]	5.213	5.281	5.431	6.241	5.410	5.667	5.886	3.683
1990[b]	5.213	5.281	5.431	6.241	5.410	5.667	5.886	3.683

[a]Weighted averages of the products included in each category are calculated using heat content values shown in Table A1.
[b]Preliminary.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A5. Approximate Heat Content of Natural Gas (Btu per Cubic Foot)

	Production		Consumption			Imports	Exports
	Dry	Marketed (Wet)	Non-Electric Utility Users	Electric Utilities	Total		
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[a]	1,029	1,109	1,029	1,028	1,029	1,002	1,018
1990[a]	1,029	1,109	1,029	1,028	1,029	1,002	1,018

[a]Preliminary.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A6. 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	21.822	23.571	26.799	22.360	20.900	21.327	25.000	26.299
1989[c]	21.776	23.527	26.800	22.411	20.838	21.266	25.000	26.312
1990[c]	21.776	23.527	26.800	22.411	20.838	21.266	25.000	26.312

[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.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A7. 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[b]	21.772	22.948	26.800	22.390	20.844	21.263	25.000	26.319
1990[b]	21.772	22.948	26.800	22.390	20.844	21.263	25.000	26.319

[a]Includes transportation.
[b]Preliminary.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A8. Approximate Heat Content of Anthracite and Coal Coke
(Million Btu per Short Ton)

	Anthracite					Coal Coke Imports and Exports
	Production	Consumption			Imports and Exports	
		Non-Electric Utility Users	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[a]	23.268	26.556	16.344	22.244	25.400	24.800
1990[a]	23.268	26.556	16.344	22.244	25.400	24.800

[a]Preliminary.
Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A9.

Table A9. Approximate Heat Rates for Electricity
(Btu per Kilowatthour)

	By Type of Generation			Electricity Consumption
	Fossil Fuel Steam-Electric Power Plant Generation[a]	Nuclear Power Plant Generation	Geothermal Energy Power Plant Generation	
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	10,323	10,843	21,303	3,412
1985	10,339	10,813	21,263	3,412
1986	10,261	10,799	21,263	3,412
1987	10,253	10,776	21,263	3,412
1988	10,235	10,743	21,096	3,412
1989[b]	10,235	10,743	21,096	3,412
1990[b]	10,235	10,743	21,096	3,412

[a]This thermal conversion factor is used for hydroelectric power generation and for wood and waste, wind, photovoltaic, and solar thermal energy consumed at electric utilities.
[b]Preliminary.
Sources: See "Thermal Conversion Factor Source Documentation," which follows this table.

Thermal Conversion Factor Source Documentation

Approximate Heat Content of Petroleum Products

Asphalt. 1973 forward: 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. 1973 forward: EIA adopted the thermal conversion factor of 5.048 million Btu per barrel as adopted by the Bureau of Mines from the Texas Eastern Transmission Corporation publication *Competition and Growth in American Energy Markets 1947-1985,* 1968.

Butane. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 4.326 million Btu per barrel as published in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Butane-Propane Mixture. 1973 forward: 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."

Distillate Fuel Oil. 1973 forward: 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. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 3.082 million Btu per barrel as published in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Ethane-Propane Mixture. 1979 forward: 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. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 3.974 million Btu per barrel as published in the *California Oil World and Petroleum Petroleum Industry,* First Issue, April 1942.

Jet Fuel, Kerosene Type. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel as published for "Jet Fuel, Commercial" by the Texas Eastrn Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947-1985,* 1968.

Jet Fuel, Naphtha Type. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 5.355 million Btu per barrel as published for "Jet Fuel, Military" by the Texas Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947-1985,* 1968.

Kerosene. 1973 forward: 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.

Lubricants. 1973 forward: EIA adopted the thermal conversion factor of adopted the thermal conversion factor of 6.065 million Btu per barrel as estimated by the 6.065 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Miscellaneous Products. 1973 forward: 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, Statement, Annual, 1956.*

Motor Gasoline. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel as published for "Gasoline, Motor Fuel" by the Texas Eastern Transmission Corporation in the report *Competion and Growth in American Energy Markets 1947-1985,* 1968.

Natural Gasoline. 1973 forward: 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. 1984 forward: 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. 1973 forward: Assumed by EIA to be 5.248 million Btu per barrel, equal to the thermal conversion to the thermal conversion factor for special naphtha. See "Special Naphtha."

Petrochemical Feedstocks, Oils Equal to or Greater Than 401 Degrees Fahrenheit. 1973 forward: 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. 1973 forward: 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. 1973 forward: 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 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 the 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.

Plant Condensate. 1973 forward: Estimated to be 5.418 million Btu per barrel by EIA from data provided by McClanahan Consultants, Inc., Houston, Texas.

Propane. 1973 forward: EIA adopted the Bureau of Mines thermal conversion factor of 3.836 million Btu per barrel as published in the *California Oil World and Petroleum Industry,* First Issue, April 1942.

Residual Fuel Oil. 1973 forward: EIA adopted the therml 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. 1973 forward: 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 Naphtha. 1973 forward: 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 (avaiation and motor) factor and was first published in the *Petroleum Statement, Annual, 1970.*

Still Gas. 1973 forward: EIA adopted the Bureau of Mines estimated thermal 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. 1973 forward: 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. 1979 forward: 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.*

Wax. 1973 forward: 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 Fuels

Petroleum

Crude Oil, Exports. 1973 forward: 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. 1973 forward: 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 using National Bureau of Standards, Miscellaneous Publication No. 97, *Thermal Properties of Petroleum Products,* 1933.

Crude Oil and Lease Condensate, Production. 1973 forward: 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. 1973 forward: 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. 1973 forward: Calculated annually by EIA as the average of the thermalconversion 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."

Natural Gas Plant Liquids, Production. 1973 forward: 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.

Petroleum Products, Consumption. 1973 forward: Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products con-

sumed, weighted by the quantity of each petroleum product consumed.

Petroleum Products, Consumption by Electric Utilities. 1973-1988: 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.* 1989 forward: Estimated by EIA.

Petroleum Products, Consumption by Industrial Users. 1973-1988: 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 States Energy Data System as documented in the *State Energy Data Report.* 1989 forward: Estimated by EIA.

Petroleum Products, Consumption by Residential and Commercial Users. 1973-1988: 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.* 1989 forward: Estimated by EIA.

Petroleum Products, Consumption by Transportation Users. 1973-1988: 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.* 1989 forward: Estimated by EIA.

Petroleum Products, Exports. 1973 forward: 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. 1973 forward: 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.

Petroleum Products, Liquefied Petroleum Gases (LPG) Consumption. 1973 forward: Calculated annually by EIA as the average of the thermal conversion factors of each liquefied petroleum gas consumed weighted by the quantity of each liquefield petroleum gas consumed.

Natural Gas

Natural Gas, 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. 1980 forward: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity natural gas consumed. The heat content and quantity consumed are from Form EIA-176, and the factors are published in the EIA *Natural Gas Annual 1988 Volume II,* Table 15.

Natural Gas, Consumption by Electric Utilities. 1973 forward: 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 Non-Electric Utility Users. 1973 forward: Calculated annually by EIA by dividing the heat content of natural gas consumed by non-electric utility consumers by the quantity of non-electric utility natural gas consumed. Data are from Forms EIA-176, FERC-423, EIA-759, and predecessor forms.

Natural Gas, Exports. 1973 forward: 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. 1973 forward: 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. 1973 forward: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See "Natural Gas, Consumption."

Natural Gas Production, Marketed (Wet). 1973 forward: 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.

Coal and Coal Coke

Anthracite, Consumption. 1973 forward: Calculated annually by EIA by dividing the sum of the heat content of anthracite consumed by electric utilities and non-

electric utilities by the total quantity of anthracite consumed.

Anthracite, Consumption by Electric Utilities. 1973 forward: 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 Non-Electric Utility Users. 1973 forward: 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 non-electric utility anthracite consumption less the quantity of anthracite stock changes, losses, and unaccounted for.

Anthracite, Imports and Exports. 1973 forward: 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. 1973 forward: 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, Consumption. 1973 forward: 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. 1973 forward: Estimated by EIA to be 26.800 million Btu per short ton based on an input/output analysis of coal carbonization.

Bituminous Coal and Lignite, Consumption by Electric Utilities. 1973 forward: 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 assuming that the bituminous coal and lignite delivered to other industrial users from each coal-producing district (reported on Form EIA-6 and predecessor Bureau of Mines Form 6-1419-Q) contained a heat value equal to bituminous coal and lignite received at electric utilities from each of the same coal-producing districts (reported on Form FERC-423). The average Btu value of coal by coal-producing district was applied to the volume of deliveries to other industrial users from each coal-producing district, and the sum total of the heat content was divided by the total volume of deliveries.

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 district (reported on Form EIA-6 and predecessor Bureau of Mines Form 6-1419-Q) contained a heat value equal to bituminous coal and lignite received at electric utilities from each of the same coal-producing districts (reported on Form FERC-423). The average Btu value of coal by coal-producing district was applied to the volume of deliveries to residential and commercial users from each coal-producing district, and the total of the heat value was divided by the total volume of deliveries.

Bituminous Coal and Lignite, Exports. 1973 forward: 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. 1973 forward: EIA estimated the average thermal conversion factor to be 25.000 million Btu per short ton.

Bituminous Coal and Lignite, Production. 1973 forward: 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 the consumption sector. Producers' stock changes and unaccounted for were assumed to have the same conversion factor as consumption by all users.

Coal, Consumption. 1973 forward: 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. 1973 forward: 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 Non-Electric Utility Users. 1973 forward: Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite consumed by non-electric utility users by the sum of their respective tonnages.

Coal, Exports. 1973 forward: 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. 1973 forward: 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. 1973 forward: 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. 1973 forward: EIA adopted the Bureau of Mines estimate of 24.800 million Btu per short ton.

Approximate Heat Rates for Electricity

Fossil Fuel Steam-Electric Power 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. EIA has selected a rate 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 forward: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published by EIA in *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.*

Geothermal Energy Power Plant Generation. 1973-1981: Calculated annually by EIA by weighting the average annual heat rates of operating geothermal units by the installed nameplate capacities as reported on Form FPC-12. 1982 forward: Estimated annually by EIA based on an informal survey of relevant plants.

Nuclear Power Plant Generation. 1973-1986: Calculated annually by EIA by dividing the total heat content consumed in reactors at nuclear plants by the total (net) electricity generated by nuclear plants. The heat content and electricity generation are reported on Form FERC-1, Form EIA-412, and predecessor forms. The factors are published beginning with 1982 data in EIA, *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.* 1987 forward: Estimated by EIA.

Glossary

Anthracite: A hard, black, lustrous coal containing a high percentage of fixed carbon and a low percentage of volatile matter. It is often referred to as hard coal. It includes meta-anthracite and semianthracite and conforms to ASTM Specification D388 for anthracite.

ASTM: The acronym for the American Society for Testing and Materials.

Base 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 coal that is high in carbonaceous matter having a volatility greater than anthracite and a calorific value greater than lignite. In the United States, it is often referred to as soft coal. In this report, "bituminous coal" conforms to ASTM Specification D388 for bituminous and subbituminous coal. It is used primarily for electricity generation, coke production, and space heating.

British Thermal Unit (Btu): The amount of energy required to raise the temperature of 1 pound of water 1 °F at or near 39.2 °F. One Btu is equivalent to about 252 International Steam Table calories. An average Btu content of fuel is a heat value per unit quantity of fuel as determined from tests of fuel samples.

Butane: A normally gaseous, paraffinic hydrocarbon (C_4H_{10}) extracted from natural gas or refinery gas streams. It includes isobutane (branch-chain) and normal butane (straight-chain) and is covered by ASTM Specification 1835 and Natural Gas Processors Specifications for commercial butane. It is used primarily for blending into high-octane gasoline, for residential and commercial heating, and for industrial purposes, especially the manufacture of chemicals and synthetic rubber.

Butylene: A normally gaseous, olefinic hydrocarbon (C_4H_8) recovered from refinery processes. Quantities are included with "normal butane" data.

City Gate Price of Natural Gas: Price of natural gas at the point it is transferred from a pipeline company to a local distribution company.

Coal: Includes all ranks of coal--anthracite, bituminous coal, subbituminous coal, and lignite--conforming to ASTM Specification D388.

Coal Coke: The strong, porous residue, consisting of carbon and mineral ash, that is formed when the volatile constituents of bituminous coal are driven off by heat in the absence of or in a limited supply of air. It is used primarily in blast furnaces for smelting ores, especially iron ore.

Commercial Sector: Nonmanufacturing business establishments, including hotels, motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; health, social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included. (For allocation of individual fuels to end-use sectors, see the Notes and Sources for Section 2.)

Crude Oil Average Domestic First Purchase Price: 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; after February 1976, the price represents an average of actual first purchase prices. This price is frequently called the wellhead price.

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. Liquids produced at natural gas processing plants and mixed with crude oil are excluded where identifiable.

Crude Oil Refinery Input: Total crude oil (including lease condensate) input to crude oil distillation units and other processing units.

Crude Oil Stocks: Stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

Degree-Day Normals: Simple arithmetic averages of monthly or annual degree-days over a long period of time (usually the 30-year period 1951-1980). These may

be simple degree-day normals or population-weighted degree-day normals.

Degree-Days, Cooling: 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: 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 multipliedby the corresponding population weight for each division and these 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, each composed of from three to eight States. The regions 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 these products are then summed to arrive at the national pupulation-weighted degree-day figure.

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: Light fuel oils distilled during the refining process and 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. Included are products known as No.1, No. 2, and No. 4 fuel oils, and No. 1, No. 2, and No. 4 diesel fuels, conforming to ASTM Specifications D396 or D975, respectively. No. 1 fuel oil is a light distillate fuel oil used in vaporizing pot-type burners. No. 2 fuel oil is used in atomizing-type burners for domestic heating or for moderate capacity commercial-industrial burner units. No. 4 fuel oil is a blend of distillate fuel oil and residual fuel oil that is used in commercial burner installations not equipped with preheating facilities; it is used extensively in industrial plants. Diesel fuel oils are used in compression-ignition engines.

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.

Electrical System Energy Losses: The amount of energy lost during generation, transmission, and distribution of electricity, including plant use and unaccounted for electrical energy.

Electricity Generation: Net electricity (gross electricity output measured at the generator terminals, minus power plant use) generated at electric utilities. Excluded industrial electricity generation. International data are gross electricity output.

Electricity Sales: The gross electricity output measured at the generator terminals, minus power plant use and transmission and distribution losses. Included in each end-use sector are the following: commercial sales of electricity to businesses that generally require less than 1,000 kilowatts of service; industrial sales of electricity to businesses that generally require more than 1,000 kilowatts of service; residential sales of electricity to residences for household purposes; "other" sales of electricity to government, railways, street lighting authorities, and sales not elsewhere included.

Electric Utility: A corporation, person, agency, authority, or other entity that owns or operates facilities for the generation, transmission, distribution, or sale of electricity, primarily for use by the public.

Electric Utility Sector: Privately and publicly owned establishments that generate electricity primarily for use by the public.

Ethane: A normally gaseous, paraffinic hydrocarbon (C_2H_6) extracted from natural gas or refinery gas streams. It is used primarily as petrochemical feedstock for production of chemicals and plastic materials.

Ethylene: A normally gaseous, olefinic hydrocarbon (C_2H_4) recovered from refinery processes. Quantities are included with "ethane" data.

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, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

F.o.b. (free on board) Price of Imported Crude Oil: The f.o.b. price is the price actually charged at the producing country's port of loading. The reported price includes deductions for any rebates and discounts and additions of premiums where applicable; it should be the actual price paid with no adjustments for credit terms.

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.

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 (as used at electric utilities): Hot water or steam, extracted from geothermal reservoirs in the earth's crust, which is supplied to steam turbines at electric utilities that drive generators to produce electricity.

Gross Energy Consumption: Total energy use including electrical system energy losses.

Gross National Product (GNP): The total value of goods and services produced by the Nation's economy, before deduction of depreciation charges and other allowances for capital consumption. It includes the total purchases of goods and services by private consumers and government, gross private domestic capital investment, and net foreign trade.

Gross Wet Gas Withdrawal: Full well stream volume, including all natural gas plant liquid and nonhydrocarbon gases, but excluding lease condensate. Also includes amounts delivered as royalty payments or consumed in field operations.

Hydroelectric Power: Electricity generated by an electric power plant whose turbines are driven by falling water.

Imports: Receipts of goods into the 50 States and the District of Columbia from foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories. (See **Petroleum Imports.**)

Industrial Sector: Manufacturing, construction, mining, agriculture, fishing and forestry establishments. (For allocation of individual fuels to end-use sectors, see the Notes and Sources for Section 2.)

Isobutane: See **Butane.**

Landed Cost of Crude Oil Imports: The price of imported crude oil at the port of discharge. It includes the purchase price at the foreign port plus charges for transporting and insuring the crude oil from the purchase point to the port of discharge. It does not include import tariffs or fees, wharfage charges, or demurrage costs. Coverage includes the United States and its territories.

Lease and Plant Fuel: Natural gas used in lease operations, as gas processing plant fuel, and as net used for gas lift.

Lease Condensate: A natural gas liquid recovered from gas-well gas (associated and nonassociated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons. Generally, it is blended with crude oil for refining.

Lignite: A brownish-black coal of low rank with high inherent moisture and volatile matter. It is also referred to as brown coal. It conforms to ASTM Specification D388 for lignite and is used almost exclusively for electric power generation.

Liquefied Petroleum Gases (LPG): Ethane, propane, normal butane, ethane-propane mixtures, propane-butane mixtures, and isobutane produced at natural gas processing plants, including plants that fractionate raw natural gas plant liquids. LPG also included liquefied refinery gases (ethylene, propylene, butylene, and isobutylene produced from crude oil at refineries).

Motor Gasoline, Finished: A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark-ignition engines and conforming to ASTM Specification D439. Included are finished leaded gasoline, finished unleaded gasoline, and gasohol. Excluded are blendstock that has not been blended into finished motor gasoline and alcohol that has not been blended into gasohol.

Motor Gasoline, Leaded Premium: A gasoline having an antiknock index of 93 with the use of lead additives or which contains more than 0.05 grams of lead per gallon or more than 0.005 grams of phosphorus per gallon. Includes gasohol.

Motor Gasoline, Leaded Regular: A gasoline having an antiknock index of 89 with the use of lead additives or which contains more than 0.05 grams of lead per gallon or more than 0.005 grams of phosphorus per gallon.

Motor Gasoline, Total: Includes finished leaded motor gasoline (premium and regular), finished unleaded motor gasoline (premium and regular), motor gasoline blending components, and gasohol.

Motor Gasoline, Unleaded Premium: A gasoline having an antiknock index of 90 containing not more than 0.05 grams of lead per gallon and not more than 0.005 grams of phosphorous per gallon. Includes gasohol.

Motor Gasoline, Unleaded Regular: A gasoline having an antiknock index of 87 containing not more than 0.05 grams of lead per gallon and not more than 0.005 grams of phosphorous per gallon.

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 Plant Liquids (NGPL): Those natural gas liquids that are recovered from natural gas processing plants, and in some situations, from natural gas field facilities, as well as those that are extracted by fractionators. Natural gas plant liquids are defined according to the published specifications of the ASTM and the Gas Processors Association and are classified 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 annual 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, as well as the U.S. Geological Survey (through 1981) and the U.S. Minerals Management Service (from 1982 forward). 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.

An estimate of the U.S. natural gas price is made each month based on monthly natural gas prices from four States: Mississippi, New Mexico, Oklahoma, and Texas.

Net Generation of Electricity: 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.

Net Consumption of Energy: Total energy use excluding electrical system energy losses.

Normal Butane: See **Butane.**

Nuclear Energy: 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.

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.

Organization for Economic Cooperation and Development (OECD): Current members: Australia, Austria, Belgium, Canada, Denmark, Finland, France, West Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States and its territories (Guam, Puerto Rico, and the Virgin Islands).

Organization of the Petroleum Exporting Countries (OPEC): Current members: Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

Pentanes Plus: A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. This product includes isopentane, natural gasoline, and plant condensate.

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 solid residue that is the final product of the condensation process in cracking. It consists of aromatic hydrocarbons very poor in hydrogen. Calcination of petroleum coke can yield almost pure carbon or artificial graphite suitable for production of carbon or graphite electrodes, structural graphite, motor brushes, dry cells, and similar products. This product is reported as marketable or catalyst coke.

Petroleum Imports: Imports of petroleum into the 50 States and the District of Columbia from foreign countries, 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: Petroleum products are 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, naphtha less than 401 °F end-point, other oils equal to or greater than 401 °F end-point, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Products Supplied: Total petroleum products supplied is the sum of all petroleum products supplied. For each product, the amount supplied is calculated by summing production, crude oil burned directly, imports, and net withdrawals from primary stocks and subtracting exports.

Petroleum Stocks, Primary: Stocks of crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tankfarms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in transit from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve, is included. Excluded are stocks of foreign origin that are held in bonded warehouse storage.

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.

Propane: A normally gaseous, paraffinic hydrocarbon (C_3H_8). It is extracted from natural gas or refinery gas streams, and includes all products covered by Gas Processors Association Specifications for commercial propane and HD-5 propane and ASTM Specification D1835. Propane is used primarily for residential and commercial heating and cooling, and also as a fuel for transportation. Industrial uses of propane include use as a petrochemical feedstock.

Propylene: A normally gaseous, olefinic hydrocarbon (C_3H_6) recovered from refinery processes. Quantities are included with "propane" data.

Refiner Acquisition Cost: 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.

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, geothermal, wind, photovoltaic, and solar thermal energy.

Reservoir Repressuring: The injection of natural gas into oil and gas reservoir formations for pressure maintenance and cycling.

Residential Sector: Private household establishments, which consume energy primarily for space heating, water heating, air conditioning, lighting, refrigeration, cooking, and clothes drying. (For allocation of individual fuels to end-use sectors, see the Notes and Sources for Section 2.)

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 and electricity generation. Imports of residual fuel oil include imported crude oil burned as fuel.

Rotary Rig: A machine, used for drilling wells, that employs a rotating tube attached to a bit for boring holes through rock.

Strategic Petroleum Reserve (SPR): Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

Subbituminous Coal: A dull black coal of rank intermediate between lignite and bituminous coal. It conforms to ASTM Specification D388 for subbituminous coal, and is used almost exclusively for electric power generation. In this report, quantities are included with "bituminous coal" data.

Supplemental Gaseous Fuels: Consist primarily of synthetic natural gas, propane-air, and refinery (still) gas. May also include coke oven gas, biomass gas, manufactured gas, and air injected for Btu stabilization.

Synthetic Natural Gas (SNG): A product resulting from the manufacture, conversion, or reforming of hydrocarbons that may be easily substituted for, or interchanged with, pipeline-quality natural gas.

Transportation Sector: 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: Represents the arithmetic difference between the indicated demand for crude oil and the total disposition of crude oil. Indicated demand is the sum of crude oil production and imports less changes in crude oil stocks. Total 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.

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.

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 (see **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. Included are round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.

Working Gas: The volume of gas in an underground storage reservoir above the designed level of the base. 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 season.

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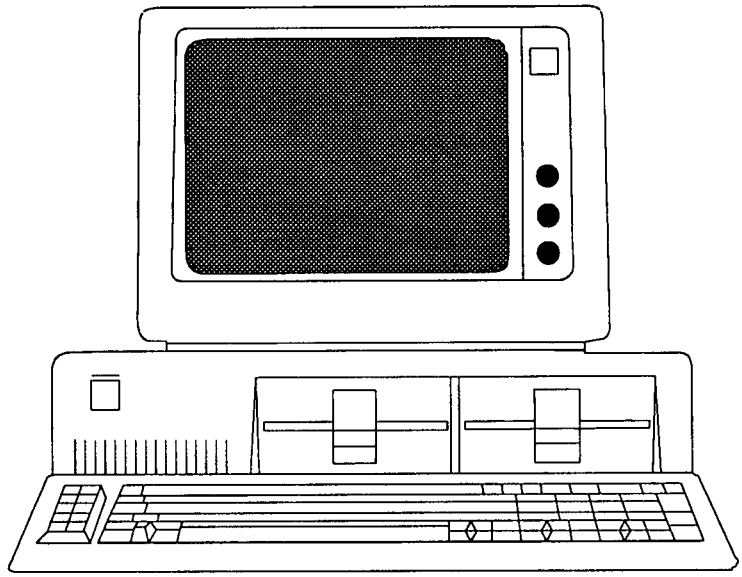

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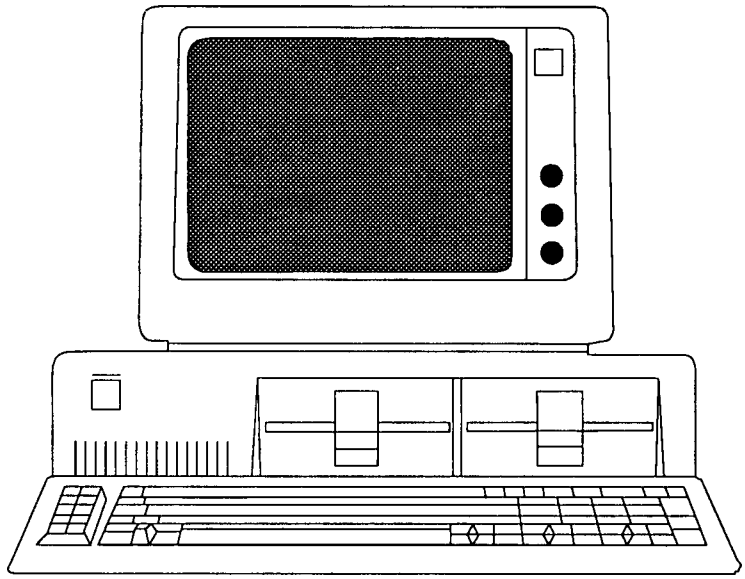

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