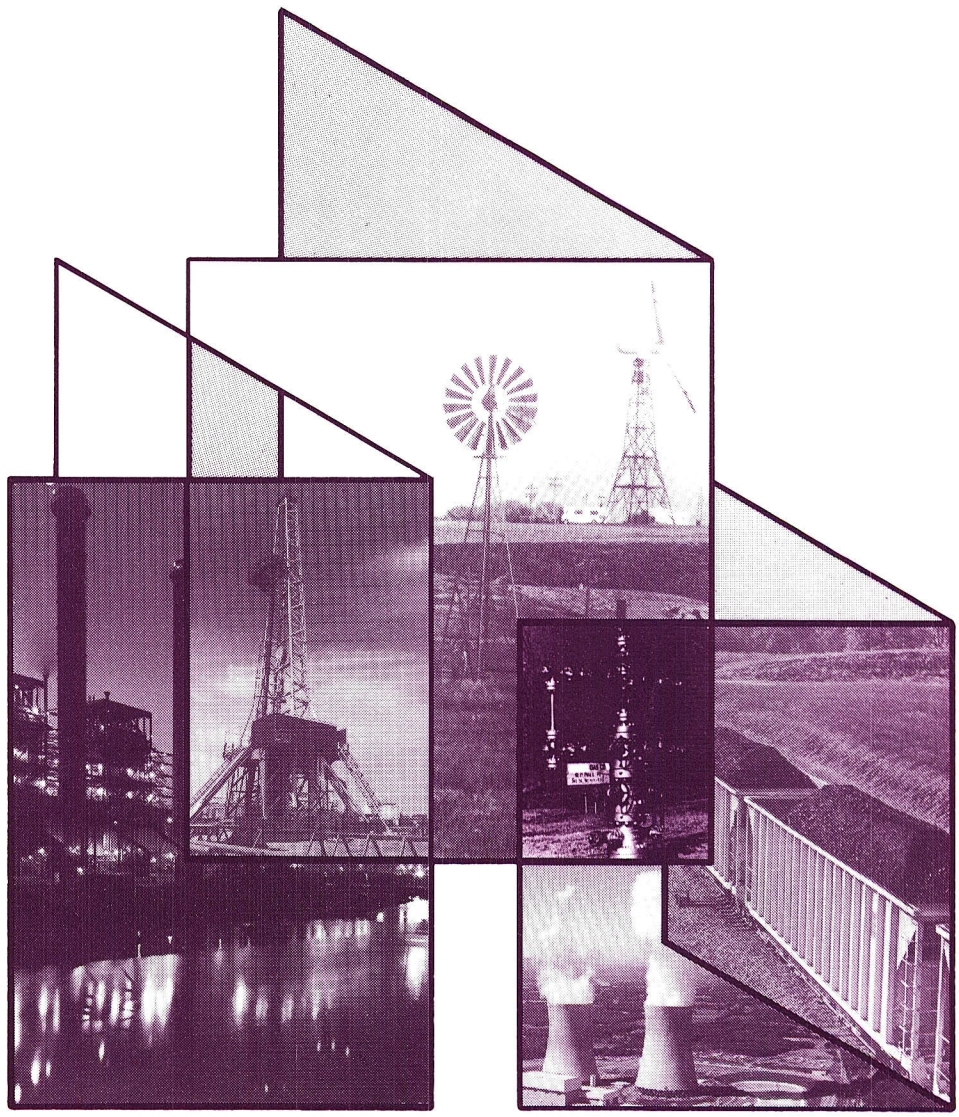
DOE/EIA-0035(89/06)

First Half 1989
Summary

Monthly Energy Review

June 1989



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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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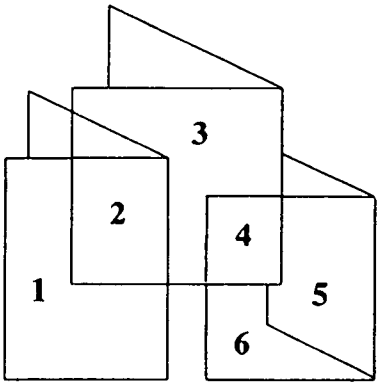

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1. The Haynes Generating Station provides power in the Los Angeles area. Photograph courtesy of the Department of Water and Power, City of Los Angeles, California.
2. This is a drilling rig typical of those used by the oil industry.
3. An innovative 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

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
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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
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Characteristics of Commercial Buildings 1986	June 1988
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Profiles of Foreign Direct Investment in U.S. Energy 1987	October 1988
Manufacturing Energy Consumption Survey: Fuel Switching, 1985	November 1988
Commercial Buildings Consumption and Expenditures 1986	May 1989

Higher Prices Yield Improved Energy Industry Financial Results in the First Half of 1989

By T. Crawford Honeycutt [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 first half of 1989. Financial data for companies are included for two broad groups--fossil fuel producers and rate-regulated utilities. Data were taken 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 profit measure shown in this article is net income from continuing operations, excluding extraordinary gains or losses that a company may report from the sale or valuation change of a major asset or for reserve provisions relative to possible future adverse legal judgments. In this article, first-half 1989 net income of publicly traded companies in the energy industry is examined and compared with first-half 1988 net income. That intertemporal comparison reflects actual operating results rather than accounting changes.

Several major petroleum companies disclose income disaggregated by lines 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 lines of business and geographic area are useful indicators of short-term changes in profitability.

Financial and Energy Overview

Domestic crude oil prices rose 13 percent in the first half of 1989, and most other energy prices followed suit.[2] Domestic production of most energy sources increased, but crude oil production decreased by 5 percent. Declining crude oil production together with greater refined product demand led to a 10-percent increase in crude oil net imports in the first 6 months of 1989 compared with the first half of 1988.

With both prices and production up, most segments of the energy industry registered greater net income in the first half of 1989 than in the first half of 1988.[3] For the 226 energy companies included in this article, net income was $20.9 billion in the first half of 1989, 6 percent above year-ago levels (Table FE1).

Net income of industrial companies outside the energy industry rose at a lesser 2-percent rate between the second quarter of 1988 and the second quarter of 1989.[4] This difference in the growth of net income suggests that the gap in profitability between the energy industry and other industrial companies narrowed slightly

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

[2]The energy data used in this article are taken from the Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989).

[3]The financial data in this article are from Energy Information Administration, "U.S. Energy Industry Financial Developments," 1989 Second Quarter (Washington, DC, September 1989).

[4]Second-quarter data for the nonenergy group are from the *Wall Street Journal,* August 7, 1989. (First-half data are not available.) The *Wall Street Journal* group is adjusted to exclude energy and non-manufacturing companies. Many of the companies in the group are also included in the S&P 400. The S&P 400 contains aggregate data for 400 large U.S. industrial companies compiled by Standard & Poor's Compustat Services, Inc.

Table FE1. Energy Industry Net Income, First Half, 1988 and 1989 (Million Dollars)

Energy Segment	1989	1988	Percent Change
Fossil Fuel Industries			
Major Petroleum Companies (19)	11,079.6	10,252.3	8.1
Independent Oil and Gas Producers (41)	294.1	90.4	225.5
Independent Refiner/Marketers (8)	242.7	227.0	6.9
Oil Field Companies (24)	248.8	184.4	34.9
Petroleum Subtotal (92)	11,865.3	10,754.1	10.3
Coal Producers (7)	81.4	97.4	-16.4
Fossil Fuel Subtotal (99)	11,946.6	10,851.5	10.1
Rate Regulated Energy Industries			
Natural Gas Transmission (17)	993.7	867.5	14.5
Natural Gas Distribution (26)	650.2	641.1	1.4
Electric Utilities (84)	7,344.3	7,373.3	-.4
Rate-Regulated Subtotal (127)	8,988.2	8,881.9	1.2
Total Energy Industries (226)	20,934.9	19,733.3	6.1

Notes: The number of companies is reported in parentheses. Components may not sum to totals due to independent rounding.
Sources: Energy Information Administration compilation of data from quarterly reports of energy companies to stockholders and "Earnings Digest," *Wall Street Journal,* various issues, July and August 1989.

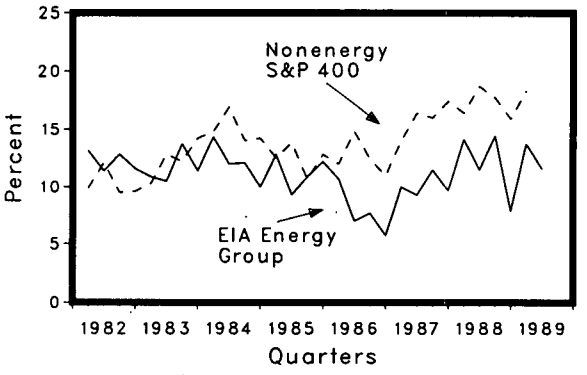
(Figure FE1), despite the usual drop in energy companies' profitability between the first and second quarters.

Independent oil and gas producers showed the greatest relative improvement in earnings, as oil prices rose faster than oil production declined. The independents' net income rose 226 percent in the first half of 1989, to $294 million. As a group, oil field companies also registered a substantial increase in net income. However, positive earnings were concentrated among oil field equipment suppliers and service companies. Drillers continued to report losses, albeit at a reduced level from first-half 1988. Coal production was the only energy segment that reported a noticeably reduced level of net income in the first half of 1989, a 16-percent decline. Work stoppages and softer prices appear to have been contributing factors.

The net income of independent refiner/marketers increased modestly, by 7 percent. However, the results among that group of companies were mixed. Five of the group reported higher net income and the other three reported decreased net income. A later section of this article shows that profitability of that energy segment only recently returned to levels comparable with the profitability of U.S. industry overall.

Among the rate-regulated energy segments, the natural gas transmission companies reported the largest growth in net income. Those companies continued to adjust to the altered regulatory environment caused by a series of Federal Energy Regulatory Commission (FERC) orders in recent years.[5]

Figure FE1. EIA Energy Group and Nonenergy S&P 400, Return on Equity, 1982-1989



Note: The data for the second quarter of 1989 are estimated.
Sources: Companies' reports to stockholders; "Earnings Digest," *Wall Street Journal* (various issues, July and August 1989); 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 1989.

[5]These and other developments are reviewed in Energy Information Administration, *Growth in Unbundled Natural Gas Transportation Services: 1982-1987,* DOE/EIA-0525 (Washington, DC, May 1989).

The improved financial performance of the natural gas transmission companies reflects the recovery from the plunge in their net income that occurred shortly after the implementation of the FERC orders.

Major Petroleum Companies Post Modest Improvement

The major petroleum companies' net income in the first half of 1989 rose by 8 percent, to $11.1 billion.[6] Major petroleum companies, as a group, have diversified energy operations. They own substantial oil production and refining interests overseas, they produce about 25 percent of U.S. coal, and many major oil companies also have large chemical operations.

Reductions in income from foreign petroleum operations largely offset income gains from chemical operations and domestic energy lines of business (Table FE2). Income from foreign oil and gas production declined 25 percent in the first half of 1989 compared with the first half of 1988. North Sea oil and gas producers reported that reduced output and operating difficulties reduced North Sea production and adversely affected their earnings. Other multinational companies noted that reduced foreign natural gas revenue was a negative factor in their financial performance in the second quarter of 1989.

By contrast, domestic oil and gas production operations of major petroleum companies yielded a 36-percent increase in income. The main source of improved income was higher oil prices which more than offset continued declines in U.S. oil production. Reduced exploration expenses also contributed to favorable financial performance.

Income from the major petroleum companies' domestic refining/marketing operations declined 15 percent in the first half of 1989. Oil prices rose more rapidly than refined products prices during the first quarter thereby squeezing margins. By the second quarter, product prices caught up with crude oil prices and refining margins improved.

The major petroleum companies' chemical operations have been important sources of income growth since the fourth quarter of 1985 (Q485). The average quarterly increase in income from chemical operations over the period Q485 through 1988 was 57 percent.[7] In the first half of 1989, the pace of earnings growth from these operations fell to 20 percent. Some of the companies noted that reduced demand and lower margins for some products were sources of reduced income growth.

Capital expenditures of the major petroleum companies in 1989 declined 2 percent for the first 6 months compared with 1988. Expenditures for domestic oil and gas production fell 28 percent, but foreign oil and gas expenditures rose 16 percent. Refining and marketing activities continued to be growing investment targets, with expenditures for those operations rising 23 percent. The steepest reduction in expenditures, 31 percent, was for businesses outside of petroleum.

Oil and Gas Producers' Income Surged Higher

Crude oil prices rose substantially during the first half of 1989. Early in the year, major Persian Gulf producers reduced output in an apparent return to quota discipline. Oil markets were beginning to discount that factor when the *Exxon Valdez* ran aground. By the time it became apparent that relatively little output would be lost in Alaska, U.K. North Sea production was further disrupted by an accident. Finally, the Organization of Petroleum Exporting Countries (OPEC) meeting at the beginning of June created expectations of future quota discipline that kept prices high through the end of the second quarter.

Increasing refined product demand also contributed to higher oil prices. U.S. petroleum consumption rose 1.1 percent in the first half of 1989,[8] while Japanese consumption increased 4.2 percent in the first 3 months of the year, and European consumption grew by 0.9 percent in the same period (the most recent period for which data are available).[9]

Net income of U.S. oil and gas producers continued to recover from the low levels of 1988. The 13-percent rise in U.S. crude oil prices more than offset the adverse effects of the 5-percent decline in U.S. crude oil production between the first half of 1988 and 1989. For the 41 independent oil and gas producers included in this article, net income increased more than threefold during the first half of 1989, from $90.4 million to $294.1 million over the period (Table FE1). For the eight major petroleum companies that separately reported their U.S. oil and gas operations, income from those operations rose 36 percent in the first half of 1989 compared with the level in 1988 (Table FE2).

[6]The 19 companies considered "major" for this article are Amerada Hess, American Petrofina, Amoco, Atlantic Richfield, Chevron, Coastal, Du Pont, Exxon, Kerr McGee, Mobil, Murphy, Occidental, Phillips, Shell, Sun, Texaco, Union Pacific, Unocal, and USX.

[7]Calculated from data presented in Energy Information Administration, "U.S. Energy Industry Financial Developments," Second Quarter 1989 (Washington, DC, September 1989) and previous editions.

[8]Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989), Table 1.1.

[9]Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989), Table 10.2.

Table FE2. Income and Expenditures of Major Petroleum Companies, First Half, 1988 and 1989 (Million Dollars)

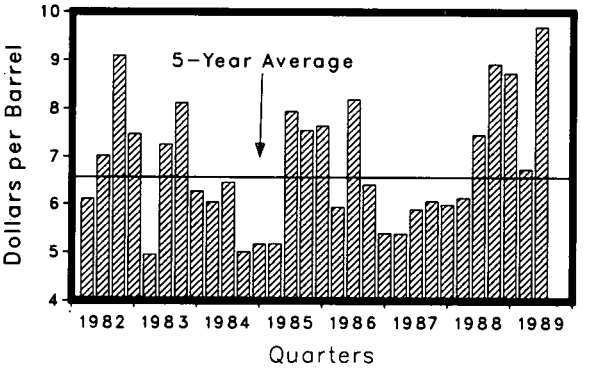
Category	1989	1988	Percent Change
Line of Business			
Petroleum (14)	7,156	7,727	-7.4
Chemicals (12)	4,682	3,905	19.9
Coal (6)	242	219	10.6
Other Business (9)	379	489	-22.5
Petroleum Income by Geographic Sector			
Domestic (8)	2,235	2,017	10.8
Foreign (8)	2,346	3,229	-27.3
Domestic Income by Segment			
Oil and Gas Production (8)	2,051	1,504	36.3
Refining/Marketing (10)	1,237	1,456	-15.1
Foreign Income by Segment			
Oil and Gas Production (9)	1,919	2,557	-25.0
Refining/Marketing (6)	722	948	-23.8
Capital and Exploratory Expenditures			
By Segment (6)			
Domestic Oil and Gas Production	1,360	1,890	-28.0
Foreign Oil and Gas Production	1,429	1,231	16.1
Refining/Marketing	1,481	1,200	23.4
Other Segments	1,644	2,379	-30.9
Subtotal	5,914	6,700	-11.7
Other Companies (4)	5,560	5,051	10.1
Total Capital and Exploratory Expenditures (10)	11,474	11,751	-2.4

Notes: The number of companies is reported in parentheses. Components may not sum to totals due to independent rounding. Percent change calculated from unrounded data.
Source: Energy Information Administration compilation of data from quarterly reports of companies to stockholders.

Refining/Marketing Results Were Mixed

In recent years, U.S. refined product price movements have lagged changes in crude oil costs. A consequence of that pattern has been that during periods of rising crude oil prices refiners' margins are initially squeezed and then begin to recover. That pattern was repeated in the first half of 1989. The gross refining margin in the first quarter dipped sharply and then recovered to high levels in the second quarter (Figure FE2). Gasoline prices led the recovery, rising from March through June. The rise in gasoline prices was largely a lagged response to the upswing in crude oil prices which began in late 1988.[10] Increased refined product demand and higher refinery capacity utilization rates tended to reinforce higher margins. However, the increase in gross refiner margin overstates profitability increases, partly due to the increased cost required to produce a higher proportion of premium gasoline and to meet more stringent environmental standards.

Figure FE2. Gross Refining Margin, 1982-1989



Note: Data for the second quarter of 1989 are Energy Information Administration estimates.
Source: Energy Information Administration, *Petroleum Marketing Monthly*, May 1989, DOE/EIA-0380(89/05) (Washington, DC, August 1989), Tables 1, 4, and 5.

[10]Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989), Table 9.4.

On balance, independent refiner/marketers' net income increased at a 7-percent rate for the first 6 months, reflecting the drop in margins in the first quarter of 1989 and higher operating costs. Major petroleum companies registered a decrease in their U.S. refining/marketing operations. For the 10 majors that separately reported those operations, U.S. refining/marketing income in the second quarter of 1989 was up 7 percent compared with the second quarter of 1988[11] but down compared with the first 6 months of 1988 (Table FE2). The decline was primarily the result of prolonged refinery maintenance for some companies and the absence of Star Enterprise from Texaco's 1989 results.

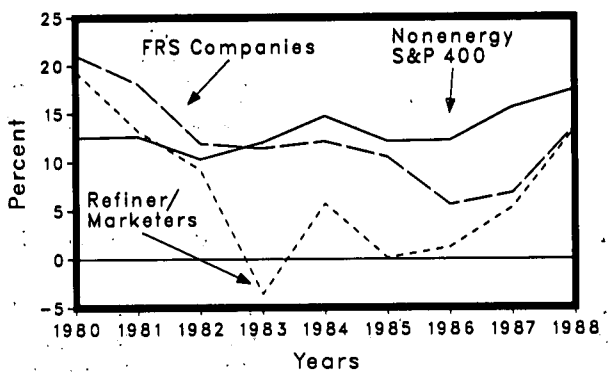
A Perspective on U.S. Refining/Marketing Profitability

Gross refining margin and refined product demand are the main sources of short-term changes in U.S. refining/marketing profitability. Short-term movements in refining/marketing profitability (as measured by return on equity)[12] generally reflect movements in the gross refining margin. The quarterly return on equity for independent U.S. refiner/marketers and the gross refining margin have evidenced a somewhat positive relationship (simple correlation coefficient of 0.6).[13] Despite the positive relationship between margins and short-term refining/marketing profitability, additional factors have influenced the longer term swings in profitability.

Since the decontrol of oil prices in early 1981, the profitability of U.S. refining/marketing was below that of U.S. industry in general, as represented in Figure FE3 by the nonenergy Standard and Poor 400 companies.[14] Throughout most of the 1980's, U.S. refiners and marketers have had to adjust to significant changes in product market demand and in the composition of crude oil supply. From 1981 through 1986, U.S. crude oil distillation capacity fell by 3 million barrels per day and the number of refineries declined from 324 to 218.[15] Over the same period, U.S. refiners' capacity to produce higher octane, unleaded gasoline rose from 61 percent of crude oil distillation capacity to 70 percent and capacity directed toward processing heavier, higher sulfur crude oils rose from 24 percent to 34 percent.[16] During this period of substantial adjustment of capacity, profitability of the independents' and the majors' U.S. refining/marketing operations was generally low.

The profitability of the major petroleum companies, as represented by the 22 major energy companies that report to EIA's Financial Reporting System, also was well below the profitability of U.S. industry for most of the decade. However the majors' profitability generally exceeded the profitability of the more specialized U.S. refiners because the majors are vertically integrated, have substantial foreign operations, and are diversified into businesses outside petroleum. Those characteristics insulated them somewhat from the lesser financial returns to refining/marketing. Within the majors' operations, U.S. refining/marketing was less profitable than the balance of their other businesses. The annual return on investment[17] for their U.S. refining/marketing operations matched or exceeded their overall profitability only in 1986 and 1988 (Figure FE4).

Figure FE3. Independent Refiner/Marketers, FRS Companies, and Nonenergy S&P 400, Return on Equity, 1980-1988



Sources: FRS Companies–Energy Information Administration, Form EIA-28, "Financial Reporting System"; Others–Standard and Poor's Compustat Services, Inc., COMPUSTAT II Annual Data Item 18 (Income Before Extraordinary Items) and Data Item 216 (Total Equity), August 1989.

[11]Energy Information Administration, "U.S. Energy Industry Financial Developments," Second Quarter 1989 (Washington, DC, September 1989), Table 3.

[12]Return on equity is a commonly used measure of corporate profitability. It is measured as the ratio of net income to stockholders' equity.

[13]Calculated by Energy Information Administration.

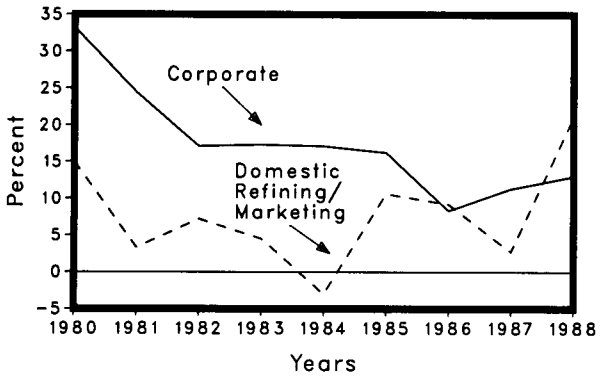
[14]In this section, the major energy companies are the Financial Reporting System (FRS) companies that report on Form EIA-28.

[15]Energy Information Administration, *Petroleum Supply Annual 1988*, DOE/EIA-0340(88)/1 (Washington, DC, May 1989), p. 63. The Hawaiian Independent Refinery was excluded from the results presented in the text.

[16]Energy Information Administration, *Performance Profiles of Major Energy Producers 1987*, DOE/EIA-0206(87) (Washington, DC, January 1989), p. 42.

[17]Since stockholders' equity is not allocated to component lines of business, an alternative measure of profitability, return on investment, is shown in Figure FE4. Return on investment is measured as the ratio of operating income to net property, plant, and equipment.

Figure FE4. FRS Companies' Operating Return on Investment, Corporate versus Domestic Refining/ Marketing, 1980-1988



Source: Energy Information Administration, Form EIA-28, "Financial Reporting System."

In summary, the profitability of U.S. refining and marketing only recently appeared to be approaching parity with the rest of U.S. industry. The improvement was achieved after a wrenching adjustment to longer term changes in market conditions and in the context of recent high refining margins.

Despite Lower Drilling Activity, Oil Field Profitability Improved

Despite the large increase in crude oil prices, domestic drilling activity failed to recover. Crude oil prices averaged about $2 per barrel higher in 1989 than in 1988. The weekly rig count, however, fell to an average of 781 for the first half of the year compared with an average of 950 rigs in the first half of 1988.[18] Further, major petroleum companies continued to report sharply reduced domestic exploration and development expenditures. For example, the majors reported that domestic exploration and development expenditures were 28 percent less in the first half of 1989 than in 1988, while foreign exploration and development expenditures increased 16 percent (Table FE2). The growth in foreign exploration expenditures continued a trend by the major petroleum companies to increasingly focus exploration and development efforts in areas outside the United States.

Lower drilling rates should have been bad news for oil field companies, but, on the contrary, net income of oil field companies rose 35 percent for the first 6 months (Table FE1). Sharply reduced losses by contract drillers accounted for most of the improvement. Apparently, the surviving drillers obtained higher prices for their services, as indicated by increased revenue.[19] Further, additional improvements were due to lower costs that resulted from earlier cost cutting, asset writedowns, and restructuring. The oil field service and equipment companies' net income was essentially unchanged from last year.

Coal Producers Reported Mixed Results

Although coal prices were down slightly during the first half of 1989, coal production increased 6 percent compared with the level in the first half of 1988. About half of the growth in coal production went to exports, and U.S. coal export volume increased 22 percent in the first half of 1989. Second-quarter coal production was only marginally affected by the United Mine Workers' strike against the Pittston Company. Pittston's reduced output was probably offset by increased production elsewhere. A series of wildcat strikes and "memorial days" did reduce coal production slightly in late June.

Coal prices paid by electric utilities during May 1989 (the most recent month for which data are available), declined 3 percent from prices paid in May 1988.[20] Electric utilities in the West paid higher prices for coal, while electric utilities in the rest of the United States (particularly New England) paid lower prices.

As a result of those factors, coal producers' financial results were mixed. Seven independent coal producers collectively reported a 16-percent decline in net income in the first half of 1989 compared with the level in the first half of 1988 (Table FE1). Four companies registered improved financial results, while three companies posted lower earnings.

Income from the coal operations of the major petroleum companies rose 11 percent in the first half of 1989 (Table FE2). The majors' coal income was boosted by increased profits from the foreign coal subsidiary of one major producer. Large-scale producers of Western coal appeared to be doing better, both on prices and volumes, than Appalachian producers.

[18]Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989), Table 5.1.

[19]Calculated from data presented in Energy Information Administration, "U.S. Energy Industry Financial Developments," Second Quarter 1989 (Washington, DC, September 1989), Table 2.

[20]Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989), Table 9.10.

Rate-Regulated Energy Industries

The 127 rate-regulated energy companies covered in this article reported first-half net income of $9 billion, a 1-percent increase compared with net income in first-half 1988. The rate-regulated energy industries include natural gas transmission and distribution companies and electric utilities.

Natural Gas Companies

The net income of gas transmission and distribution companies benefited from flat to declining wellhead gas prices and increased end-user gas prices. The companies' improved results also reflected their adjustment to the evolving regulatory environment of recent years. The distribution companies' net income increased by 1 percent in the first half of 1989 compared with the same period last year (Table FE1). The transmission companies' net income increased 15 percent.

Electric Utilities

U.S. electricity generation was 3 percent greater in the first half of 1989 than in the first half of 1988. The revenue of the 84 electric utilities covered in this article increased by an even greater 6 percent in the first half of the year.[21] A 3-percent increase in residential electricity rates contributed to this result.[22]

Electric utility earnings were mixed. Electric utilities with significant hydroelectric capacity benefited from a return to normal snowfall patterns in the Western United States. On the other hand, several nuclear power stations were shut down for maintenance and refueling during the second quarter of 1989, forcing their owners to substitute for the lost output with higher marginal cost fossil fuel-generated electricity. Overall, electric utility net income was nearly flat in the first half of the year, down only 0.4 percent from net income in the first half of 1988.

[21]Calculated from data presented in Energy Information Administration, "U.S. Energy Industry Financial Developments," Second Quarter 1989 (Washington, DC, September 1989), Table 2.

[22]Energy Information Administration, *Monthly Energy Review* June 1989, DOE/EIA-0035(89/06) (Washington, DC, September 1989), Table 9.9.

Section 1. Energy Summary

U.S. Energy Markets in the First Half of 1989

U.S. energy consumption in the first half of 1989 reached 41 quadrillion Btu, up 1.1 percent from the level of consumption in the first half of the 1988 (Table 1.1). That rate of growth was the slowest since the first half of 1986.

Several factors combined to temper the growth in energy consumption. The U.S. economy expanded at a slower pace. Real gross national product increased 3.3 percent in the first quarter of 1989 versus 5.1 percent in the first quarter of 1988, and 3.0 percent in the second quarter of 1989 versus 4.9 percent in the second quarter of 1988. Milder weather in the first half of the year tended to reduce energy requirements for space heating and cooling.

Rising crude oil prices also tended to moderate energy demand. The U.S. refiners' cost of crude oil averaged $17.72 per barrel in the first half of 1989, up 13 percent from the cost in the first half of 1988. End-use prices of some petroleum products reflected that increase. For example, the average price of finished motor gasoline (excluding taxes) rose 16 percent.

Consumption of petroleum registered the most sluggish growth of the three major fossil fuels. It totaled 17

Table 1.1 Energy Summary for June 1989
(Quadrillion (10^{15}) Btu)

	June			Cumulative January Through June				
	1989	1988	Percent Change[a]	1989	1989 Daily Rate	1988	1988 Daily Rate	Percent Change[a]
Total Production[b]	**5.327**	**5.321**	**0.1**	**32.618**	**0.180**	**32.783**	**0.180**	**0**
Petroleum[c]	1.505	1.606	-6.3	9.263	.051	9.860	.054	-5.5
Natural Gas (Dry)	1.352	1.349	.2	8.609	.048	8.689	.048	-.4
Coal	1.720	1.675	2.7	10.610	.059	10.117	.056	5.5
Other[d]	.750	.691	8.6	4.136	.023	4.117	.023	1.0
Total Consumption[b]	**6.402**	**6.292**	**1.7**	**40.719**	**.225**	**40.494**	**.222**	**1.1**
Petroleum[e]	2.821	2.768	1.9	16.850	.093	16.825	.092	.7
Natural Gas[f]	1.250	1.203	3.9	10.406	.057	10.271	.056	1.9
Coal	1.561	1.598	-2.4	9.207	.051	9.090	.050	1.9
Other[g]	.770	.722	6.6	4.257	.024	4.308	.024	-.6
Net Imports	**1.076**	**1.007**	**6.8**	**6.794**	**.038**	**6.492**	**.036**	**5.2**
Petroleum[h]	1.202	1.097	9.5	7.322	.040	6.740	.037	9.2
Natural Gas	.103	.084	22.7	.634	.004	.611	.003	4.3
Coal[i]	-.249	-.205	21.0	-1.282	-.007	-1.049	-.006	22.8
Other[j]	.020	.031	-36.5	.120	.001	.191	.001	-36.8

[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 petroleum products.
[f]Includes supplemental gaseous fuels.
[g]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.
[h]Includes crude oil, lease condensate, petroleum products, pentanes plus, unfinished oils, gasoline blending components, and imports of crude oil for the Strategic Petroleum Reserve.
[i]Minus sign indicates exports are greater than imports.
[j]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.

quadrillion Btu in the first half of 1989, up less than 1 percent from the first half of 1988. Natural gas consumption rose to 10 quadrillion Btu, up 1.9 percent, and coal consumption rose to 9 quadrillion Btu, also up 1.9 percent.

At 33 quadrillion Btu, U.S. energy production in the first half of 1989 was unchanged from the first-half 1988 level. A 6-percent decline in crude oil production plus a much smaller decline (0.4 percent) in natural gas production offset gains of 6 percent in coal production and 1 percent in other energy production.

Continued increases in U.S. energy net imports were required to meet the widening gap between supply and demand. Energy net imports totaled 7 quadrillion Btu in the first half of 1989, up 5 percent from the level in the first half of 1988. Petroleum, which accounts for most of the U.S. energy trade in terms of quantity and value, registered a 9-percent increase in net imports. That increase was partially offset by a 23-percent increase in coal net exports.

Production: Mixed Results

Of the 33 quadrillion Btu of energy produced in the first half of 1989, coal accounted for 11 quadrillion Btu, while petroleum (crude oil, lease condensate, and natural gas plant liquids) and natural gas each accounted for about 9 quadrillion Btu. Coal's share of production (33 percent) exceeded petroleum's share (28 percent) for the second consecutive year.

In physical units, first-half-year production of petroleum averaged 9.4 million barrels per day, the lowest level since at least 1973 (the first year for which data are available in this publication). In the Lower 48 States, production of crude oil and lease condensate continued to decline, falling 6 percent to 5.9 million barrels per day. Production of crude oil and lease condensate in Alaska fell to 1.9 million barrels per day, down 7 percent from production in the first half of 1988.

First-half production of natural gas declined to 8.4 trillion cubic feet. In contrast to petroleum and natural gas, coal production continued at a record pace, reaching 486 million short tons for the first half of 1989.

Although milder weather in the first half of 1989 tended to depress demand for electricity, net generation increased 3 percent compared with generation in the first half of 1988. Net electricity generation from all sources totaled 1,340 billion kilowatthours. Coal-fired net generation of electricity increased 2 percent to 751 billion kilowatthours, over half of the total.

There was some evidence that electric utilities continued to switch to petroleum: net generation of electricity from petroleum rose 35 percent to 83 billion kilowatthours. Net generation from natural gas fell slightly (0.1 percent) to 121 billion kilowatthours.

Hydroelectric generation in the first half of the year rose to 139 billion kilowatthours, up 17 percent from the level in the first half of 1988. A big jump in second-quarter generation accounted for most of the increase.

In contrast, nuclear-based generation declined from the record level of 256 billion kilowatthours in the first half of 1988 to 239 billion kilowatthours in the first half of 1989. The 6-percent decline ended 8 consecutive years of first-half increases.

Slower Growth in Energy Consumption

U.S. energy consumption totaled 41 quadrillion Btu in the first half of 1989, up 1.1 percent from the first-half 1988 level. By comparison, first-half 1988 consumption had increased 4.6 percent from the first-half 1987 level.

Although on a percentage basis, petroleum registered the smallest increase in consumption of the three major fossil fuels, petroleum consumption still accounted for the largest share (41 percent) of U.S. total energy consumption. Natural gas consumption accounted for a 26-percent share and coal consumption accounted for a 23-percent share.

In the first half of 1989, the ratio of total energy consumption in thousand Btu to constant-dollar GNP (a measure of the energy intensity of the economy) was 19.6, 2.5 percent below the ratio in the first half of 1988. By comparison, the ratio for the year in 1973 was 27.1.

Continued Growth in Imports

Despite higher prices for crude oil, the major U.S. net energy import in terms of volume, net imports of all forms of energy combined rose 5 percent in the first half of 1989 compared with the level in the first half of 1988. The volume of net imports--nearly 7 quadrillion Btu--as well as the rate of increase continued to generate concern about dependence on foreign sources of supply.

Petroleum net imports increased 9 percent in the first half of 1989 compared with net imports in the first half of 1988, and natural gas net imports increased 4 percent. Those increases more than offset the 23-percent increase in coal net exports.

Reliance on Foreign Oil

In the first half of 1989, net imports of petroleum reached 7.0 million barrels per day, equal to 41 percent of U.S. petroleum products supplied. U.S. dependence on foreign sources of oil reached its highest level since the first half of 1979.

The Organization of Petroleum Exporting Countries (OPEC) continued to expand its U.S. markets. In the first half of 1989, OPEC supplied over half of petroleum total imports--3.9 million barrels per day, an increase of 17 percent from OPEC imports in the first half of 1988. Non-OPEC total imports rose less than 1 percent. Total imports from Mexico increased 6 percent, while total imports from Canada declined 7 percent.

The Energy Trade Deficit

Higher oil prices contributed to an increase in the first-half 1989 energy trade deficit, which rose to $21 billion, up about $4 billion from the first-half 1988 deficit. Energy net imports continued to account for a sizable share of the total U.S. merchandise trade deficit--42 cents out of every dollar.

Increases in Most Energy Prices

The increase in crude oil prices contributed to higher prices for finished motor gasoline and residual fuel oil, and prices of natural gas and electricity registered modest increases. The price of distillate fuel oil declined.

Selected Petroleum Products

Higher crude oil prices, the Environmental Protection Agency's imposition of Reid vapor pressure regulations, and normal seasonal increases all combined to drive up motor gasoline prices in the first half of the year. The price (excluding taxes) of finished motor gasoline to end users averaged $0.76 per gallon in the first half of 1989, the highest first-half price since 1985.

The average price (excluding taxes) of residual fuel to end users rose 12 percent to $0.38 per gallon. Despite the increase, the residual fuel oil price remained well below prices in the early 1980's.

In contrast, the price (excluding taxes) of distillate fuel oil to end users declined, falling 2 percent to $0.56 per gallon in the first half of 1989. That price was the lowest recorded during the first half of the year since 1979.

Natural Gas

The city-gate price of natural gas averaged $2.96 per thousand cubic feet in the first half of 1989, up 5 percent from the average price in the first half of 1988. The price increase was passed through to the three end-use sectors differently. The price to the industrial sector, which consumed the most natural gas and paid the lowest rates, rose only 0.3 percent. The price to both the residential and commercial sectors rose 3 percent.

Electricity

At 6.3 cents per kilowatthour, the average retail price of electricity to all consumers in the first half of 1989 was up 2 percent from the first-half 1988 level. On a dollar-per-Btu basis, electricity remained one of the most expensive sources of energy.

The Outlook for 1989

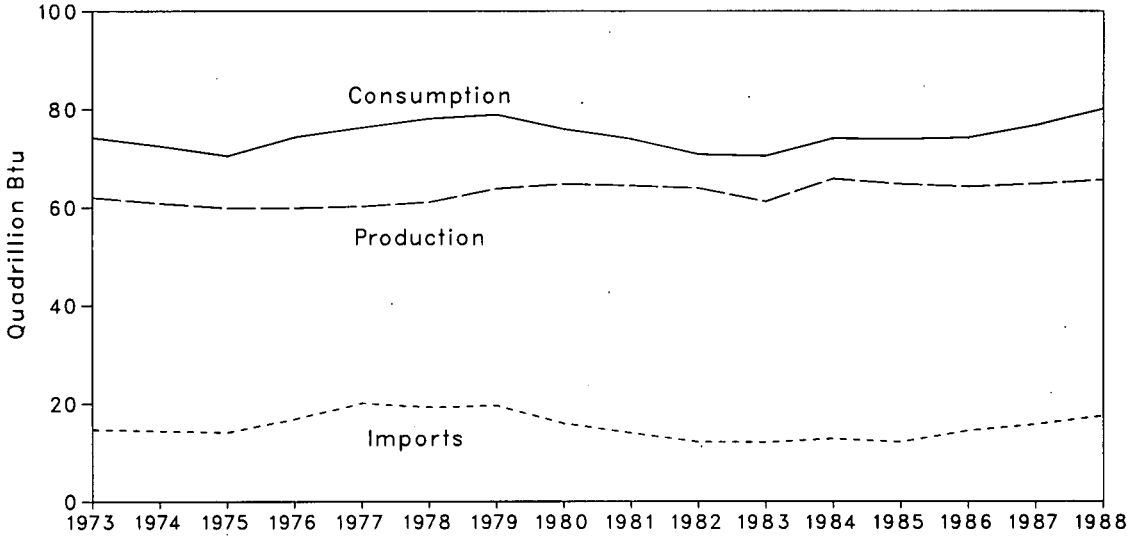
The price of imported crude oil is projected to average $17.40 per barrel in 1989. U.S. crude oil production is projected to decline to 7.8 million barrels per day in 1989, down 0.4 million barrels per day from the 1988 level, while petroleum demand is expected to rise by 0.1 million barrels per day to 17.4 million barrels per day. Increases in petroleum net imports are projected to keep pace with the production shortfall. Petroleum net imports are expected to reach 7.2 million barrels per day, the equivalent of 41 percent of projected petroleum consumption.

A Note on Sources and Calculations

The projections cited in "The Outlook for 1989" are base case projections from the Energy Information Administration (EIA), *Short-Term Energy Outlook* July 1989, DOE/EIA-0202(89/3Q) (Washington, DC, July 1989), Table 1. Historical energy data are from tables elsewhere in this issue of the *Monthly Energy Review* and from EIA calculations based on the data in the tables. Calculations of percent changes are based on unrounded daily rates.

Figure 1.1 Energy Overview

Yearly



Monthly

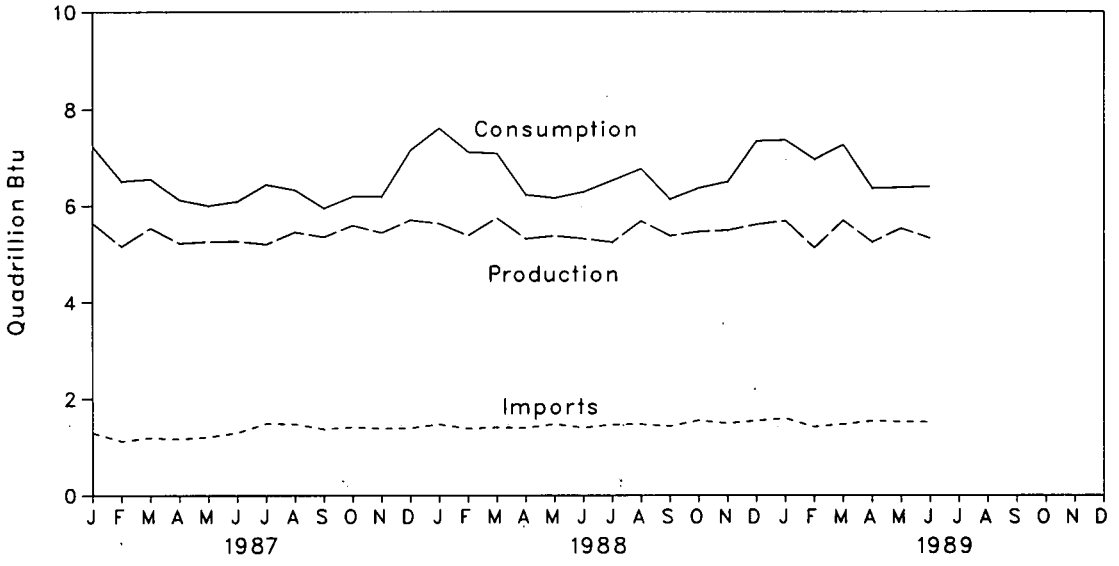


Table 1.2 Energy Overview[a]
(Quadrillion (10^{15}) Btu)

	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**	**12.098**	**4.232**	**7.866**
1986 Total	**64.225**	**74.237**	**14.430**	**4.055**	**10.375**
1987 January	5.642	7.226	1.292	.281	1.010
February	5.157	6.511	1.111	.294	.817
March	5.535	6.554	1.182	.315	.867
April	5.223	6.123	1.156	.324	.831
May	5.257	6.003	1.200	.300	.900
June	5.264	6.090	1.290	.321	.970
July	5.204	6.442	1.488	.307	1.181
August	5.454	6.332	1.478	.336	1.142
September	5.354	5.951	1.371	.324	1.046
October	5.592	6.197	1.413	.304	1.109
November	5.440	6.194	1.384	.330	1.054
December	5.703	7.145	1.392	.417	.974
Total	**64.823**	**76.768**	**15.755**	**3.852**	**11.903**
1988 January	5.632	7.605	1.475	.290	1.185
February	5.383	7.112	1.381	.277	1.104
March	5.747	7.083	1.409	.350	1.059
April	5.319	6.235	1.397	.364	1.034
May	5.380	6.166	1.478	.374	1.104
June	5.321	6.292	1.401	.394	1.007
July	5.247	6.527	1.467	.382	1.085
August	5.684	6.768	1.476	.408	1.068
September	5.378	6.139	1.435	.396	1.039
October	5.465	6.372	1.554	.383	1.171
November	5.491	6.501	1.494	.362	1.132
December	5.614	7.337	1.547	.441	1.106
Total	**65.662**	**80.135**	**17.513**	**4.420**	**13.094**
1989 January	5.689	7.355	1.596	.318	1.278
February	5.128	6.960	1.421	.332	1.089
March	5.695	7.256	1.476	.392	1.084
April	5.249	6.367	1.540	.395	1.145
May	5.529	6.380	1.528	.407	1.121
June	5.327	6.402	1.515	.439	1.076
6-Month Total	**32.618**	**40.719**	**9.077**	**2.283**	**6.794**
1988 6-Month Total	**32.783**	**40.494**	**8.540**	**2.048**	**6.492**
1987 6-Month Total	**32.077**	**38.507**	**7.230**	**1.834**	**5.396**

[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.

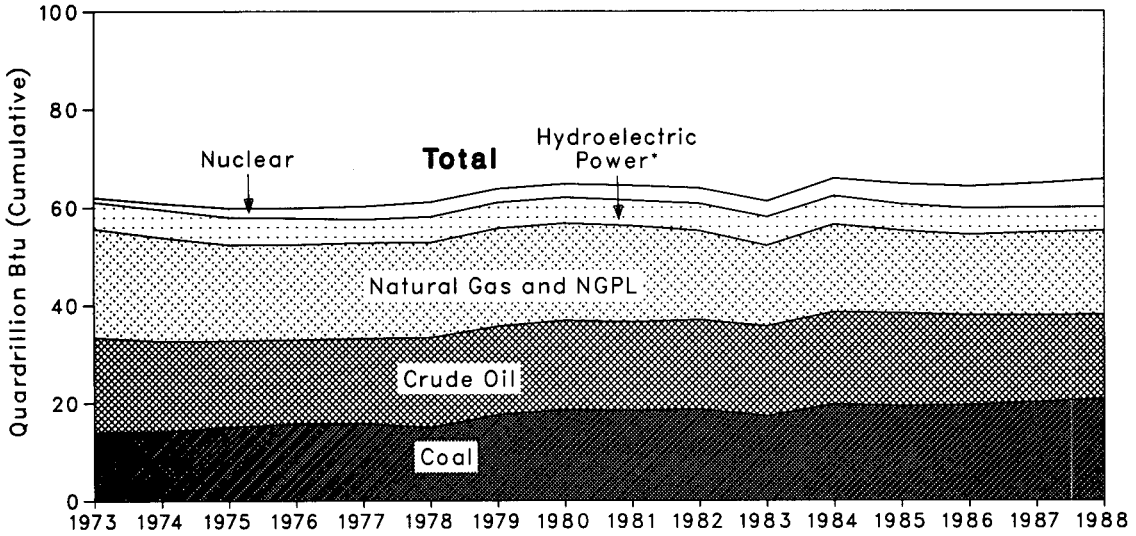
[c]The sum of domestic energy production and net imports of energy does not equal domestic energy consumption. The difference is attributed to stock changes; losses and gains in conversion, transportation, and distribution; the addition of blending compounds; shipments of anthracite to U.S. Armed Forces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

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

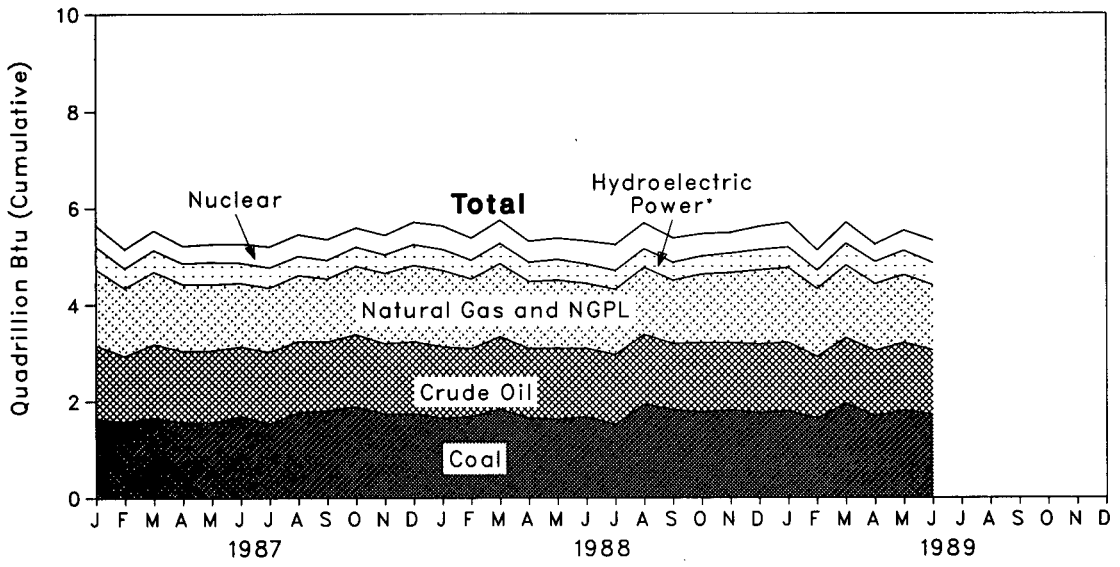
Source: Energy Information Administration calculations based on data appearing elsewhere in this publication.

Figure 1.2 Production of Energy by Source

Yearly



Monthly



*Includes other.

Table 1.3 Production of Energy by Source
(Quadrillion (10^{15}) 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 January	1.637	1.525	.187	1.578	.264	.431	.020	5.642	5.642
February	1.571	1.362	.172	1.418	.220	.394	.019	5.157	10.798
March	1.663	1.522	.188	1.498	.241	.402	.021	5.535	16.333
April	1.557	1.479	.181	1.396	.229	.361	.019	5.223	21.556
May	1.550	1.499	.187	1.379	.252	.370	.020	5.257	26.813
June	1.690	1.440	.180	1.322	.217	.394	.021	5.264	32.077
July	1.530	1.484	.187	1.340	.210	.432	.022	5.204	37.281
August	1.769	1.476	.185	1.364	.192	.446	.022	5.454	42.734
September	1.808	1.428	.181	1.301	.189	.427	.020	5.354	48.088
October	1.885	1.504	.189	1.415	.186	.393	.020	5.592	53.680
November	1.737	1.461	.187	1.457	.175	.403	.020	5.440	59.120
December	1.744	1.495	.191	1.581	.219	.453	.020	5.703	64.823
Total	**20.142**	**17.675**	**2.215**	**17.049**	**2.593**	**4.906**	**.244**	**64.823**	
1988 January	1.649	1.483	.187	1.583	.229	.481	.021	5.632	5.632
February	1.682	1.409	.177	1.444	.198	.455	.018	5.383	11.016
March	1.839	1.506	.193	1.512	.203	.473	.021	5.747	16.763
April	1.650	1.442	.185	1.392	.199	.432	.019	5.319	22.081
May	1.622	1.480	.192	1.409	.221	.438	.018	5.380	27.462
June	1.675	1.422	.185	1.349	.196	.475	.020	5.321	32.783
July	1.516	1.446	.191	1.360	.176	.537	.021	5.247	38.030
August	1.933	1.453	.191	1.388	.171	.528	.021	5.684	43.714
September	1.823	1.374	.185	1.308	.169	.499	.020	5.378	49.092
October	1.772	1.442	.196	1.418	.157	.459	.020	5.465	54.556
November	1.817	1.396	.191	1.450	.192	.426	.020	5.491	60.047
December	1.758	1.428	.193	1.534	.207	.475	.019	5.614	65.661
Total	**20.736**	**17.279**	**2.267**	**17.148**	**2.318**	**5.678**	**.236**	**65.662**	
1989 January	1.796	1.423	.195	1.550	.208	.499	.019	5.689	5.689
February	1.644	1.272	.171	1.414	.193	.417	.017	5.128	10.818
March	1.950	1.368	.195	1.500	.235	.427	.020	5.695	16.513
April	1.692	1.348	.191	1.390	.250	.361	.017	5.249	21.761
May	1.807	1.404	.192	1.404	.291	.413	.018	5.529	27.291
June	1.720	1.333	.172	1.352	.269	.463	.018	5.327	32.618
6-Month Total	**10.610**	**8.147**	**1.116**	**8.609**	**1.446**	**2.581**	**.110**	**32.618**	
1988 6-Month Total	**10.117**	**8.741**	**1.119**	**8.689**	**1.247**	**2.754**	**.116**	**32.783**	
1987 6-Month Total	**9.668**	**8.827**	**1.096**	**8.591**	**1.423**	**2.352**	**.120**	**32.077**	

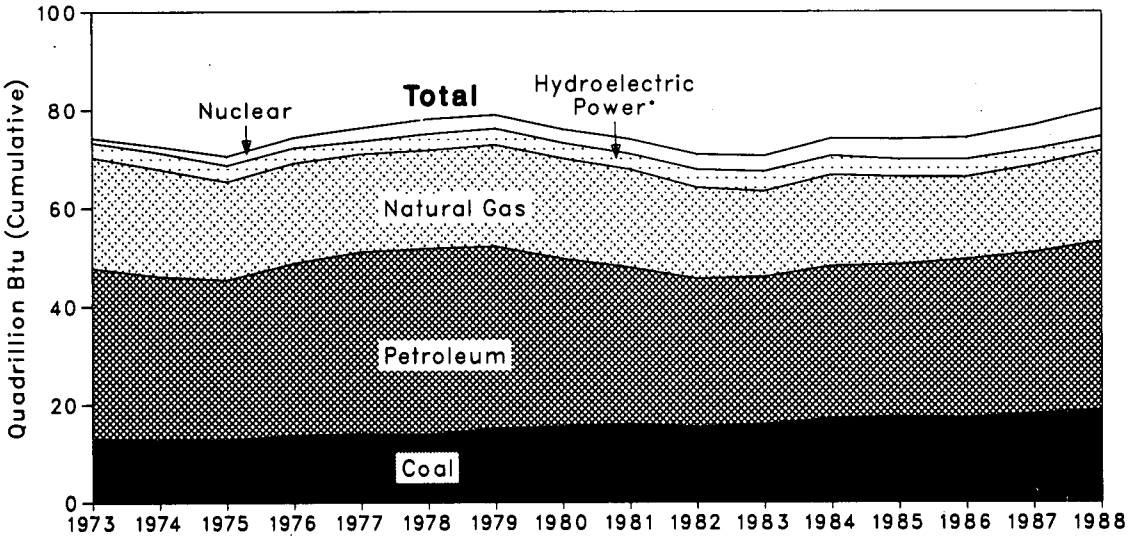
[a]Includes lease condensate.
[b]Natural gas plant liquids.
[c]Includes industrial and utility production of hydroelectric power.
[d]Other is electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.
[e]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.

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

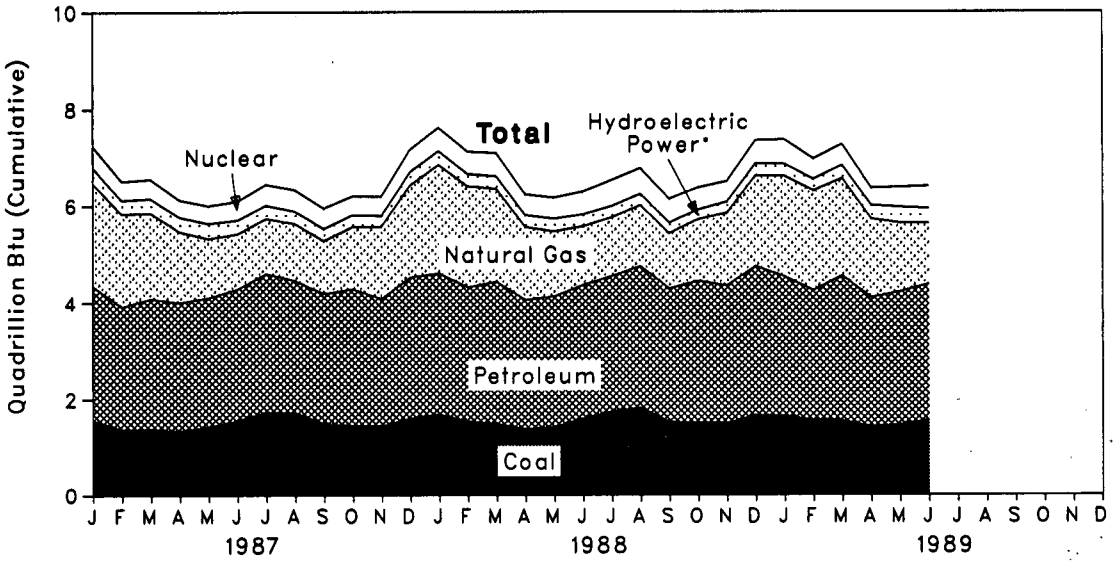
Source: Energy Information Administration calculations based on data appearing elsewhere in this publication.

Figure 1.3 Consumption of Energy by Source

Yearly



Monthly



*Includes other.

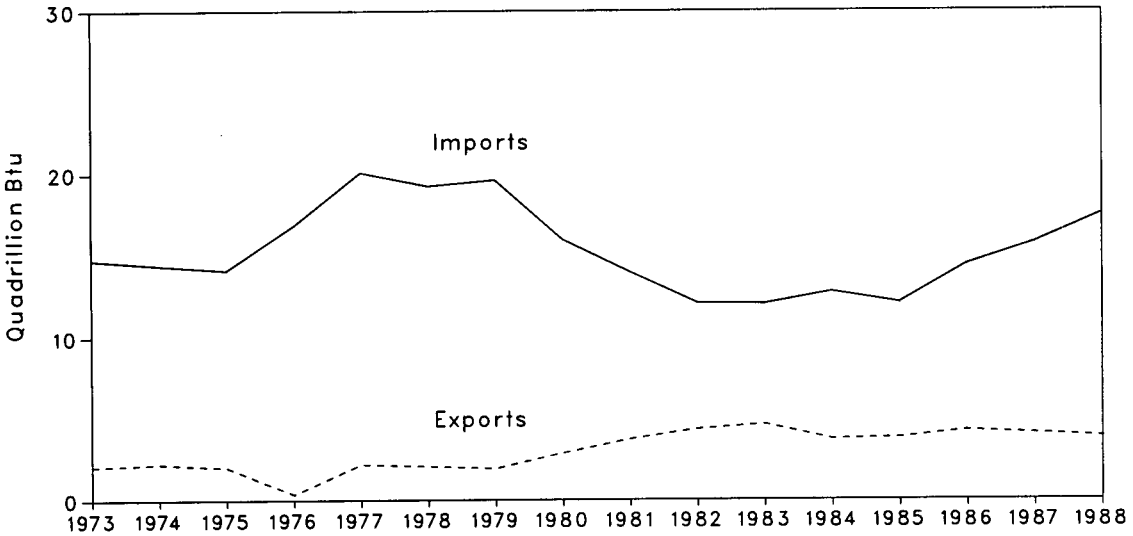
Table 1.4 Consumption of Energy by Source
(Quadrillion (10^{15}) Btu)

	Coal	Natural Gas[a]	Petro-leum	Hydro-electric 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 January	1.563	2.115	2.794	.303	.431	.019	7.226	7.226
February	1.358	1.917	2.558	.264	.394	.020	6.511	13.736
March	1.372	1.767	2.707	.286	.402	.019	6.554	20.290
April	1.323	1.466	2.678	.275	.361	.020	6.123	26.414
May	1.419	1.221	2.684	.288	.370	.021	6.003	32.416
June	1.554	1.133	2.728	.259	.394	.023	6.090	38.507
July	1.732	1.133	2.866	.258	.432	.022	6.442	44.949
August	1.720	1.169	2.738	.237	.446	.022	6.332	51.281
September	1.484	1.091	2.702	.222	.427	.024	5.951	57.232
October	1.448	1.276	2.838	.220	.393	.022	6.197	63.429
November	1.434	1.481	2.649	.205	.403	.022	6.194	69.623
December	1.602	1.900	2.922	.250	.453	.019	7.145	76.768
Total	**18.008**	**17.668**	**32.865**	**3.068**	**4.906**	**.253**	**76.768**	
1988 January	1.686	2.235	2.918	.261	.481	.024	7.605	7.605
February	1.537	2.084	2.785	.232	.455	.019	7.112	14.718
March	1.483	1.913	2.953	.235	.473	.026	7.083	21.801
April	1.370	1.499	2.687	.225	.432	.023	6.235	28.036
May	1.415	1.337	2.715	.244	.438	.017	6.166	34.202
June	1.598	1.203	2.768	.223	.475	.024	6.292	40.494
July	1.747	1.205	2.799	.211	.537	.028	6.527	47.021
August	1.821	1.256	2.931	.209	.528	.024	6.768	53.789
September	1.523	1.131	2.770	.194	.499	.023	6.139	59.928
October	1.499	1.263	2.947	.180	.459	.024	6.372	66.299
November	1.493	1.493	2.859	.209	.426	.021	6.501	72.800
December	1.667	1.872	3.079	.221	.475	.022	7.337	80.138
Total	**18.840**	**18.489**	**34.209**	**2.644**	**5.678**	**.276**	**80.135**	
1989 January	1.650	2.071	2.885	.222	.499	.026	7.355	7.355
February	1.563	2.058	2.690	.213	.417	.019	6.960	14.315
March	1.552	2.005	3.002	.246	.427	.023	7.256	21.570
April	1.417	1.615	2.687	.263	.361	.024	6.367	27.937
May	1.464	1.407	2.764	.308	.413	.024	6.380	34.318
June	1.561	1.250	2.821	.285	.463	.023	6.402	40.719
6-Month Total	**9.207**	**10.406**	**16.850**	**1.536**	**2.581**	**.140**	**40.719**	
1988 6-Month Total	**9.090**	**10.271**	**16.825**	**1.420**	**2.754**	**.134**	**40.494**	
1987 6-Month Total	**8.588**	**9.618**	**16.150**	**1.676**	**2.352**	**.121**	**38.507**	

[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.
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

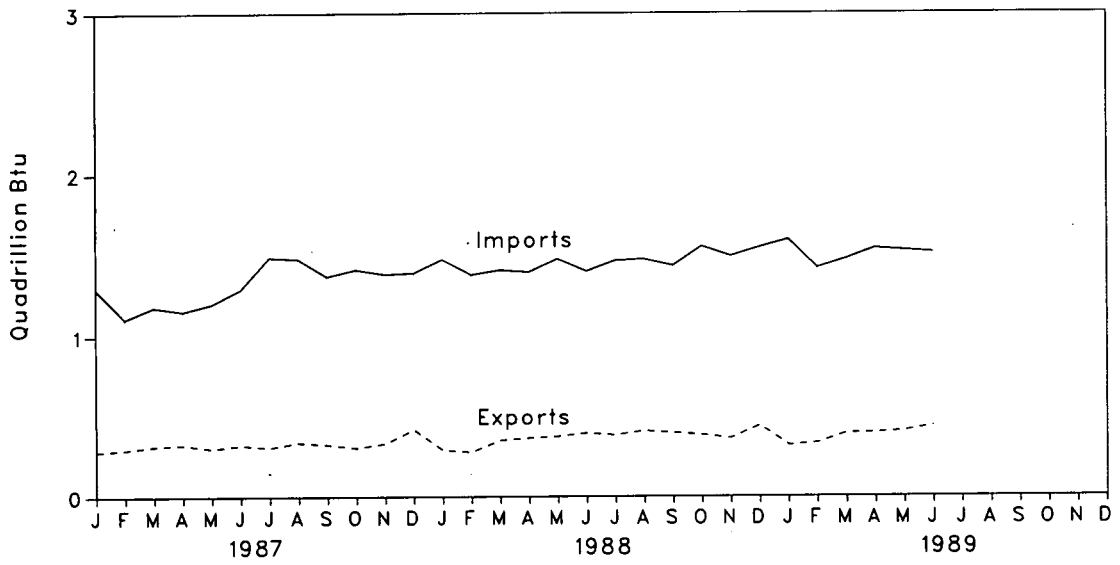


Table 1.5 Net Imports[a] of Energy by Source
(Quadrillion (10^{15}) Btu)

	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	**-1.568**	**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**	**0**	**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**	**8.854**	**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**	**.894**	**.423**	**-.013**	**7.866**	
1986 Total	**-2.193**	**8.676**	**2.855**	**.686**	**.368**	**-.017**	**10.375**	
1987 January	-.141	.787	.229	.096	.040	-.001	1.010	1.010
February	-.120	.593	.218	.081	.044	.001	.817	1.828
March	-.167	.664	.246	.081	.045	-.002	.867	2.695
April	-.158	.689	.189	.065	.046	0	.831	3.526
May	-.169	.782	.192	.058	.037	0	.900	4.426
June	-.190	.831	.232	.053	.042	.002	.970	5.396
July	-.171	.942	.302	.061	.048	0	1.181	6.577
August	-.199	.982	.242	.070	.046	.001	1.142	7.719
September	-.171	.885	.228	.068	.033	.004	1.046	8.766
October	-.172	.926	.232	.088	.034	.002	1.109	9.875
November	-.183	.859	.244	.101	.030	.003	1.054	10.928
December	-.209	.809	.229	.116	.031	-.001	.974	11.903
Total	**-2.049**	**9.748**	**2.784**	**.936**	**.475**	**.009**	**11.903**	
1988 January	-.113	.811	.318	.133	.032	.003	1.185	1.185
February	-.114	.767	.305	.111	.033	.002	1.104	2.288
March	-.182	.847	.251	.106	.032	.006	1.059	3.348
April	-.233	.890	.258	.089	.026	.004	1.034	4.382
May	-.202	.946	.250	.089	.022	-.002	1.104	5.485
June	-.205	.913	.184	.084	.027	.005	1.007	6.492
July	-.213	.894	.268	.094	.035	.007	1.085	7.577
August	-.240	.898	.282	.087	.038	.003	1.068	8.646
September	-.264	.897	.291	.087	.025	.003	1.039	9.685
October	-.231	.980	.296	.099	.023	.004	1.171	10.855
November	-.214	.867	.348	.113	.017	.001	1.132	11.987
December	-.234	.928	.278	.117	.015	.003	1.106	13.094
Total	**-2.446**	**10.638**	**3.329**	**1.207**	**.326**	**.040**	**13.094**	
1989 January	-.164	.980	.328	.113	E .015	.007	1.278	1.278
February	-.174	.831	.309	.102	E .019	.002	1.089	2.368
March	-.212	.880	.292	.110	E .011	.003	1.084	3.452
April	-.236	.987	.270	.104	E .013	.007	1.145	4.597
May	-.247	1.007	.236	.103	E .017	.006	1.121	5.718
June	-.249	.999	.203	.103	E .016	.004	1.076	6.794
6-Month Total	**-1.282**	**5.684**	**1.638**	**.634**	**E .091**	**.029**	**6.794**	
1988 6-Month Total	**-1.049**	**5.174**	**1.566**	**.611**	**.173**	**.018**	**6.492**	
1987 6-Month Total	**-.944**	**4.345**	**1.307**	**.433**	**.254**	**.001**	**5.396**	

[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 10.3 to 10.5 thousand Btu per kilowatthour since 1973. Actual rates applied in converting kilowatthour to Btu are listed by year in the Appendix of this publication.

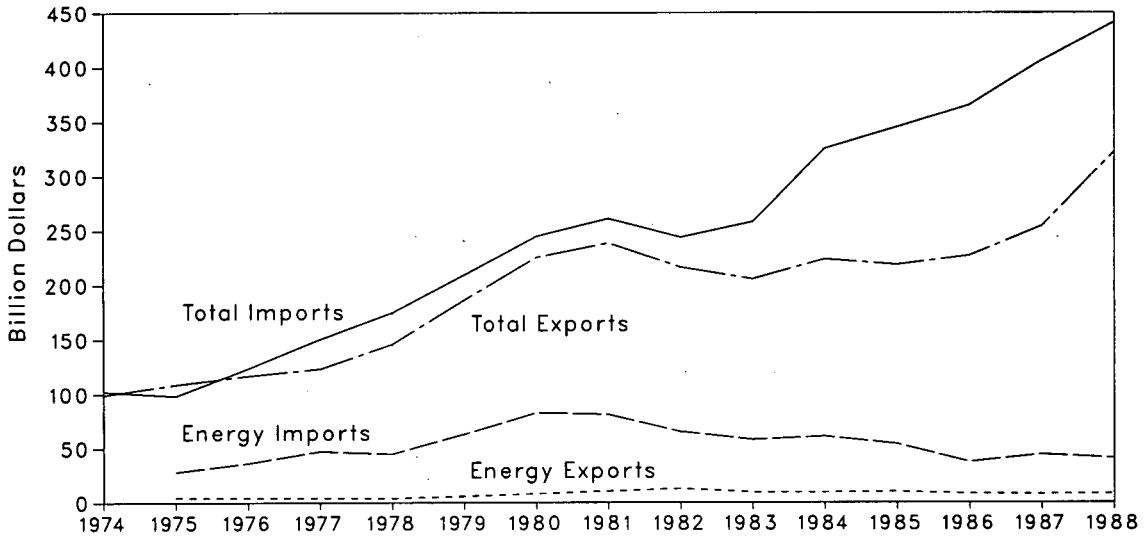
E=Estimate.

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

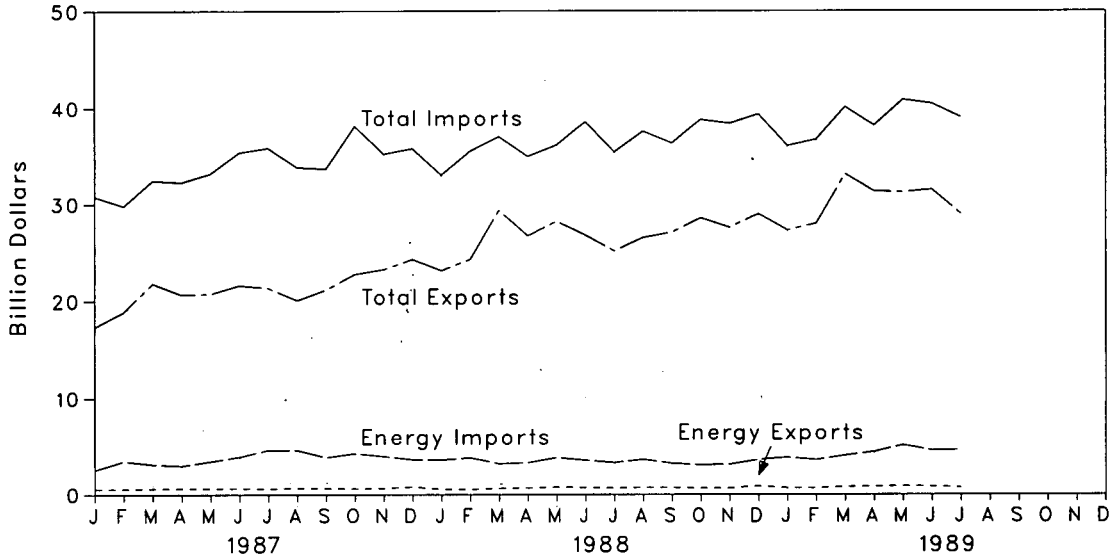


Table 1.6 Merchandise Trade Value
(Million Dollars)

	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 January	573	16,773	17,346	2,564	28,235	30,799	-1,991	-11,462	-13,453
February	564	18,290	18,854	3,440	26,370	29,810	-2,876	-8,080	-10,956
March	620	21,216	21,836	3,120	29,344	32,464	-2,500	-8,128	-10,628
April	633	20,045	20,678	2,979	29,312	32,291	-2,346	-9,267	-11,613
May	623	20,137	20,760	3,425	29,745	33,170	-2,802	-9,608	-12,410
June	654	20,983	21,637	3,895	31,463	35,358	-3,241	-10,480	-13,721
July	605	20,774	21,379	4,593	31,217	35,810	-3,988	-10,443	-14,431
August	675	19,404	20,079	4,582	29,244	33,826	-3,907	-9,840	-13,747
September	657	20,527	21,184	3,830	29,838	33,668	-3,173	-9,311	-12,484
October	630	22,148	22,778	4,240	33,836	38,076	-3,610	-11,688	-15,298
November	660	22,619	23,279	3,940	31,271	35,211	-3,280	-8,652	-11,932
December	817	23,497	24,314	3,612	32,147	35,759	-2,795	-8,650	-11,445
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	R 677	R 24,509	25,186	R 3,293	R 32,104	35,397	R -2,616	R -7,595	-10,211
August	727	25,812	26,539	3,608	33,937	37,545	-2,881	-8,125	-11,006
September	711	26,356	27,067	3,204	33,100	36,304	-2,493	-6,744	-9,237
October	656	27,888	28,544	3,057	35,738	38,795	-2,401	-7,850	-10,251
November	654	26,911	27,565	3,101	35,288	38,389	-2,447	-8,377	-10,824
December	864	28,118	28,982	3,583	35,801	39,384	-2,719	-7,683	-10,402
Total	**R 8,211**	**R 314,215**	**322,426**	**R 41,013**	**R 399,939**	**440,952**	**R -32,802**	**R -85,724**	**-118,526**
1989 January	678	26,617	27,295	3,816	32,216	36,032	-3,138	-5,600	-8,738
February	673	27,291	27,964	3,567	33,120	36,687	-2,894	-5,830	-8,724
March	783	32,348	33,131	4,024	36,123	40,147	-3,241	-3,775	-7,016
April	814	30,553	31,367	4,392	33,793	38,185	-3,578	-3,240	-6,818
May	871	30,400	31,271	5,104	35,792	40,896	-4,233	-5,392	-9,625
June	831	R 30,706	R 31,537	4,543	R 35,951	R 40,494	-3,712	R -5,245	R -8,957
July	718	28,262	28,980	4,603	34,452	39,055	-3,885	-6,190	-10,075
7-Month Total	**5,368**	**206,176**	**211,544**	**30,050**	**241,446**	**271,496**	**-24,682**	**-35,270**	**-59,952**

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

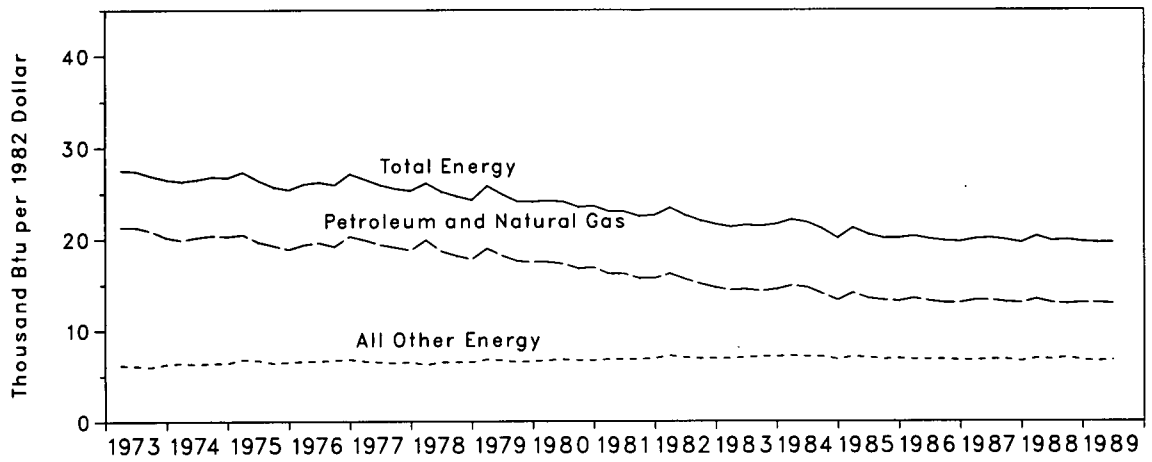


Table 1.7 Energy Consumption per Dollar of Gross National Product (Seasonally Adjusted at Annual Rates)

	Energy Consumption[a]	Gross National Product (GNP)	Energy Consumption per Dollar of GNP		
			Total Energy	Petroleum and Natural Gas	All Other Energy
	Quadrillion Btu	Trillion 1982 Dollars	Thousand Btu per 1982 Dollar		
1973 Year	**74.282**	**2.744**	**27.1**	**20.9**	**6.2**
1974 Year	**72.543**	**2.729**	**26.6**	**20.2**	**6.4**
1975 Year	**70.546**	**2.695**	**26.2**	**19.5**	**6.7**
1976 Year	**74.362**	**2.827**	**26.3**	**19.6**	**6.7**
1977 Year	**76.288**	**2.959**	**25.8**	**19.3**	**6.5**
1978 Year	**78.089**	**3.115**	**25.1**	**18.6**	**6.5**
1979 Year	**78.898**	**3.192**	**24.7**	**18.1**	**6.6**
1980 Year	**75.955**	**3.187**	**23.8**	**17.1**	**6.7**
1981 Year	**73.990**	**3.249**	**22.8**	**16.0**	**6.8**
1982 Year	**70.848**	**3.166**	**22.4**	**15.4**	**7.0**
1983 Year	**70.524**	**3.279**	**21.5**	**14.5**	**7.0**
1984 Year	**74.101**	**3.501**	**21.2**	**14.2**	**7.0**
1985 Year	**73.945**	**3.619**	**20.4**	**13.5**	**6.9**
1986 Year	**74.237**	**3.718**	**20.0**	**13.2**	**6.8**
1987 1st Quarter[b]	75.806	3.783	20.0	13.3	6.7
2nd Quarter[b]	76.967	3.824	20.1	13.3	6.8
3rd Quarter[b]	77.229	3.873	19.9	13.1	6.8
4th Quarter[b]	77.051	3.936	19.6	13.0	6.6
Year	**76.768**	**3.854**	**19.9**	**13.1**	**6.8**
1988 1st Quarter[b]	80.777	3.975	20.3	13.4	6.9
2nd Quarter[b]	79.313	4.011	19.8	13.0	6.8
3rd Quarter[b]	80.369	4.043	19.9	12.9	7.0
4th Quarter[b]	80.086	4.069	19.7	13.0	6.7
Year	**80.135**	**4.024**	**19.9**	**13.1**	**6.8**
1989 1st Quarter[b]	R 80.677	4.107	19.6	R 13.0	R 6.6
2nd Quarter[b]	81.042	4.133	19.6	12.9	6.7

[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

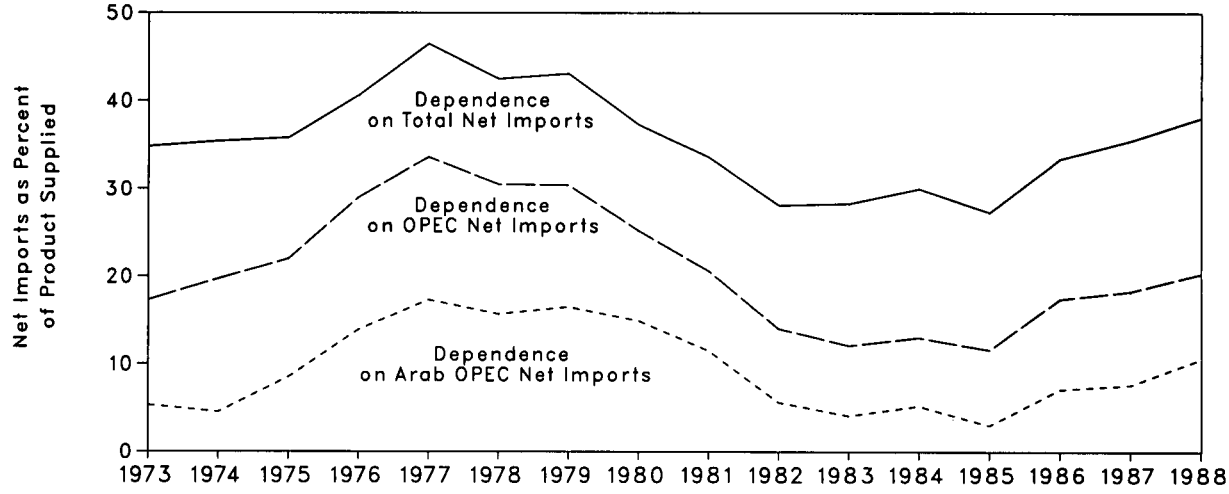


Table 1.8 U.S. Dependence on Petroleum Net Imports[a]

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 1st Quarter	1,077	2,608	5,252	16,575	6.5	15.7	31.7
2nd Quarter	968	2,734	5,514	16,455	5.9	16.6	33.5
3rd Quarter	1,501	3,607	6,697	16,710	9.0	21.6	40.1
4th Quarter	1,534	3,251	6,175	16,916	9.1	19.2	36.5
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	2,034	3,866	6,946	17,623	11.5	21.9	39.4
2nd Quarter	2,047	3,994	7,007	16,809	12.2	23.8	41.7

[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

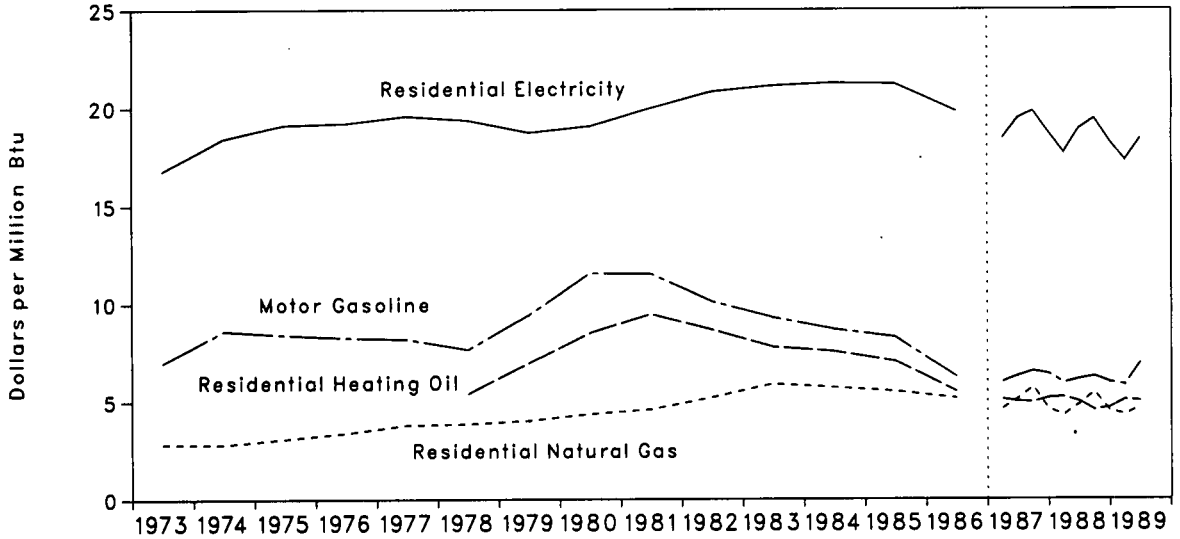


Table 1.9 Cost of Fuels to End Users in Constant (1982-84) Dollars[a]

	Leaded Regular Motor Gasoline		Residential Heating Oil		Residential Natural Gas		Residential Electricity[b]	
	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 1st Quarter	75.0	6.00	71.0	5.12	477.6	4.63	6.28	18.41
2nd Quarter	78.8	6.30	69.3	5.00	530.5	5.15	6.64	19.46
3rd Quarter	81.8	6.54	68.9	4.97	590.0	5.72	6.77	19.83
4th Quarter	80.1	6.40	71.8	5.18	474.0	4.60	6.39	18.72
Average	**79.0**	**6.31**	**70.7**	**5.10**	**487.7**	**4.73**	**6.52**	**19.12**
1988 1st Quarter	74.3	5.94	72.4	5.22	441.9	4.29	6.04	17.70
2nd Quarter	76.7	6.13	69.4	5.00	506.4	4.91	6.45	18.91
3rd Quarter	78.4	6.27	63.3	4.56	574.3	5.57	6.63	19.44
4th Quarter	74.8	5.98	64.9	4.68	469.7	4.56	6.23	18.25
Average	**76.0**	**6.08**	**68.8**	**4.96**	**464.1**	**4.50**	**6.33**	**18.56**
1989 1st Quarter	73.1	5.85	70.6	5.09	445.4	4.32	5.91	17.32
2nd Quarter	87.3	6.98	69.7	5.03	484.6	4.70	6.28	18.40

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

[b]Calculated from Table 9.9 "Old Series" for 1973 through 1985 and "New Series" for 1986 forward.

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.

Sources: See end of section.

Figure 1.9 Passenger Car Efficiency

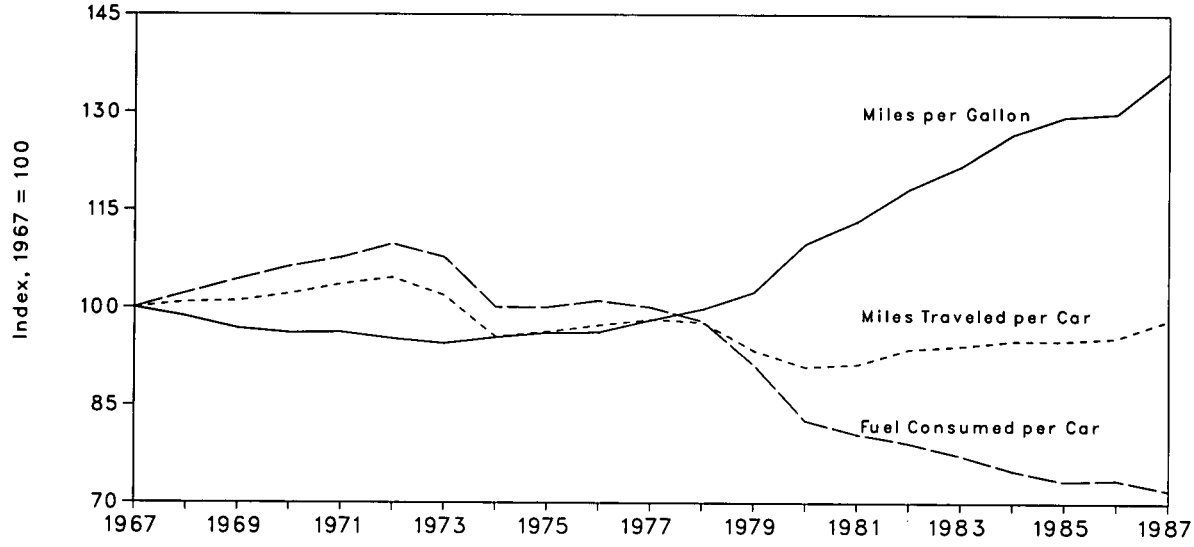


Table 1.10 Passenger Car Efficiency

	Average Fuel Consumed per Car		Average Miles Traveled per Car		Average Miles Traveled per Gallon of Fuel Consumed	
	Gallons	Index	Miles	Index	Miles	Index
1967	715	100.0	10,060	100.0	14.07	100.0
1968	731	102.2	10,144	100.8	13.87	98.6
1969	746	104.3	10,158	101.0	13.62	96.8
1970	760	106.3	10,272	102.1	13.52	96.1
1971	770	107.7	10,422	103.6	13.54	96.2
1972	785	109.8	10,521	104.6	13.40	95.2
1973	771	107.8	10,256	101.9	13.30	94.5
1974	716	100.1	9,606	95.5	13.42	95.4
1975	716	100.1	9,690	96.3	13.52	96.1
1976	723	101.1	9,785	97.3	13.53	96.2
1977	716	100.1	9,879	98.2	13.80	98.1
1978	701	98.0	9,835	97.8	14.04	99.8
1979	653	91.3	9,403	93.5	14.41	102.4
1980	591	82.7	9,141	90.9	15.46	109.9
1981	576	80.6	9,186	91.3	15.94	113.3
1982	566	79.2	9,428	93.7	16.65	118.3
1983	553	77.3	9,475	94.2	17.14	121.8
1984	536	75.0	9,558	95.0	17.83	126.7
1985	525	73.4	9,560	95.0	18.20	129.4
1986	526	73.6	9,608	95.5	18.27	129.9
1987[a]	515	72.0	9,883	98.2	19.17	136.2

[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]	1988	1989	Normal to 1989	1988 to 1989	Normal[b]	1988	1989	Normal to 1989	1988 to 1989
New England CT, ME, MA, NH, RI, VT	143	241	145	1.4	-39.8	398	576	389	-2.3	-32.5
Middle Atlantic NJ, NY, PA	217	291	205	-5.5	-29.6	625	802	631	1.0	-21.3
East North Central IL, IN, MI, OH, WI	210	317	184	-12.4	-42.0	667	916	636	-4.6	-30.6
West North Central IA, KS, MN, MO, NE, ND, SD	262	357	243	-7.3	-31.9	883	1,097	813	-7.9	-25.9
South Atlantic DE, FL, GA, MD and DC, NC, SC, VA, WV	391	440	385	-1.5	-12.5	1,431	1,473	1,539	7.5	4.5
East South Central AL, KY, MS, TN	385	452	385	0	-14.8	1,310	1,351	1,275	-2.7	-5.6
West South Central AR, LA, OK, TX	537	585	505	-6.0	-13.7	1,943	1,897	1,943	0	2.4
Mountain AZ, CO, ID, MT, NV, NM, UT, WY	266	285	264	-.8	-7.4	869	1,021	1,032	18.8	1.1
Pacific CA, OR, WA	189	165	133	-29.6	-19.4	467	456	415	-11.1	-9.0
U.S. Average[c]	**287**	**347**	**267**	**-7.0**	**-23.1**	**947**	**1,059**	**953**	**.6**	**-10.0**

[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.

Notes and Sources for the Energy Summary Section

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" represent general imports (i.e., entries for immediate consumption, entries into customs bonded warehouses, and entries for the Strategic Petroleum Reserve). The statistics reflect both government and nongovernment imports of merchandise from foreign countries into the U.S. customs territory (which includes the 50 United States, the District of Columbia, and Puerto Rico) and the Virgin Islands. The statistics exclude imports into Guam, American Samoa, and other U.S. possessions, as well as shipments between the United States and Puerto Rico and the Virgin Islands, between the United States and other U.S. possessions, and between any two of those outlying areas.

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	1987:	1st Quarter	111.6
1974	49.3		2nd Quarter	113.1
1975	53.8		3rd Quarter	114.4
1976	56.9		4th Quarter	115.4
1977	60.6		Year	113.6
1978	65.2	1988:	1st Quarter	116.1
1979	72.6		2nd Quarter	117.5
1980	82.4		3rd Quarter	119.1
1981	90.9		4th Quarter	120.3
1982	96.5		Year	118.3
1983	99.6	1989	1st Quarter	121.7
1984	103.9		2nd Quarter	123.6
1985	107.6			
1986	109.6			

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 Administra-

tion. 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, 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 U.S. Department of Commerce, 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: U.S. Department of Commerce, Bureau of the Census, "Summary of U.S. Export and Import Merchandise Trade," most recent monthly issue.

Gross National Product: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business.*

U.S. Dependence on Petroleum Net Imports: Imports and Products Supplied--Section 3 of this publication. Exports--1973 through 1976: Bureau of Mines, *Mineral Industry Surveys.* 1977 through 1980: Energy Information Administration (EIA), *Energy Data Reports* , "Petroleum Statement, Annual." 1981-1987: EIA, *Petroleum Supply Annual.* 1988 forward: EIA, *Petroleum Supply Monthly.*

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

- Leaded Regular Motor Gasoline--Bureau of Labor Statistics (BLS), *Consumer Prices: Energy,* monthly.
- Residential Heating Oil--EIA, 1983 forward: EIA Form-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report" and EIA Form-782B, "Resellers/Retailers' Monthly Petroleum Product Sales Report." Prices prior to 1983 are EIA estimates using data from FEA Form P112-M1/EIA-9, "No. 2 Heating Oil Supply/Price Monitoring Report" and EIA Form 9-A, "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--EIA, Annual data from Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." Monthly data from Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers."
- Residential Electricity--Federal Energy Regulatory Commission (FERC), 1973 through February 1980: FPC Form 5, "Monthly Statement of Electric Operating Revenue and Income"; March 1980 forward: FERC Form 5, "Electric Utility Company Monthly Statement."
- Deflator (The Consumer Price Index, All Urban Consumers, All Items, 1982-84=100), Consumer Price Index-Detailed Report, *Monthly Labor Review,* BLS.

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 and 1987: *Highway Statistics,* Table VM-1.

Section 2. Consumption

U.S. total energy consumption in June 1989 was 6.4 quadrillion Btu. Petroleum products accounted for 44 percent[23] of the energy consumed in June 1989, while coal accounted for 24 percent and natural gas accounted for 20 percent.

Residential and commercial sector consumption was 2.1 quadrillion Btu in June 1989, up 1 percent from the June 1988 level. The sector accounted for 32 percent of June 1989 total consumption, down 1 percentage point from its 33-percent share in June 1988.

Industrial sector consumption was 2.4 quadrillion Btu in June 1989, up 2 percent from the June 1988 level. The industrial sector accounted for 38 percent of June 1989 total consumption, about the same share as in June 1988.

Transportation sector consumption of energy was 1.9 quadrillion Btu in June 1989, up 1 percent from the June 1988 level. The sector consumed 30 percent of June 1989 total consumption, about the same share as in June 1988.

Electric utility consumption of energy totaled 2.5 quadrillion Btu in June 1989, up 1 percent from the June 1988 level. Coal contributed 53 percent of the energy consumed by electric utilities in June 1989, while nuclear electric power contributed 19 percent; hydroelectric power and natural gas 11 percent each; petroleum 5 percent; and wood, waste, geothermal, wind, photovoltaic, and solar thermal energy, about 1 percent.

Table 2.1 Energy Consumption Summary for June 1989
(Quadrillion (10^{15}) Btu)

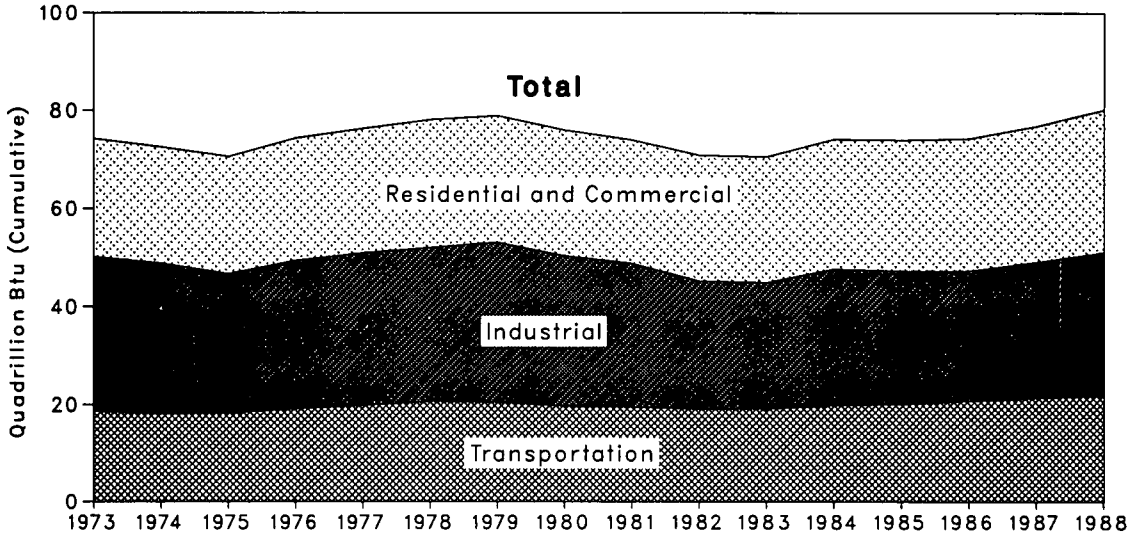
Energy Source	Sector				Total
	Residential and Commercial	Industrial	Transportation	Electric Utilities	
Coal	0.010	0.218	[a]	1.331	1.561
Natural Gas[b]	.289	.649	0.045	.267	1.250
Petroleum Products	.179	.666	1.842	.134	2.821
Hydroelectric Power	-	.003	-	.281	.285
Nuclear Electric Power	-	-	-	.463	.463
Net Imports of Coal Coke	-	.004	-	-	.004
Other[c]	-	-	-	.018	.018
Primary Consumption	**.477**	**1.541**	**1.887**	**2.495**	**6.402**
Electricity	.482	.267	.001		
Net Energy Consumption	**.959**	**1.808**	**1.888**		**4.657**
Electrical System Energy Losses	1.121	.621	.003		1.745
Total Energy Consumption[d]	**2.080**	**2.429**	**1.891**		**6.402**

[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.
Additional Notes and Sources: See end of section.

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

Figure 2.1 Consumption of Energy by End-Use Sector

Yearly



Monthly

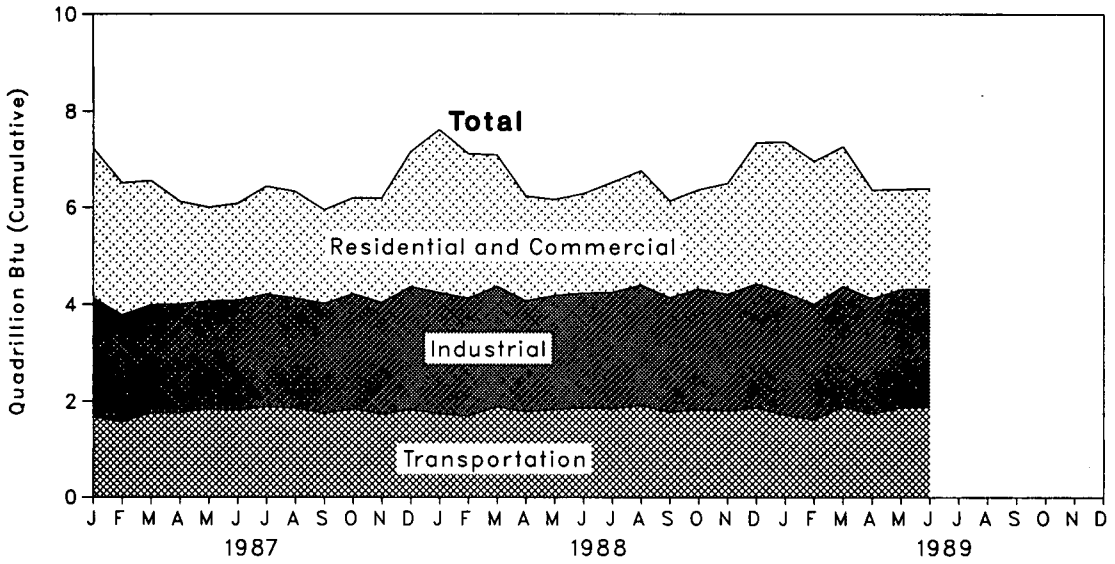


Table 2.2 Consumption of Energy by End-Use Sector
(Quadrillion (10^{15}) Btu)

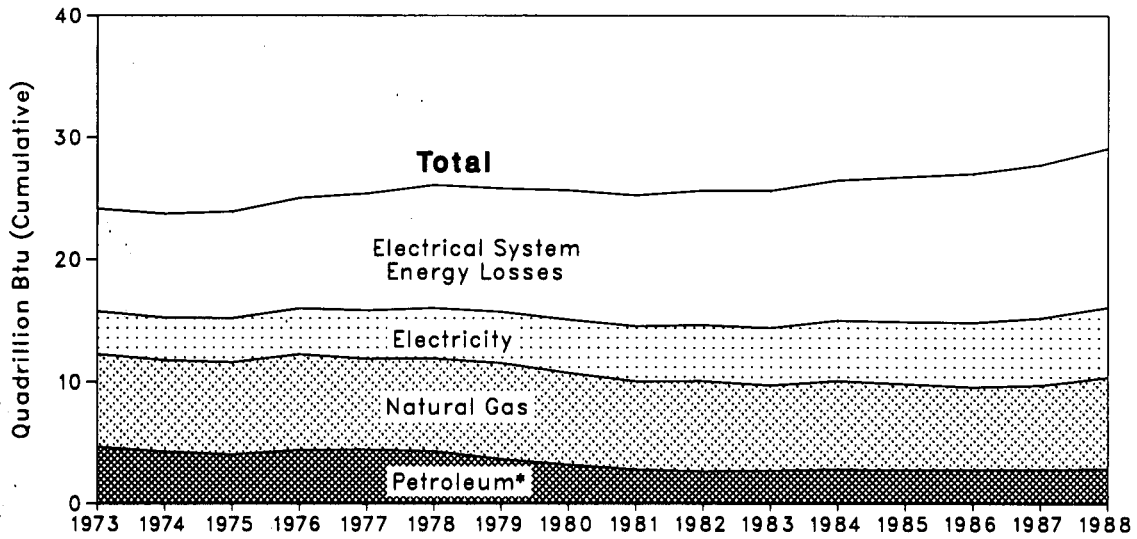
	Residential and Commercial		Industrial		Transportation		Total Net	Total Gross
	Net	Gross	Net	Gross	Net	Gross		
1973 Total	**15.766**	**24.143**	**25.917**	**31.527**	**18.584**	**18.605**	**60.274**	**74.282**
1974 Total	**15.246**	**23.724**	**24.994**	**30.695**	**18.095**	**18.117**	**58.341**	**72.543**
1975 Total	**15.200**	**23.900**	**22.738**	**28.402**	**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**	**19.399**	**25.755**	**19.105**	**19.131**	**52.907**	**70.524**
1984 Total	**15.007**	**26.486**	**21.071**	**27.744**	**19.840**	**19.869**	**55.920**	**74.101**
1985 Total	**14.898**	**26.754**	**20.423**	**27.084**	**20.077**	**20.109**	**55.397**	**73.945**
1986 Total	**14.827**	**27.017**	**20.048**	**26.451**	**20.741**	**20.770**	**55.616**	**74.237**
1987 January	1.946	3.094	1.926	2.450	1.677	1.679	5.551	7.226
February	1.790	2.732	1.740	2.204	1.571	1.573	5.101	6.511
March	1.592	2.567	1.692	2.220	1.765	1.767	5.049	6.554
April	1.241	2.127	1.714	2.232	1.766	1.768	4.716	6.123
May	.958	1.938	1.643	2.220	1.843	1.846	4.442	6.003
June	.892	2.003	1.669	2.264	1.816	1.819	4.382	6.090
July	.950	2.228	1.716	2.320	1.888	1.891	4.558	6.442
August	.941	2.203	1.680	2.265	1.859	1.861	4.482	6.332
September	.925	1.933	1.734	2.263	1.753	1.756	4.410	5.951
October	1.050	1.981	1.821	2.372	1.845	1.847	4.713	6.197
November	1.229	2.159	1.747	2.301	1.735	1.737	4.707	6.194
December	1.686	2.778	1.969	2.538	1.829	1.832	5.482	7.145
Total	**15.199**	**27.742**	**21.052**	**27.652**	**21.349**	**21.378**	**57.595**	**76.768**
1988 January	2.150	3.357	1.957	2.502	1.744	1.746	5.852	7.605
February	1.945	2.982	1.922	2.433	1.696	1.698	5.562	7.112
March	1.691	2.708	1.939	2.485	1.891	1.893	5.518	7.083
April	1.256	2.160	1.762	2.291	1.786	1.788	4.800	6.235
May	1.023	1.981	1.762	2.350	1.837	1.839	4.618	6.166
June	.921	2.051	1.752	2.371	1.865	1.868	4.541	6.292
July	.960	2.270	1.764	2.403	1.849	1.851	4.575	6.527
August	1.002	2.360	1.836	2.481	1.919	1.922	4.762	6.768
September	.954	1.995	1.839	2.369	1.774	1.776	4.566	6.139
October	1.082	2.048	1.926	2.487	1.837	1.839	4.842	6.372
November	1.322	2.285	1.849	2.408	1.808	1.810	4.977	6.501
December	1.782	2.910	1.975	2.556	1.869	1.871	5.625	7.337
Total	**16.089**	**29.107**	**22.282**	**29.138**	**21.873**	**21.901**	**60.235**	**80.135**
1989 January	1.975	3.106	1.988	2.525	1.721	1.724	5.684	7.355
February	1.894	2.951	1.858	2.384	1.623	1.625	5.374	6.960
March	1.790	2.879	1.940	2.489	1.888	1.890	5.615	7.256
April	1.308	2.242	1.832	2.381	1.746	1.748	4.882	6.367
May	1.059	2.070	1.818	2.441	1.871	1.874	4.745	6.380
June	.959	2.080	1.808	2.429	1.888	1.891	4.657	6.402
6-Month Total	**8.984**	**15.327**	**11.244**	**14.650**	**10.737**	**10.752**	**30.956**	**40.719**
1988 6-Month Total	**8.988**	**15.239**	**11.093**	**14.432**	**10.818**	**10.832**	**30.890**	**40.494**
1987 6-Month Total	**8.419**	**14.463**	**10.385**	**13.591**	**10.438**	**10.452**	**29.242**	**38.507**

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.

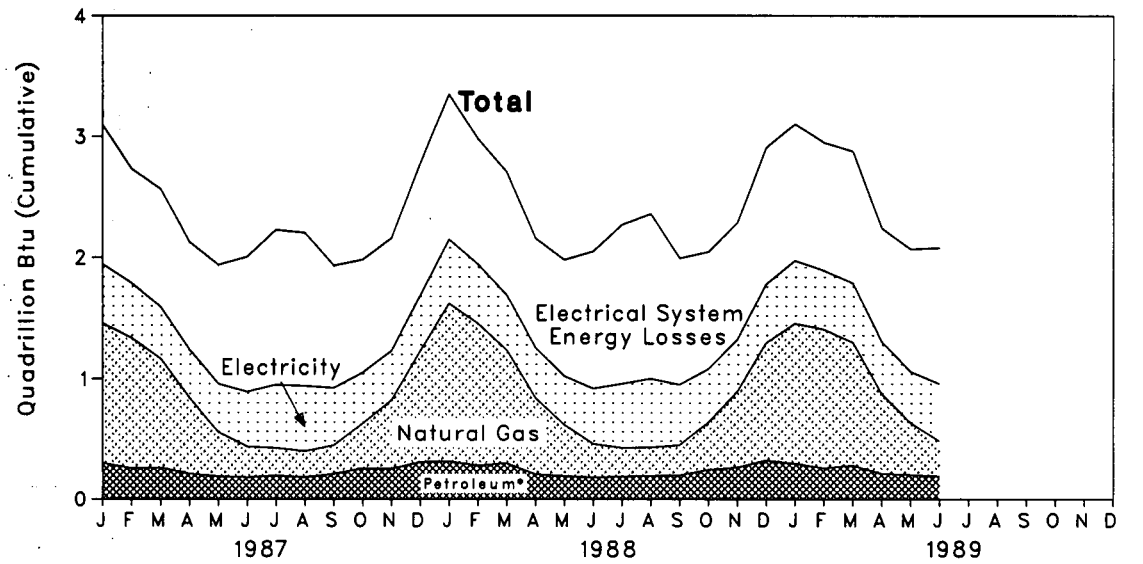
Additional Notes and Sources: See end of section.

Figure 2.2 Consumption of Energy by the Residential and Commercial Sector

Yearly



Monthly



*Includes coal.

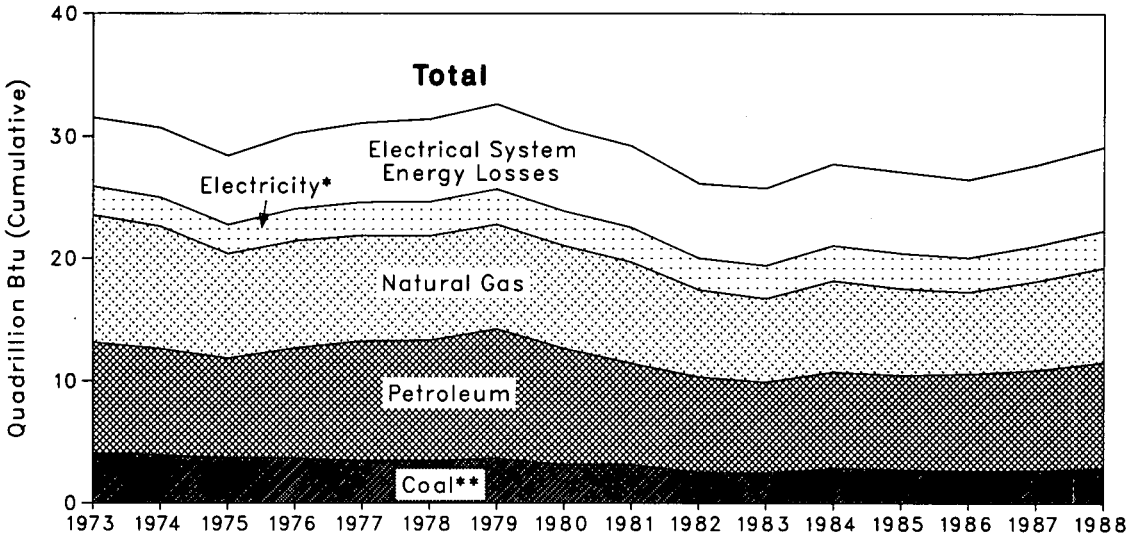
Table 2.3 Consumption of Energy by the Residential and Commercial Sector
(Quadrillion (10^{15}) Btu)

	Coal	Natural Gas[a]	Petroleum	Electricity	Net Energy	Electrical System Energy Losses	Total[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**	**4.922**	**15.007**	**11.478**	**26.486**	
1985 Total	**.176**	**7.078**	**2.573**	**5.072**	**14.898**	**11.855**	**26.754**	
1986 Total	**.176**	**6.824**	**2.576**	**5.251**	**14.827**	**12.190**	**27.017**	
1987 January	.017	1.158	.281	.490	1.946	1.149	3.094	3.094
February	.015	1.083	.240	.452	1.790	.943	2.732	5.827
March	.011	.905	.249	.428	1.592	.975	2.567	8.394
April	.014	.634	.196	.397	1.241	.887	2.127	10.521
May	.009	.366	.179	.405	.958	.980	1.938	12.459
June	.007	.252	.173	.461	.892	1.111	2.003	14.463
July	.012	.226	.182	.530	.950	1.277	2.228	16.690
August	.011	.213	.169	.548	.941	1.262	2.203	18.893
September	.015	.233	.193	.483	.925	1.008	1.933	20.826
October	.015	.374	.239	.422	1.050	.931	1.981	22.807
November	.016	.572	.235	.406	1.229	.930	2.159	24.966
December	.021	.923	.284	.459	1.686	1.092	2.778	27.744
Total	**.162**	**6.938**	**2.618**	**5.481**	**15.199**	**12.543**	**27.742**	
1988 January	.019	1.310	.293	.528	2.150	1.206	3.357	3.357
February	.016	1.179	.261	.489	1.945	1.037	2.982	6.338
March	.012	.942	.284	.454	1.691	1.017	2.708	9.046
April	.014	.637	.192	.413	1.256	.904	2.160	11.207
May	.008	.429	.183	.403	1.023	.958	1.981	13.188
June	.010	.276	.170	.465	.921	1.130	2.051	15.239
July	.016	.236	.171	.537	.960	1.310	2.270	17.509
August	.015	.233	.178	.576	1.002	1.358	2.360	19.869
September	.009	.246	.189	.509	.954	1.041	1.995	21.864
October	.010	.397	.233	.441	1.082	.966	2.048	23.912
November	.014	.633	.248	.428	1.322	.963	2.285	26.197
December	.022	.978	.297	.484	1.782	1.128	2.910	29.107
Total	**.165**	**7.499**	**2.698**	**5.727**	**16.089**	**13.017**	**29.107**	
1989 January	.015	1.163	.278	.519	1.975	1.131	3.106	3.106
February	.016	1.152	.240	.486	1.894	1.057	2.951	6.057
March	.012	1.023	.267	.488	1.790	1.089	2.879	8.935
April	.012	.666	.199	.431	1.308	.934	2.242	11.177
May	.011	.434	.191	.423	1.059	1.011	2.070	13.247
June	.010	.289	.179	.482	.959	1.121	2.080	15.327
6-Month Total	**.075**	**4.726**	**1.353**	**2.829**	**8.984**	**6.343**	**15.327**	
1988 6-Month Total	**.079**	**4.775**	**1.382**	**2.752**	**8.988**	**6.252**	**15.239**	
1987 6-Month Total	**.072**	**4.397**	**1.317**	**2.633**	**8.419**	**6.044**	**14.463**	

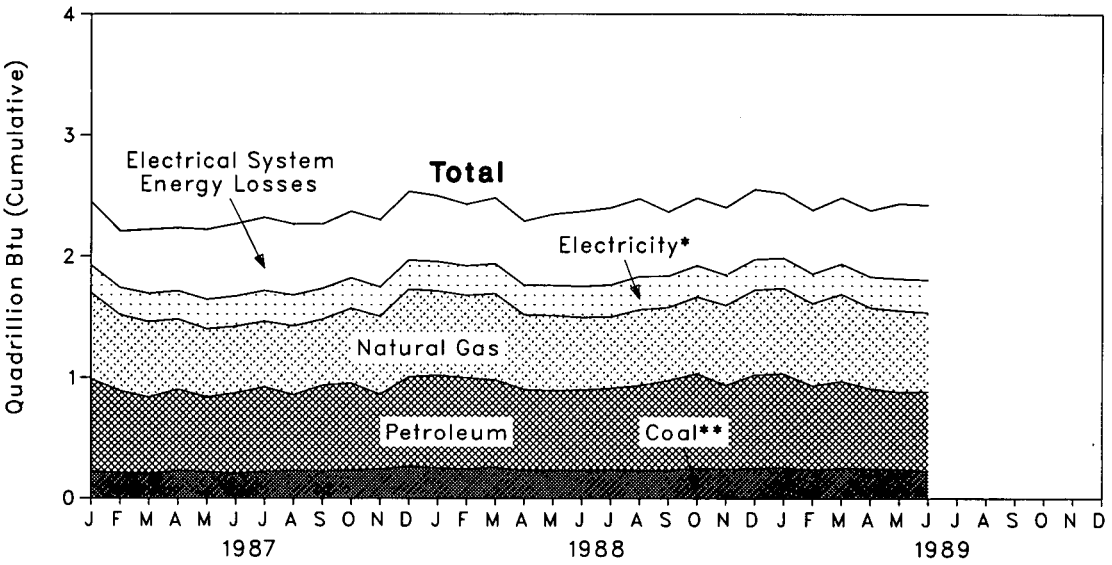
[a]Includes supplemental gaseous fuels.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals 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.

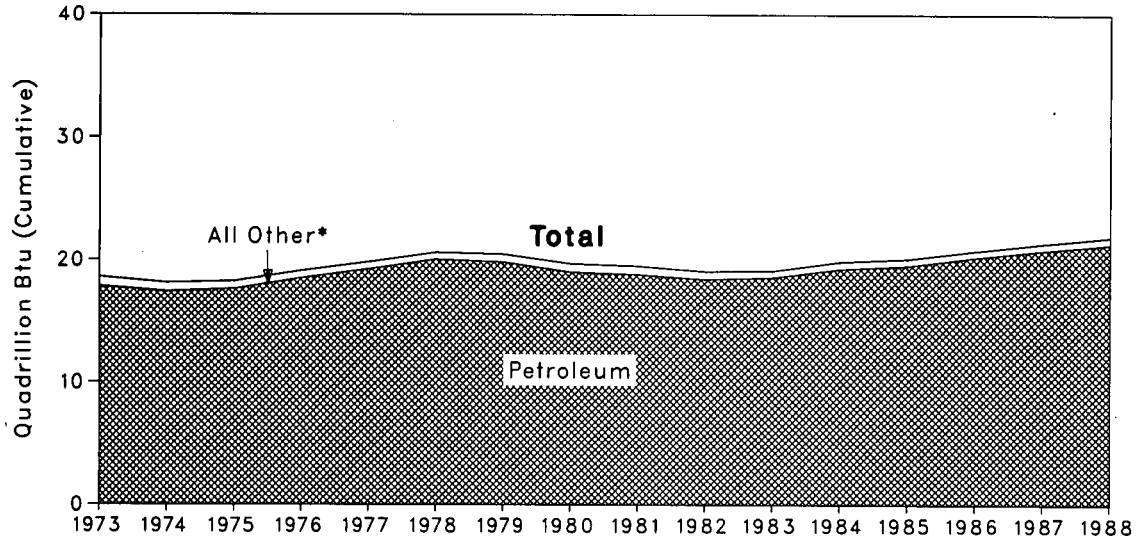
Table 2.4 Consumption of Energy by the Industrial Sector
(Quadrillion (10^{15}) Btu)

	Coal	Natural Gas[a]	Petroleum	Hydroelectric Power	Net Imports of Coal Coke	Electricity	Net Energy	Electrical System Energy Losses	Total[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**	**8.147**	**.032**	**.014**	**2.346**	**22.738**	**5.664**	**28.402**	
1976 Total	**3.661**	**8.761**	**9.010**	**.033**	**0**	**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**	**7.423**	**.033**	**-.016**	**2.648**	**19.399**	**6.356**	**25.755**	
1984 Total	**2.842**	**7.449**	**7.897**	**.033**	**-.011**	**2.862**	**21.071**	**6.674**	**27.744**	
1985 Total	**2.760**	**7.080**	**7.715**	**.033**	**-.013**	**2.850**	**20.423**	**6.661**	**27.084**	
1986 Total	**2.643**	**6.693**	**7.939**	**.032**	**-.017**	**2.758**	**20.048**	**6.402**	**26.451**	
1987 January	.225	.712	.764	.003	-.001	.224	1.926	.524	2.450	2.450
February	.207	.624	.683	.003	.001	.223	1.740	.464	2.204	4.654
March	.206	.620	.634	.003	-.002	.231	1.692	.527	2.220	6.874
April	.226	.576	.677	.003	0	.232	1.714	.518	2.232	9.106
May	.218	.561	.621	.003	0	.239	1.643	.577	2.220	11.326
June	.201	.548	.669	.003	.002	.247	1.669	.595	2.264	13.591
July	.221	.539	.702	.003	0	.251	1.716	.604	2.320	15.911
August	.224	.565	.633	.002	.001	.254	1.680	.585	2.265	18.176
September	.218	.542	.714	.002	.004	.254	1.734	.530	2.263	20.439
October	.228	.614	.725	.002	.002	.250	1.821	.551	2.372	22.811
November	.238	.640	.622	.002	.003	.242	1.747	.554	2.301	25.112
December	.262	.722	.745	.002	-.001	.239	1.969	.569	2.538	27.650
Total	**2.673**	**7.264**	**8.189**	**.032**	**.009**	**2.884**	**21.052**	**6.600**	**27.652**	
1988 January	.246	.695	.771	.003	.003	.239	1.957	.545	2.502	2.502
February	.240	.679	.757	.003	.002	.241	1.922	.511	2.433	4.935
March	.248	.711	.727	.003	.006	.244	1.939	.546	2.485	7.420
April	.226	.614	.673	.003	.004	.242	1.762	.529	2.291	9.711
May	.232	.617	.664	.003	-.002	.247	1.762	.588	2.350	12.061
June	.223	.595	.672	.003	.005	.255	1.752	.619	2.371	14.432
July	.230	.586	.676	.003	.007	.262	1.764	.639	2.403	16.835
August	.225	.624	.708	.002	.003	.273	1.836	.645	2.481	19.316
September	.227	.601	.747	.002	.003	.259	1.839	.530	2.369	21.685
October	.245	.634	.784	.002	.004	.256	1.926	.561	2.487	24.172
November	.241	.658	.697	.002	.001	.249	1.849	.559	2.408	26.580
December	.246	.701	.774	.002	.003	.249	1.975	.581	2.556	29.136
Total	**2.828**	**7.715**	**8.650**	**.032**	**.040**	**3.016**	**22.282**	**6.856**	**29.138**	
1989 January	.245	.706	.780	.003	.007	.247	1.988	.537	2.525	2.525
February	.236	.678	.697	.003	.002	.242	1.858	.527	2.384	4.909
March	.247	.717	.723	.003	.003	.246	1.940	.550	2.489	7.399
April	.239	.665	.666	.003	.007	.253	1.832	.549	2.381	9.780
May	.235	.671	.642	.003	.006	.260	1.818	.622	2.441	12.220
June	.218	.649	.666	.003	.004	.267	1.808	.621	2.429	14.650
6-Month Total	**1.420**	**4.085**	**4.175**	**.018**	**.029**	**1.516**	**11.244**	**3.406**	**14.650**	
1988 6-Month Total	**1.414**	**3.911**	**4.265**	**.018**	**.018**	**1.467**	**11.093**	**3.338**	**14.432**	
1987 6-Month Total	**1.282**	**3.641**	**4.048**	**.018**	**.001**	**1.395**	**10.385**	**3.206**	**13.591**	

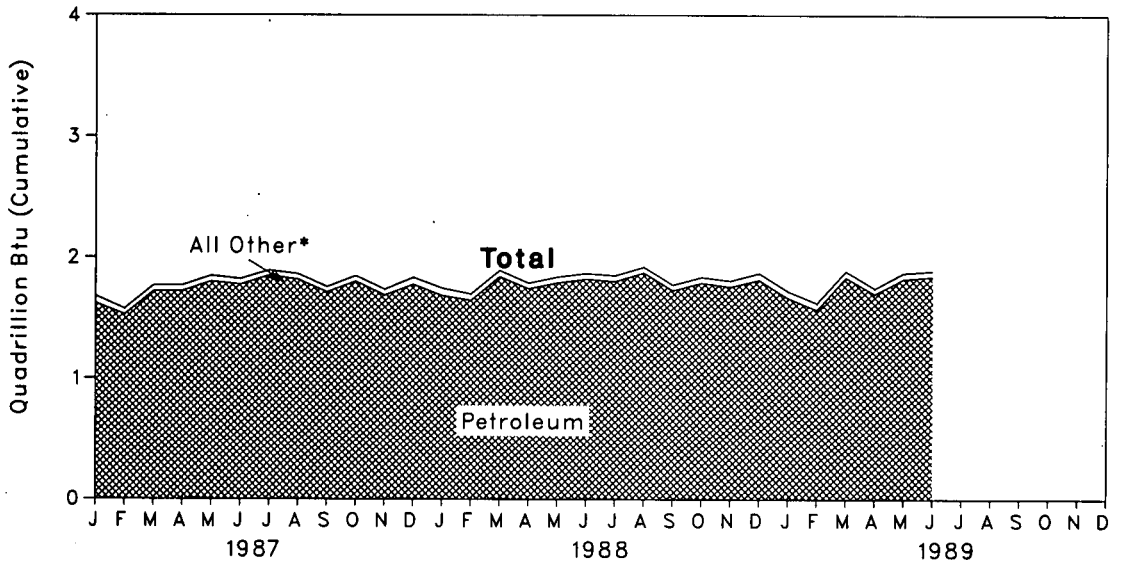
[a]Includes supplemental gaseous fuels.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Totals 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.

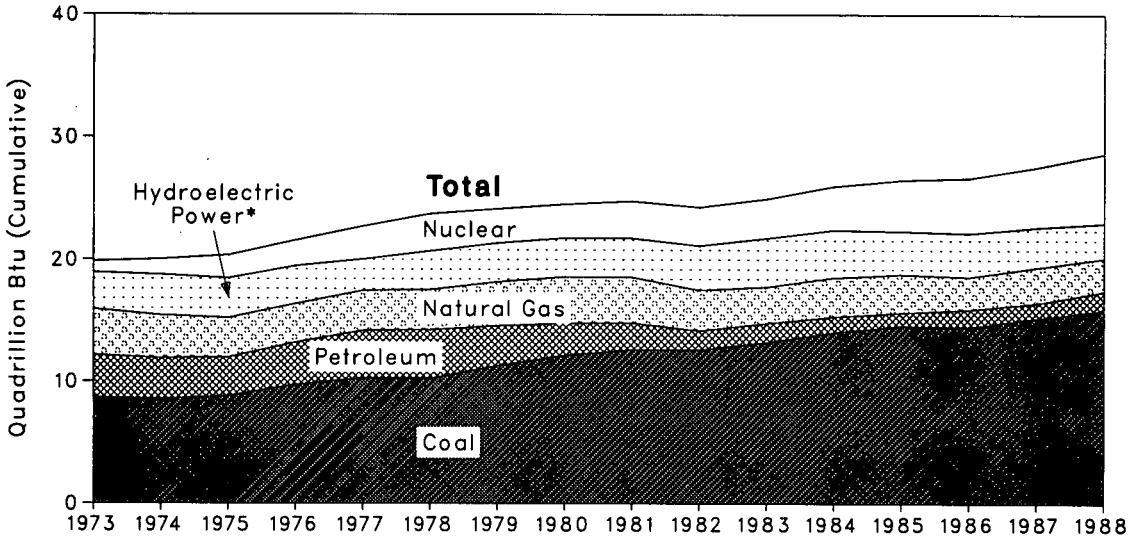
Table 2.5 Consumption of Energy by the Transportation Sector
(Quadrillion (10^{15}) Btu)

	Coal	Natural Gas[a]	Petroleum	Electricity	Net Energy	Electrical System Energy Losses	Total[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	18.589	.011	19.105	.026	19.131	
1984 Total	[d]	.545	19.283	.013	19.840	.029	19.869	
1985 Total	[d]	.519	19.544	.014	20.077	.032	20.109	
1986 Total	[d]	.499	20.229	.012	20.741	.029	20.770	
1987 January	[d]	.055	1.621	.001	1.677	.003	1.679	1.679
February	[d]	.046	1.524	.001	1.571	.002	1.573	3.253
March	[d]	.045	1.718	.001	1.765	.002	1.767	5.020
April	[d]	.043	1.721	.001	1.766	.002	1.768	6.788
May	[d]	.043	1.799	.001	1.843	.003	1.846	8.633
June	[d]	.041	1.774	.001	1.816	.003	1.819	10.452
July	[d]	.039	1.848	.001	1.888	.003	1.891	12.343
August	[d]	.041	1.816	.001	1.859	.003	1.861	14.205
September	[d]	.039	1.713	.001	1.753	.002	1.756	15.960
October	[d]	.042	1.801	.001	1.845	.002	1.847	17.807
November	[d]	.044	1.689	.001	1.735	.002	1.737	19.544
December	[d]	.053	1.776	.001	1.829	.003	1.832	21.376
Total	[d]	.535	20.801	.013	21.349	.030	21.378	
1988 January	[d]	.058	1.685	.001	1.744	.002	1.746	1.746
February	[d]	.051	1.645	.001	1.696	.002	1.698	3.444
March	[d]	.048	1.841	.001	1.891	.002	1.893	5.337
April	[d]	.042	1.743	.001	1.786	.002	1.788	7.125
May	[d]	.044	1.791	.001	1.837	.002	1.839	8.964
June	[d]	.043	1.821	.001	1.865	.003	1.868	10.832
July	[d]	.044	1.803	.001	1.849	.003	1.851	12.683
August	[d]	.044	1.874	.001	1.919	.003	1.922	14.605
September	[d]	.043	1.729	.001	1.774	.002	1.776	16.381
October	[d]	.044	1.791	.001	1.837	.002	1.839	18.220
November	[d]	.046	1.760	.001	1.808	.002	1.810	20.030
December	[d]	.052	1.816	.001	1.869	.002	1.871	21.901
Total	[d]	.561	21.300	.012	21.873	.028	21.901	
1989 January	[d]	.053	1.668	.001	1.721	.002	1.724	1.724
February	[d]	.053	1.569	.001	1.623	.002	1.625	3.349
March	[d]	.049	1.837	.001	1.888	.002	1.890	5.239
April	[d]	.043	1.702	.001	1.746	.002	1.748	6.987
May	[d]	.045	1.825	.001	1.871	.003	1.874	8.861
June	[d]	.045	1.842	.001	1.888	.003	1.891	10.752
6-Month Total	[d]	.289	10.442	.006	10.737	.014	10.752	
1988 6-Month Total	[d]	.287	10.526	.006	10.818	.014	10.832	
1987 6-Month Total	[d]	.274	10.157	.006	10.438	.015	10.452	

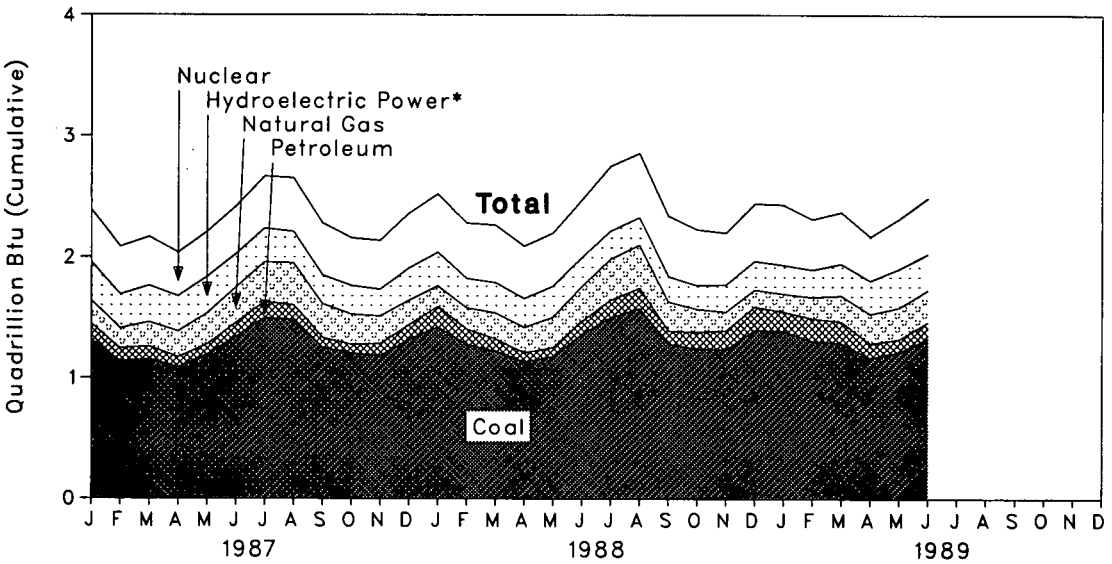
[a]Pipeline fuel only, including supplemental gaseous fuels.
[b]Excludes wood, waste, geothermal, wind, photovoltaic, and solar thermal energy except for small amounts used by electric utilities to generate electricity for distribution.
[c]Less than 0.5 trillion Btu.
[d]Since 1978, the small amounts of coal consumed for transportation have been reported as industrial sector consumption.
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 (10^{15}) 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 January	1.319	.191	.128	.300	.431	.020	2.390	2.390
February	1.135	.163	.111	.262	.394	.019	2.085	4.475
March	1.155	.197	.107	.283	.402	.021	2.165	6.640
April	1.087	.213	.084	.272	.361	.019	2.037	8.676
May	1.194	.250	.086	.285	.370	.020	2.205	10.881
June	1.342	.293	.112	.256	.394	.021	2.418	13.299
July	1.495	.329	.134	.255	.432	.022	2.666	15.965
August	1.481	.349	.120	.235	.446	.022	2.653	18.618
September	1.253	.277	.082	.220	.427	.020	2.279	20.897
October	1.207	.246	.073	.218	.393	.020	2.157	23.054
November	1.183	.224	.103	.203	.403	.020	2.135	25.189
December	1.322	.203	.117	.247	.453	.020	2.362	27.551
Total	**15.173**	**2.935**	**1.257**	**3.035**	**4.906**	**.244**	**27.551**	
1988 January	1.421	.172	.169	.258	.481	.021	2.522	2.522
February	1.281	.175	.123	.229	.455	.018	2.281	4.803
March	1.226	.211	.101	.232	.473	.021	2.264	7.067
April	1.133	.206	.079	.222	.432	.019	2.090	9.157
May	1.179	.247	.076	.240	.438	.018	2.199	11.357
June	1.364	.289	.105	.220	.475	.020	2.473	13.829
July	1.498	.339	.149	.208	.537	.021	2.752	16.581
August	1.575	.355	.171	.207	.528	.021	2.857	19.438
September	1.288	.240	.105	.192	.499	.020	2.343	21.781
October	1.246	.187	.138	.178	.459	.020	2.228	24.009
November	1.240	.155	.153	.207	.426	.020	2.201	26.210
December	1.399	.142	.192	.219	.475	.019	2.447	28.657
Total	**15.850**	**2.719**	**1.561**	**2.612**	**5.678**	**.236**	**28.657**	
1989 January	1.390	.150	.160	.219	.499	.019	2.438	2.438
February	1.310	.176	.185	.210	.417	.017	2.316	4.754
March	1.295	.216	.174	.243	.427	.020	2.376	7.129
April	1.170	.241	.121	.260	.361	.017	2.170	9.299
May	1.221	.257	.106	.304	.413	.018	2.320	11.620
June	1.331	.267	.134	.281	.463	.018	2.495	14.115
6-Month Total	**7.719**	**1.307**	**.880**	**1.518**	**2.581**	**.110**	**14.115**	
1988 6-Month Total	**7.604**	**1.300**	**.653**	**1.402**	**2.754**	**.116**	**13.829**	
1987 6-Month Total	**7.232**	**1.307**	**.629**	**1.658**	**2.352**	**.120**	**13.299**	

[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.

Notes and Sources for the Consumption Section

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, 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 swimming pools 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), EIA Form 759 (formerly FPC Form 4), "Monthly Power Plant Report."
- Other Industrial--October 1977 through December 1979: EIA, EIA Form 3, "Monthly Fuel Consumption Report - Manufacturing Plants"; January 1980 forward: EIA, EIA Form 3, "Quarterly Fuel Consumption Report - Manufacturing Plants" and EIA Form 6, "Coal Distribution Report."
- Coke Plants--October 1977 through December 1980: EIA, EIA Form 5/5A, "Coke and Coal Chemicals - Monthly/Annual"; January 1981 through December 1984: EIA, EIA Form 5/5A, "Coke and Coal Chemicals - Quarterly/Annual Supplement"; January 1985 forward: EIA, EIA Form 5/5A, "Coke Plant Report," quarterly.
- Residential and Commercial--October 1977 through December 1979: EIA, EIA Form 2, "Monthly Coal Report, Retail Dealers and Upper Lake Docks"; January 1980 forward: EIA, EIA Form 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 1987: EIA, *Natural Gas Annual.*
- 1988 forward: EIA, EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers," and EIA computations.
- Electric utilities consumption--1973 through 1976: FPC Form 4, "Monthly Power Plant Report." 1977 through 1981: Federal Energy Regulatory Commission (FERC), FPC Form 4, "Monthly Power Plant Report." 1982 forward: EIA, EIA Form 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 1987: EIA, *Petroleum Supply Annual.*
- 1988 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 4, "Monthly Power Plant Report;" October 1977 through 1981--FERC, FPC Form 4, "Monthly Power Plant Report;" 1982 forward--EIA, Form EIA-759, "Monthly Power Plant Report."

Non-Electric Utility Sectors, Annual Estimates Through 1987.

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 1987. 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 1987. 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 1987 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 1987.

- 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 Energy Information Administration, Form EIA-782-A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale, for 1983 through 1987.

- 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, 1988 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 1987.

- **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 FERC-423 (formerly FPC-423) were used as estimates of this consumption. All remaining jet fuel (kerosene-type and naphtha-type) is consumed by the transportation sector.
- **Kerosene**--Total product supplied monthly is allocated to the major end-use sectors in proportion to annual 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 1987. Deliveries for 1987 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 1987. Deliveries for 1987 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 1987. Deliveries for 1987 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 use range from 38 percent in the transportation sector and 62 percent in the industrial sector in 1973 to 66 percent transportation and 34 percent industrial 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 1987: 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.
- 1988 forward: The 1987 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 EIA Form 759, "Monthly Power Plant Report" (formerly FPC Form 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--FPC Form 4, "Monthly Power Plant Report;" October 1977 through 1981--FERC, FPC Form 4, "Monthly Power Plant Report;" 1982 forward--EIA, Form EIA-759, "Monthly Power Plant Report."

Non-Electric Utility Sectors, Annual Estimates Through 1987.

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 1987. 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 1987 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 1987.

- 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 Energy Information Administration, Form EIA-782-A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale, 1983 through 1987.

- 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, 1988 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 1987.

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

Sources for industrial sector:

- 1973 through 1978: FPC Form 4, *Monthly Power Plant Report* for plants with generating capacity exceeding 10 megawatts and FPC Form 12-C, *Industrial Electric Generating Capacity*, for all other plants.
- 1979: FPC Form 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 4, "Monthly Power Plant Report."
- 1977 through 1981: FERC, FPC Form 4, "Monthly Power Plant Report."
- 1982 forward: EIA, EIA Form 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: Sales of electricity represent consumption. From the sources cited below the following electricity sales categories are available: residential, commercial, industrial, and other. For the end-use estimates in this section, the "other" category (which is primarily sales for use in government buildings) is added to the commercial sector except for approximately 4 percent used by railroads and railways and accounted for in the transportation sector. Sales of electricity are converted into Btu at the rate of 3,412 Btu per kilowatthour. Sources of sales data:

- 1973 through 1976: FPC, Form 5, "Monthly Statement of Electric Operating Revenue and Income."
- 1977 through February 1980: EIA, FPC Form 5, "Monthly Statement of Electric Operating Revenue and Income."
- March 1980 through December 1982: EIA, FERC Form 5, "Electric Utility Company Monthly Statement."
- January 1983 forward: EIA, EIA Form 826, "Electric Utility Company Monthly Statement."

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[24] averaged 8.6 million barrels per day in August 1989, 3 percent[25] more than the July 1989 rate and 16 percent more than the August 1988 rate.

In August 1989, 17.5 million barrels per day of petroleum products were supplied for domestic use, 7 percent more than the previous month but the same as the August 1988 rate. Motor gasoline accounted for 43 percent of the total; distillate fuel oil, 18 percent; and residual fuel oil, 6 percent.

Motor gasoline supplied during August 1989 averaged 7.6 million barrels per day, 4 percent higher than the previous month but about the same level as the August 1988 rate. Stocks of motor gasoline totaled 219 million barrels at the end of August 1989, 10 million barrels below the stock level at the end of July 1989 and 1 million barrels below the stock level 1 year earlier.

In August 1989, 3.1 million barrels of distillate fuel oil were supplied per day, 19 percent higher than the July 1989 rate and 8 percent higher than the August 1988 rate. Distillate fuel oil ending stocks for August 1989 were 116 million barrels, 1 million barrels above the stock level in the previous month but 10 million barrels lower than the stock level 1 year earlier.

Residual fuel oil supplied in August 1989 averaged 1.1 million barrels per day, 17 percent lower than the previous month and 19 percent lower than the August 1988 rate. Residual fuel oil stocks measured 41 million barrels at the end of August 1989, 2 million barrels lower than the previous month but 3 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 1989.

[24]Total import data include imports into the Strategic Petroleum Reserve.
[25]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**	**R 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 January	10,139	8,480	1,582	166	-376	16,684	1,586
February	10,073	8,389	1,618	22	-831	16,908	1,563
March	10,131	8,464	1,598	125	-340	16,165	1,557
April	10,139	8,498	1,590	-50	-532	16,524	1,539
May	9,977	8,336	1,585	-36	116	16,026	1,542
June	9,906	8,279	1,578	165	42	16,830	1,548
July	9,895	8,251	1,582	-33	372	17,113	1,558
August	9,843	8,210	1,571	345	737	16,346	1,592
September	9,851	8,205	1,582	220	236	16,670	1,606
October	10,037	8,364	1,602	661	-523	16,941	1,610
November	10,112	8,397	1,637	355	478	16,343	1,635
December	10,001	8,318	1,621	-405	-482	17,445	1,607
Average	**10,008**	**8,349**	**1,595**	**128**	**-87**	**16,665**	
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	E 9,638	E 7,913	1,653	130	512	17,211	1,620
February	E 9,469	E 7,830	1,601	63	-704	17,765	1,602
March	E 9,310	E 7,610	1,647	-131	-905	17,907	1,569
April	E 9,462	E 7,747	1,670	496	386	16,561	1,596
May	E 9,480	E 7,807	1,623	266	589	16,488	1,622
June	E 9,213	E 7,660	1,506	-430	-60	17,389	1,608
July	RE 9,105	RE 7,474	R 1,552	R 118	R 1,178	R 16,410	R 1,648
August	PE 9,281	PE 7,662	E 1,570	E 189	E -80	E 17,480	E 1,642
8-Month Average	**PE 9,369**	**PE 7,712**	**E 1,603**	**E 89**	**E 124**	**E 17,145**	
1988 8-Month Average	**9,889**	**8,224**	**1,614**	**-16**	**82**	**17,093**	
1987 8-Month Average	**10,012**	**8,363**	**1,588**	**89**	**-91**	**16,570**	

[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 January	6,353	4,385	1,968	703	84	619	5,650
February	5,984	3,866	2,118	977	284	694	5,007
March	5,794	3,779	2,015	720	150	570	5,074
April	5,911	4,132	1,779	870	247	624	5,041
May	6,073	4,340	1,732	666	69	597	5,407
June	6,769	4,807	1,962	669	116	554	6,099
July	7,588	5,295	2,293	680	149	531	6,908
August	7,454	5,510	1,944	664	141	523	6,790
September	7,178	5,110	2,068	795	116	680	6,382
October	7,068	5,142	1,926	646	84	562	6,422
November	7,068	5,013	2,055	737	164	573	6,331
December	6,833	4,640	2,194	1,057	220	838	5,776
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	8,040	5,521	2,519	760	136	624	7,280
February	7,909	5,263	2,646	875	208	666	7,034
March	7,392	4,993	2,400	860	156	704	6,532
April	8,034	5,745	2,289	810	139	670	7,224
May	7,697	5,665	2,032	792	131	661	6,905
June	7,869	5,915	1,954	975	243	732	6,895
July	R 8,324	R 6,200	R 2,123	R 780	R 69	R 711	R 7,544
August	E 8,590	E 6,674	E 1,916	E 875	E 182	E 693	E 7,715
8-Month Average	**E 7,983**	**E 5,752**	**E 2,231**	**E 840**	**E 157**	**E 683**	**E 7,143**
1988 8-Month Average	**7,255**	**5,026**	**2,229**	**831**	**162**	**669**	**6,424**
1987 8-Month Average	**6,498**	**4,523**	**1,976**	**741**	**153**	**588**	**5,758**

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

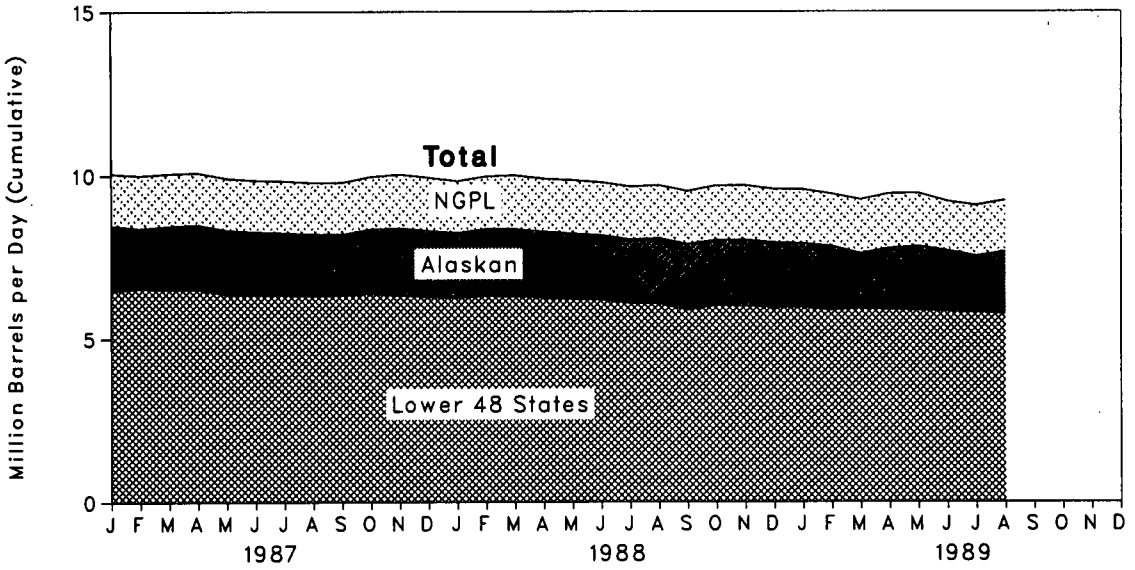


Figure 3.2 Petroleum Stocks

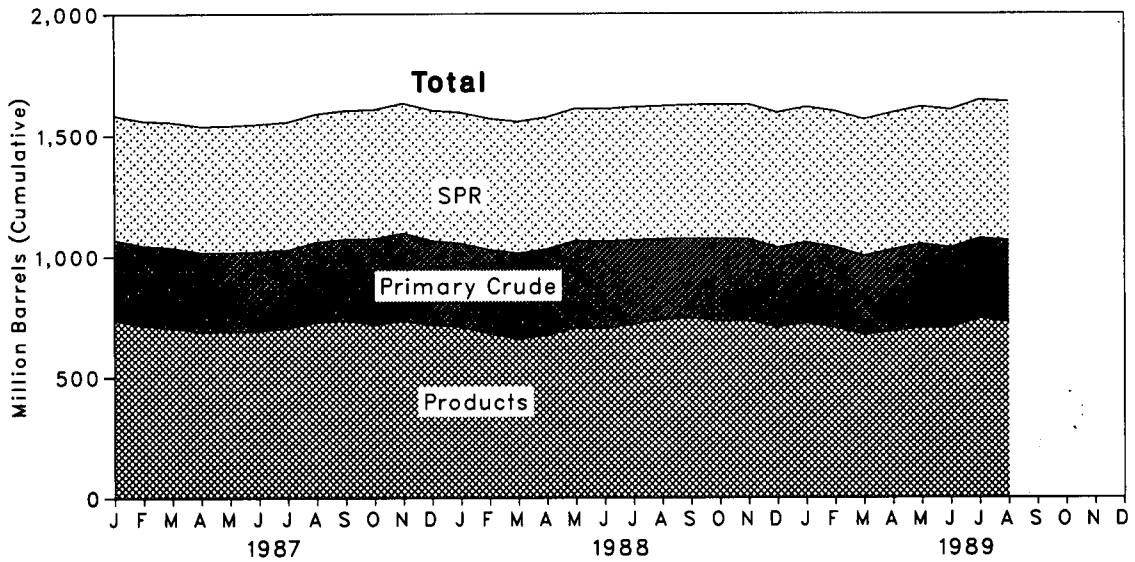


Figure 3.3 Petroleum Products Supplied and Imports

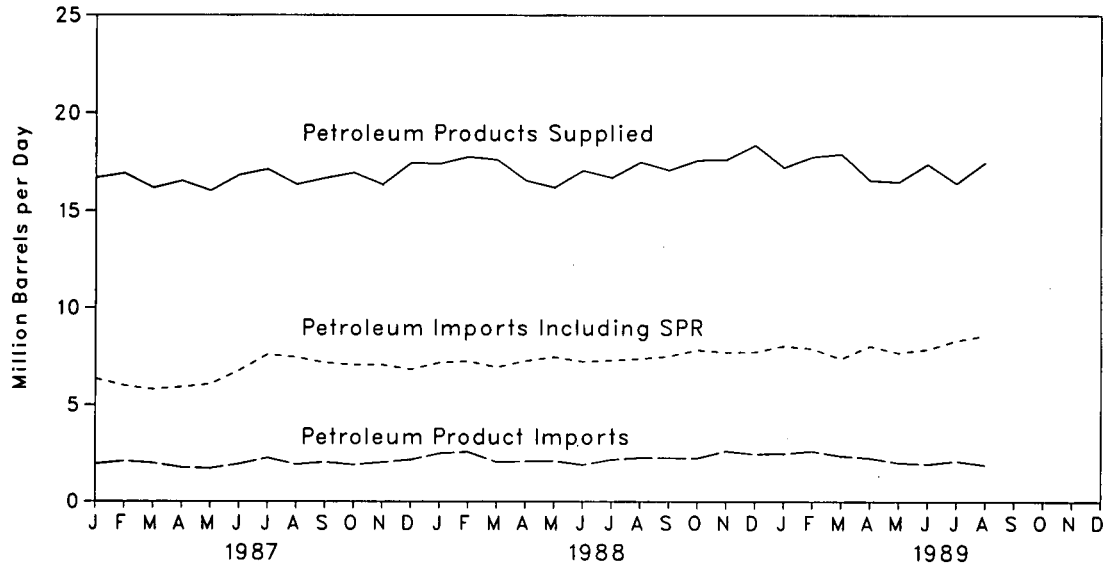


Figure 3.4 Petroleum Imports by Source

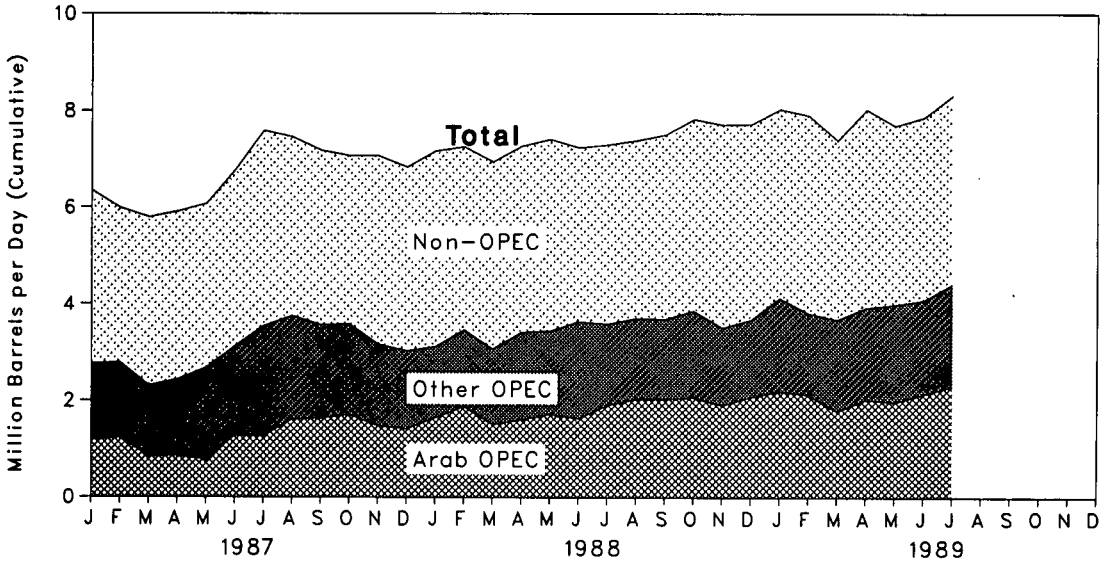


Table 3.2a Crude Oil[a] Supply and Disposition
(Thousand Barrels per Day)

	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 January	8,480	2,019	4,385	92	4,293	-5	NA
February	8,389	1,853	3,866	44	3,822	382	NA
March	8,464	1,968	3,779	95	3,684	151	NA
April	8,498	1,990	4,132	57	4,076	120	NA
May	8,336	1,979	4,340	92	4,248	51	NA
June	8,279	1,930	4,807	64	4,743	434	NA
July	8,251	1,910	5,295	76	5,218	32	NA
August	8,210	1,908	5,510	63	5,447	177	NA
September	8,205	1,874	5,110	64	5,047	217	NA
October	8,364	1,986	5,142	57	5,085	-3	NA
November	8,397	2,068	5,013	97	4,916	115	NA
December	8,318	2,043	4,640	68	4,572	101	NA
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	E 7,913	E 1,958	5,521	65	5,456	209	NA
February	E 7,830	E 1,962	5,263	84	5,178	1	NA
March	E 7,610	E 1,686	4,993	75	4,917	431	NA
April	E 7,747	E 1,890	5,745	59	5,685	120	NA
May	E 7,807	E 1,973	5,665	77	5,588	338	NA
June	E 7,660	E 1,861	5,915	55	5,860	156	NA
July	RE 7,474	RE 1,725	R 6,200	R 75	R 6,125	R 375	NA
August	PE 7,662	PE 1,909	E 6,674	E 37	E 6,637	E -84	NA
8-Month Average	PE **7,712**	PE **1,869**	E **5,752**	E **66**	E **5,686**	E **196**	**NA**
1988 8-Month Average	**8,224**	**2,019**	**5,026**	**47**	**4,979**	**189**	**NA**
1987 8-Month Average	**8,363**	**1,946**	**4,523**	**73**	**4,449**	**164**	**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 were included beginning in January 1981. Stock changes are calculated using new basis stock levels. See Notes 4 and 5 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		[9] 466	108	[9] 358
1981 Average	5	336	[9] -46	12,470	228		594	230	363
1982 Average	3	174	-38	11,774	236		[9] 644	294	350
1983 Average	2	234	[9] -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 January	1	108	58	12,570	84	41	848	515	333
February	(s)	64	-42	12,290	284	41	849	517	332
March	1	106	19	12,081	150	39	852	520	332
April	(s)	67	-116	12,512	247	41	851	522	329
May	(s)	101	-137	12,653	69	42	850	525	325
June	(s)	69	97	13,202	116	36	855	527	328
July	(s)	91	-124	13,430	149	32	854	530	324
August	(s)	63	281	13,380	141	31	864	532	332
September	(s)	64	157	13,168	116	28	871	534	337
October	(s)	57	604	12,733	84	25	892	536	356
November	(s)	97	258	12,981	164	25	902	539	364
December	(s)	68	-472	13,212	220	31	890	541	349
Average	(s)	80	49	12,854	151	34			
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	66	13,330	136	47	895	562	333
February	(s)	85	-21	12,774	208	48	897	564	333
March	(s)	75	-206	12,963	156	45	893	566	326
April	(s)	60	437	12,953	139	23	907	568	339
May	(s)	77	189	13,395	131	19	916	570	345
June	(s)	44	-474	13,896	243	20	903	572	331
July	(s)	[R] 86	[R] 32	[R] 13,843	[R] 69	[R] 19	[R] 906	574	[R] 332
August	[E] (s)	[E] 37	[E] 152	[E] 13,862	[E] 182	[E] 19	[E] 915	[E] 575	[E] 339
8-Month Average	[E] (s)	[E] 66	[E] 23	[E] 13,384	[E] 157	[E] 30			
1988 8-Month Average	(s)	47	-63	13,254	162	39			
1987 8-Month Average	(s)	84	5	12,770	153	38			

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 January	156	0	875	15	254	0	346	899	218	2,764	1,184
February	307	0	776	54	418	30	256	791	155	2,785	1,222
March	334	0	430	0	317	73	312	702	135	2,305	843
April	323	0	463	62	236	47	512	710	77	2,430	866
May	196	0	499	26	297	75	550	913	119	2,675	775
June	247	0	782	45	261	165	546	808	268	3,122	1,275
July	347	0	756	42	349	237	792	854	157	3,533	1,264
August	250	0	961	103	312	208	732	831	351	3,748	1,611
September	378	0	902	146	242	193	615	821	263	3,560	1,640
October	274	0	1,051	111	305	86	518	829	401	3,576	1,713
November	395	0	637	97	219	41	607	771	402	3,169	1,477
December	339	0	876	31	216	23	613	717	220	3,033	1,415
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	315	0	1,450	59	211	0	746	916	429	4,126	2,200
February	310	0	1,290	17	292	0	542	767	593	3,812	2,126
March	272	0	1,108	64	167	0	702	911	454	3,678	1,789
April	235	0	1,226	14	128	0	750	830	743	3,926	2,030
May	272	0	1,155	61	264	0	754	853	630	3,990	1,977
June	205	0	1,240	17	138	0	864	777	841	4,082	2,140
July	256	0	1,182	0	113	0	1,085	794	992	4,421	2,301
7-Month Average	**266**	**0**	**1,235**	**33**	**187**	**0**	**781**	**837**	**669**	**4,008**	**2,080**
1988 7-Month Average	**299**	**0**	**1,001**	**41**	**195**	**(s)**	**629**	**808**	**426**	**3,399**	**1,703**
1987 7-Month Average	**272**	**0**	**653**	**34**	**303**	**90**	**476**	**812**	**161**	**2,802**	**1,059**

[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 January	59	799	689	29	100	384	33	327	1,170	3,589	6,353
February	56	783	692	23	127	260	24	296	938	3,199	5,984
March	43	738	721	14	124	322	17	247	1,262	3,489	5,794
April	43	818	679	12	123	485	24	259	1,037	3,481	5,911
May	31	884	541	33	117	392	21	214	1,164	3,398	6,073
June	22	912	664	13	114	377	21	281	1,242	3,646	6,769
July	46	901	680	71	98	354	17	288	1,598	4,055	7,588
August	27	841	577	51	100	289	20	274	1,526	3,706	7,454
September	48	846	705	42	105	259	25	271	1,318	3,618	7,178
October	26	938	697	16	88	321	17	250	1,138	3,492	7,068
November	31	827	627	14	111	456	15	235	1,585	3,899	7,068
December	10	883	591	24	73	324	23	327	1,543	3,800	6,833
Average	37	848	655	29	106	352	21	272	1,298	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	55	995	807	59	86	207	30	415	1,261	3,914	8,040
February	24	991	756	44	92	221	24	368	1,577	4,097	7,909
March	38	951	670	52	82	157	38	324	1,402	3,715	7,392
April	55	853	1,002	14	114	182	24	405	1,458	4,108	8,034
May	27	887	792	22	68	210	46	379	1,277	3,707	7,697
June	28	900	678	23	143	190	32	363	1,431	3,788	7,869
July	32	831	758	49	89	322	39	331	1,452	3,902	R 8,324
7-Month Average	37	915	780	38	96	213	33	369	1,406	3,887	7,894
1988 7-Month Average	36	997	736	35	96	362	22	229	1,324	3,837	7,236
1987 7-Month Average	43	834	666	28	115	369	22	273	1,206	3,556	6,358

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

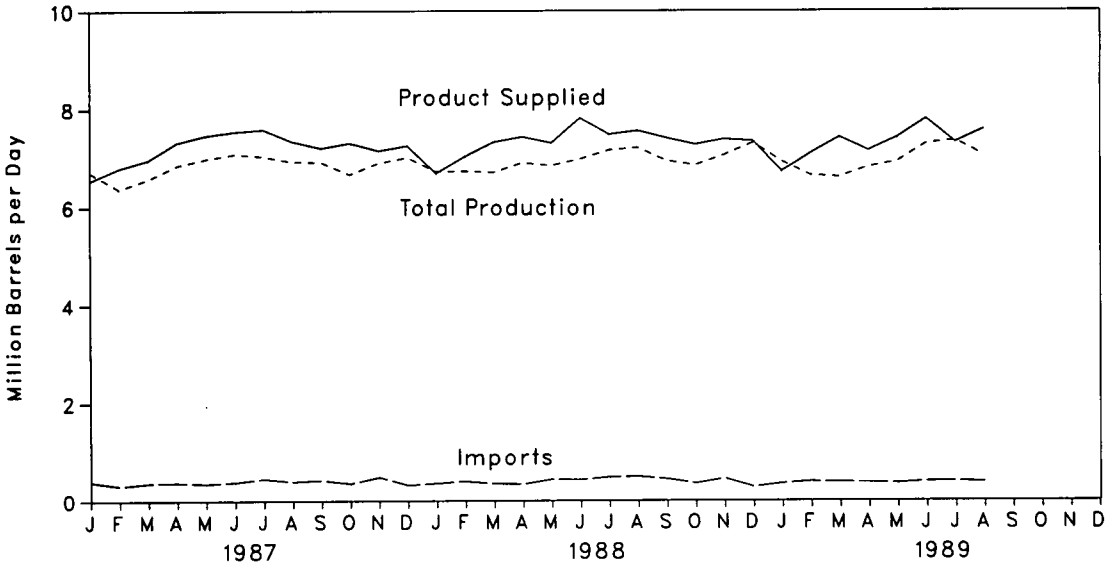


Figure 3.6 Motor Gasoline Ending Stocks

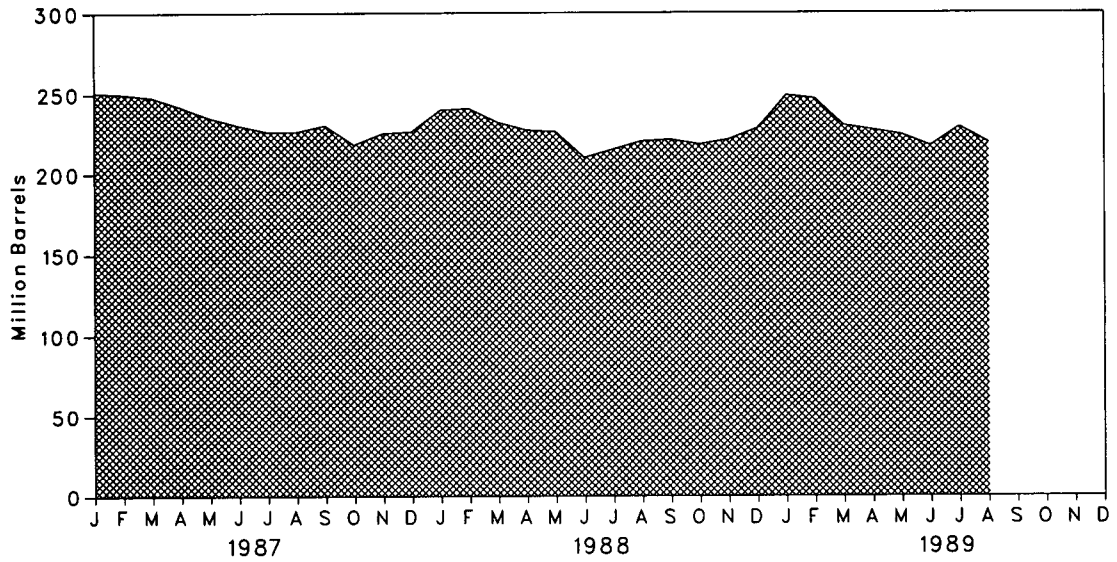


Table 3.4 Finished Motor Gasoline Supply and Disposition

	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 January	6,714	393	528	44	6,535	4,822	73.8	251	211
February	6,365	309	-144	22	6,796	5,068	74.6	250	207
March	6,569	364	-51	20	6,964	5,193	74.6	248	205
April	6,850	374	-133	42	7,314	5,405	73.9	242	201
May	6,991	354	-164	48	7,460	5,569	74.7	235	196
June	7,089	385	-111	46	7,539	5,678	75.3	230	193
July	7,043	452	-119	33	7,581	5,740	75.7	226	189
August	6,933	396	-29	19	7,338	5,656	77.1	226	188
September	6,921	421	107	30	7,205	5,536	76.8	230	191
October	6,668	356	-302	21	7,305	5,636	77.1	218	182
November	6,907	484	208	32	7,151	5,589	78.2	225	188
December	7,015	320	24	59	7,251	5,715	78.8	226	189
Average	**6,841**	**384**	**-15**	**35**	**7,206**	**5,470**	**75.9**		
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	6,935	349	519	33	6,732	5,753	85.4	249	206
February	6,648	392	-79	24	7,095	6,119	86.3	247	204
March	6,615	381	-469	43	7,421	6,381	86.0	230	189
April	6,820	371	-5	46	7,150	6,238	87.2	227	189
May	6,931	356	-160	31	7,416	6,486	87.5	224	184
June	7,289	391	-184	60	7,803	6,886	88.3	217	178
July	R 7,355	R 398	R 380	R 57	R 7,316	R 6,518	R 89.1	R 229	R 190
August	E 7,052	E 383	E -194	E 45	E 7,585	E 6,895	E 90.9	E 219	E 181
8-Month Average	**E 6,959**	**E 377**	**E -23**	**E 43**	**E 7,316**	**E 6,412**			
1988 8-Month Average	**6,912**	**418**	**-22**	**22**	**7,330**	**5,933**			
1987 8-Month Average	**6,824**	**379**	**-26**	**34**	**7,194**	**5,394**			

[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

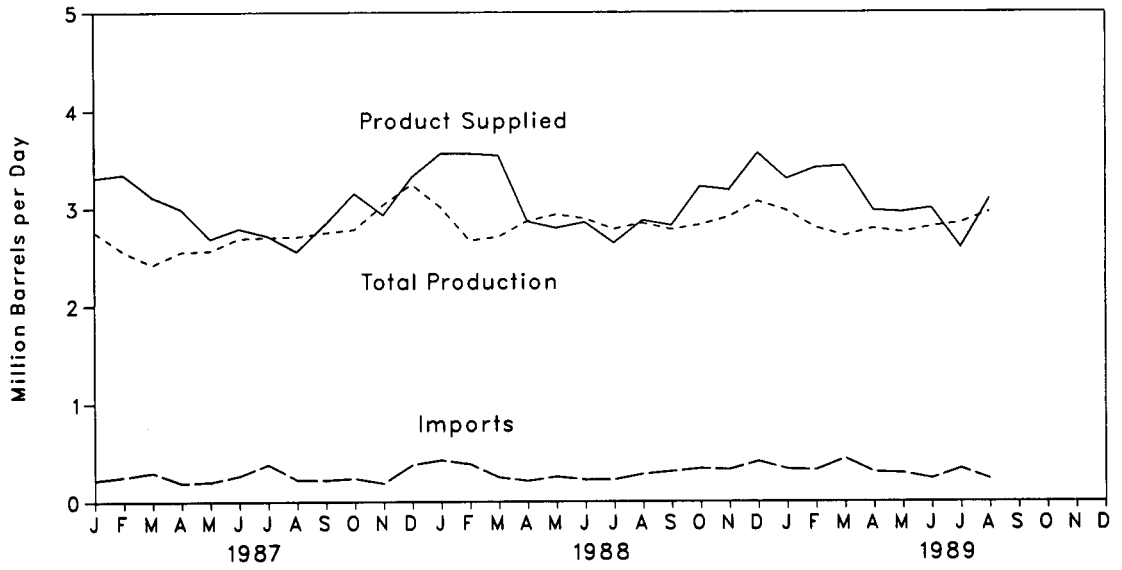


Figure 3.8 Distillate Fuel Oil Ending Stocks

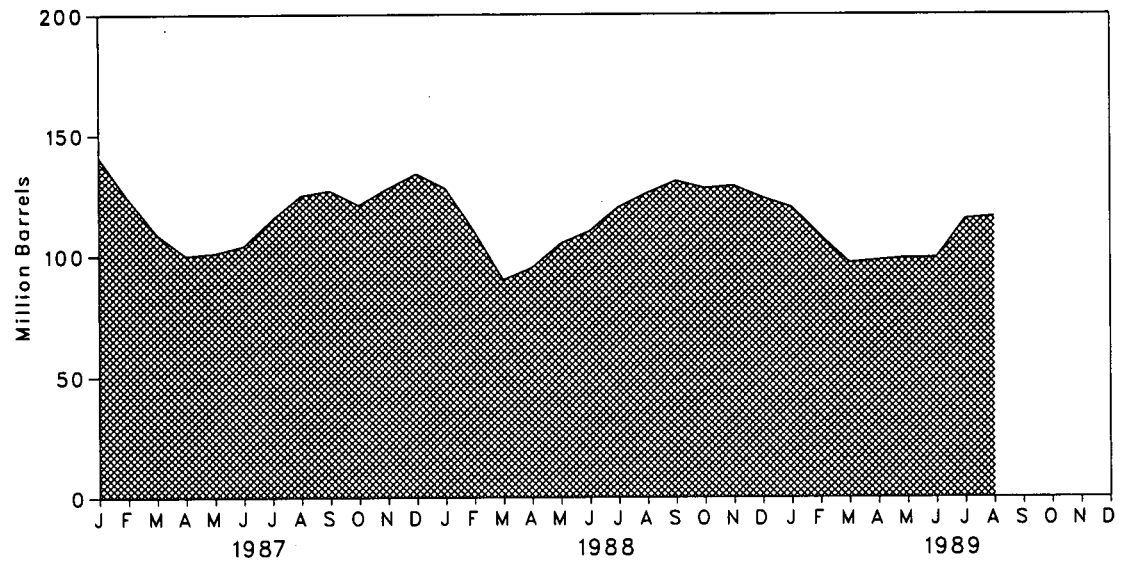


Table 3.5 Distillate Fuel Oil Supply and Disposition

	Supply			Disposition			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	**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 January	2,759	222	NA	-444	115	3,310	141
February	2,556	253	NA	-629	93	3,345	124
March	2,421	297	NA	-464	67	3,116	109
April	2,553	192	NA	-300	53	2,991	100
May	2,563	203	NA	31	51	2,684	101
June	2,689	265	NA	104	61	2,790	104
July	2,700	381	NA	329	38	2,713	115
August	2,706	222	NA	327	47	2,553	125
September	2,748	222	NA	68	64	2,838	127
October	2,780	237	NA	-187	53	3,151	121
November	3,035	187	NA	234	56	2,932	128
December	3,242	378	NA	209	92	3,318	134
Average	**2,731**	**255**	**NA**	**-56**	**66**	**2,976**	
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	2,973	331	NA	-103	110	3,296	120
February	2,798	322	NA	-455	164	3,411	108
March	2,714	439	NA	-352	76	3,429	97
April	2,788	299	NA	58	56	2,973	98
May	2,748	290	NA	30	51	2,957	99
June	2,808	233	NA	4	39	2,998	99
July	[R] 2,846	[R] 335	NA	[R] 502	[R] 89	[R] 2,592	115
August	[E] 2,959	[E] 228	NA	[E] 49	[E] 46	[E] 3,092	[E] 116
8-Month Average	**[E] 2,830**	**[E] 310**	**NA**	**[E] -29**	**[E] 78**	**[E] 3,090**	
1988 8-Month Average	**2,840**	**280**	**NA**	**-36**	**73**	**3,083**	
1987 8-Month Average	**2,619**	**255**	**NA**	**-125**	**65**	**2,933**	

[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

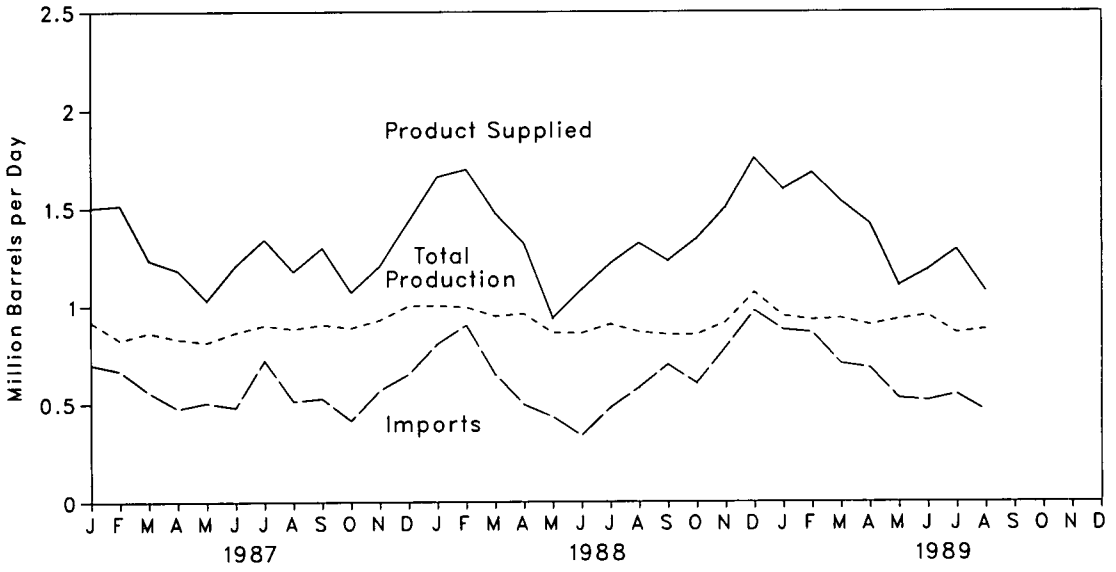


Figure 3.10 Residual Fuel Oil Ending Stocks

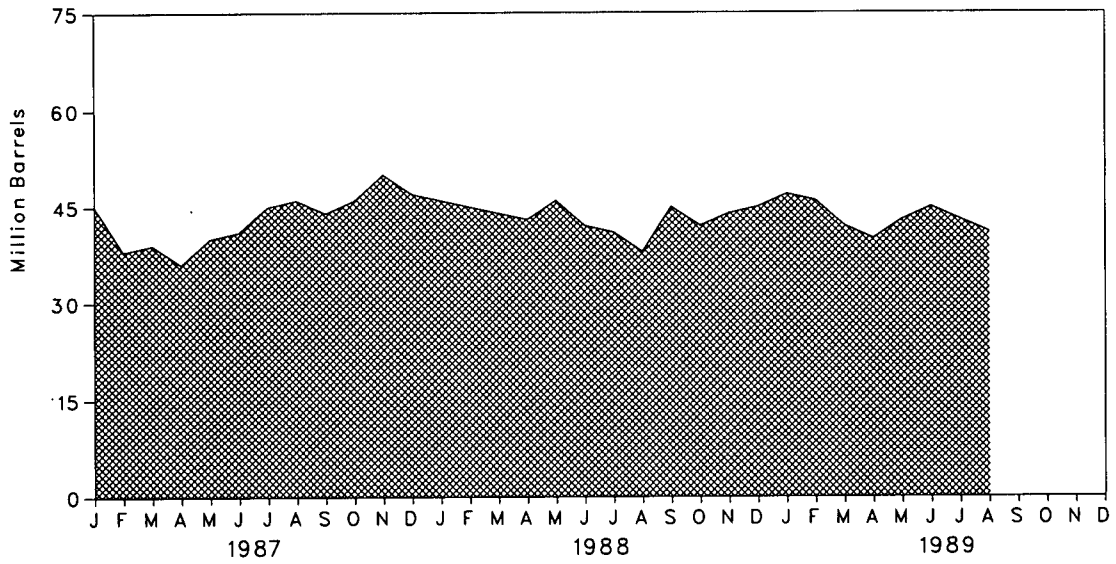


Table 3.6 Residual Fuel Oil Supply and Disposition

	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 January	920	701	NA	-81	198	1,504	45
February	825	668	NA	-243	221	1,515	38
March	863	559	NA	38	150	1,234	39
April	831	476	NA	-114	239	1,182	36
May	813	505	NA	145	144	1,029	40
June	864	481	NA	33	105	1,207	41
July	901	721	NA	108	175	1,339	45
August	882	512	NA	32	185	1,176	46
September	904	526	NA	-42	177	1,296	44
October	887	414	NA	39	194	1,069	46
November	928	568	NA	145	146	1,205	50
December	1,001	650	NA	-83	300	1,434	47
Average	**885**	**565**	**NA**	**(s)**	**186**	**1,264**	
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	948	877	NA	78	151	1,596	47
February	929	863	NA	-35	146	1,681	46
March	936	703	NA	-116	220	1,535	42
April	903	681	NA	-74	236	1,421	40
May	931	526	NA	77	276	1,105	43
June	951	515	NA	73	208	1,184	45
July	[R] 860	[R] 546	NA	[R] -59	[R] 176	[R] 1,287	[R] 43
August	[E] 879	[E] 460	NA	[E] 19	[E] 245	[E] 1,074	[E] 41
8-Month Average	**[E] 917**	**[E] 644**	**NA**	**[E] -4**	**[E] 208**	**[E] 1,357**	
1988 8-Month Average	**927**	**584**	**NA**	**-39**	**212**	**1,337**	
1987 8-Month Average	**863**	**577**	**NA**	**-7**	**177**	**1,271**	

[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

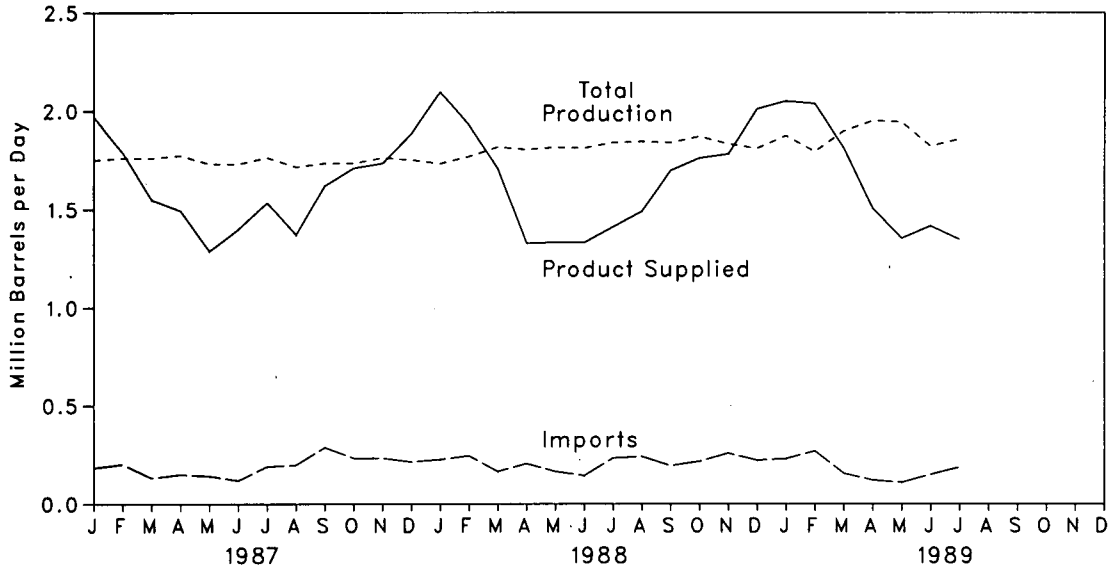


Figure 3.12 Liquefied Petroleum Gases Ending Stocks

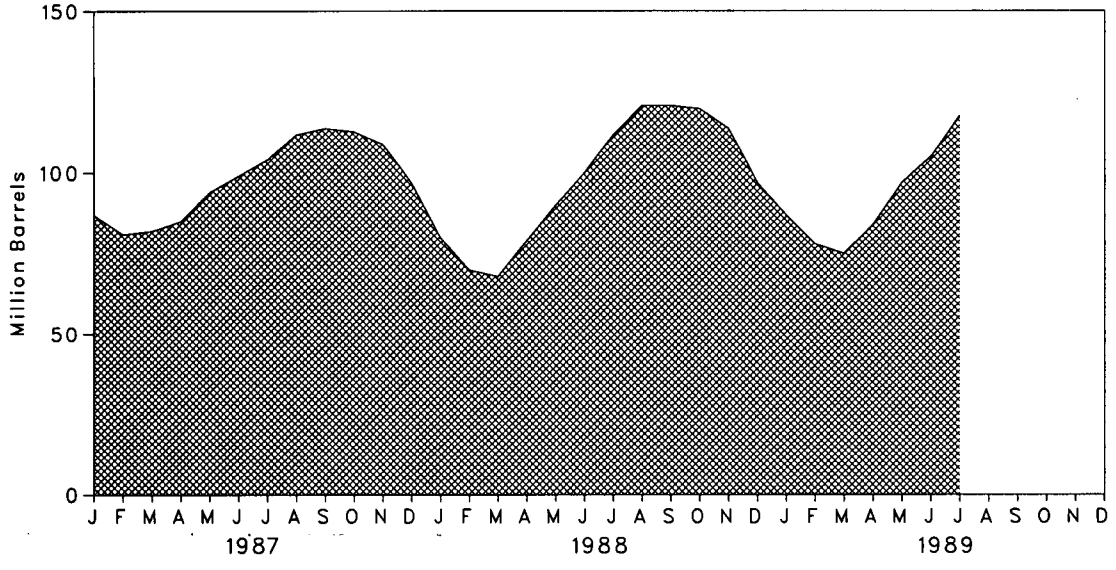


Table 3.7 Liquefied Petroleum Gases[a] Supply and Disposition

	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	[e] 1,527	226	-111	300	65	1,499	[d] 94
1983 Average	1,642	190	-4	253	73	1,509	[d] 101
1984 Average	1,697	195	-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 January	1,751	183	-500	419	43	1,971	87
February	1,762	201	-205	341	38	1,789	81
March	1,761	132	10	282	52	1,550	82
April	1,775	149	121	274	36	1,493	85
May	1,732	142	283	269	34	1,288	94
June	1,732	119	175	255	22	1,400	99
July	1,764	190	145	244	30	1,534	104
August	1,717	198	259	252	33	1,372	112
September	1,736	288	81	266	56	1,622	114
October	1,736	233	-59	294	23	1,711	113
November	1,763	233	-129	356	35	1,735	109
December	1,753	214	-372	395	56	1,887	97
Average	**1,748**	**190**	**-15**	**304**	**38**	**1,612**	
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	1,876	230	-385	421	19	2,051	87
February	1,795	269	-337	331	31	2,038	78
March	1,899	155	-80	278	43	1,813	75
April	1,950	121	292	245	27	1,506	84
May	1,945	109	431	226	43	1,354	97
June	1,823	149	266	255	35	1,416	105
July	1,858	186	405	247	45	1,348	118
7-Month Average	**1,879**	**173**	**89**	**286**	**35**	**1,643**	
1988 7-Month Average	**1,800**	**197**	**68**	**300**	**40**	**1,590**	
1987 7-Month Average	**1,754**	**159**	**6**	**297**	**36**	**1,573**	

[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.
[e]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**	**787**	**211**	**[e] 2,870**	**[d] 253**
1983 Average	**3,460**	**411**	**[d] –6**	**712**	**242**	**2,923**	**[d] 256**
1984 Average	**3,632**	**565**	**–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 January	3,852	469	121	659	219	3,323	254
February	3,796	687	389	352	320	3,422	265
March	3,766	663	128	757	281	3,262	269
April	3,933	589	–107	872	254	3,502	266
May	4,049	529	–178	913	320	3,523	260
June	4,203	712	–158	896	320	3,857	255
July	4,363	550	–91	835	256	3,913	253
August	4,340	616	148	693	238	3,876	257
September	4,350	611	24	903	353	3,681	258
October	4,223	686	–14	971	272	3,680	258
November	4,010	583	20	975	305	3,294	258
December	4,050	633	–261	1,091	330	3,523	250
Average	**4,080**	**610**	**–1**	**829**	**289**	**3,572**	
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	4,185	732	402	714	311	3,489	265
February	3,924	802	201	731	302	3,492	270
March	4,028	722	112	652	321	3,664	274
April	3,906	817	114	815	306	3,489	277
May	4,085	750	212	727	260	3,637	284
June	4,334	668	–220	866	389	3,967	277
July	4,436	658	–50	951	344	3,849	276
7-Month Average	**4,131**	**734**	**111**	**779**	**319**	**3,657**	
1988 7-Month Average	**4,095**	**751**	**123**	**744**	**324**	**3,655**	
1987 7-Month Average	**3,997**	**598**	**11**	**759**	**281**	**3,544**	

[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.

Notes and Sources for the Petroleum Section

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 withdrawals 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 1988: EIA, *Petroleum Supply Annual.*
- January 1989 through July 1989: Detailed Statistics in appropriate issues of the *Petroleum Supply Monthly.*
- August 1989: Estimates based on EIA weekly data (except domestic crude oil production).
- January 1989 through August 1989: 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 1989 was an estimated 1.3 trillion cubic feet, 1 percent[26] higher than the previous July.

Consumption of natural and supplemental gas in July 1989 was 1.2 trillion cubic feet, 4 percent above the level in July 1988.

Deliveries to residential consumers in June 1989 (latest data available) were 161 billion cubic feet, 5 percent higher than the previous June. Total deliveries to industrial consumers during June were 539 billion cubic feet, 11 percent higher than in June 1988.

Deliveries to residential consumers during the first 6 months of 1989 totaled 2,983 trillion cubic feet, 1 percent less than residential deliveries during the same period of 1988. During the first 6 months, industrial deliveries were 3,382 trillion cubic feet, 5 percent more than in the first half of 1988.

Imports of natural gas in July 1989 were 110 billion cubic feet, 11 percent higher than in the previous July.

Stocks of working gas[27] in underground natural gas storage reservoirs at the end of July 1989 totaled 2.6 trillion cubic feet, 3 percent above the level of stocks available 1 year earlier. Net injections into storage during July 1989 were 317 billion cubic feet, 16 percent more than during the previous July.

[26]Percentage changes are based on numbers shown in the following tables.
[27]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 January	1,823	171	34	13	1,605	74	1,531
February	1,641	158	32	9	1,442	67	1,375
March	1,738	171	34	10	1,523	70	1,453
April	1,640	179	30	10	1,421	67	1,354
May	1,634	190	30	10	1,404	66	1,338
June	1,569	186	29	9	1,345	63	1,282
July	1,586	183	26	12	1,365	65	1,300
August	1,611	179	32	11	1,389	66	1,323
September	1,540	177	28	10	1,325	63	1,262
October	1,684	200	35	10	1,439	67	1,372
November	1,723	201	30	9	1,483	70	1,413
December	1,867	212	35	12	1,608	75	1,533
Total	**20,056**	**2,208**	**376**	**124**	**17,349**	**812**	**16,536**
1988 January	1,869	212	35	12	1,610	75	1,535
February	1,705	192	31	12	1,470	69	1,401
March	1,783	197	35	12	1,539	72	1,467
April	1,651	189	34	12	1,416	66	1,350
May	1,676	201	29	12	1,434	67	1,367
June	1,617	199	34	12	1,372	64	1,308
July	1,630	201	32	13	1,384	65	1,319
August	1,655	200	31	12	1,412	66	1,346
September	1,573	197	33	12	1,331	62	1,269
October	1,704	213	36	12	1,443	68	1,375
November	1,733	213	33	12	1,475	69	1,406
December	1,829	221	36	11	1,561	73	1,488
Total	**20,425**	**2,435**	**399**	**144**	**17,449**	**817**	**16,632**
1989 January	1,842	214	41	10	1,577	74	1,503
February	1,674	189	36	11	1,438	67	1,371
March	1,766	193	35	12	1,526	71	1,455
April	1,656	196	36	10	1,414	66	1,348
May	1,675	200	36	10	1,429	67	1,362
June	[E] 1,612	[E] 192	[E] 35	[E] 10	[E] 1,375	[E] 64	[E] 1,311
July	[E] 1,641	[E] 195	[E] 36	[E] 10	[E] 1,400	[E] 66	[E] 1,334
7-Month Total	**[E] 11,866**	**[E] 1,379**	**[E] 255**	**[E] 73**	**[E] 10,159**	**[E] 475**	**[E] 9,684**
1988 7-Month Total	**11,931**	**1,391**	**230**	**85**	**10,225**	**478**	**9,747**
1987 7-Month Total	**11,631**	**1,238**	**215**	**73**	**10,105**	**472**	**9,633**

[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.
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. • Data through 1987 are final. Subsequent data are preliminary.
Sources: See end of section.

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	949	19,855	2,163	57	17,281	354
1986 Total	15,991	1,837	113	750	18,692	1,984	61	16,221	427
1987 January	1,531	521	11	101	2,164	38	5	2,051	70
February	1,375	325	9	84	1,793	35	3	1,859	-104
March	1,453	213	9	86	1,761	105	5	1,714	-63
April	1,354	101	8	68	1,532	166	3	1,422	-59
May	1,338	28	7	61	1,434	298	3	1,184	-51
June	1,282	21	7	58	1,368	252	5	1,099	12
July	1,300	27	8	66	1,401	230	5	1,099	67
August	1,323	43	8	75	1,450	245	5	1,134	66
September	1,262	19	7	73	1,361	231	5	1,058	67
October	1,372	86	8	93	1,559	148	5	1,238	168
November	1,413	155	9	107	1,684	105	6	1,436	137
December	1,533	365	10	121	2,029	59	5	1,843	122
Total	**16,536**	**1,905**	**101**	**992**	**19,534**	**1,911**	**54**	**17,137**	**432**
1988 January	1,535	576	17	138	2,266	49	5	2,168	44
February	1,401	456	14	116	1,987	53	5	2,021	-92
March	1,467	248	13	112	1,840	102	6	1,855	-123
April	1,350	81	11	95	1,537	166	6	1,454	-89
May	1,367	34	11	93	1,505	292	4	1,297	-88
June	1,308	25	10	92	1,435	290	8	1,167	-30
July	1,319	30	8	99	1,456	304	5	1,169	-22
August	1,346	30	10	93	1,479	296	6	1,218	-41
September	1,269	31	10	94	1,404	317	7	1,097	-17
October	1,375	88	11	105	1,579	212	6	1,225	136
November	1,406	173	12	120	1,711	148	7	1,448	108
December	1,488	368	14	126	1,996	35	9	1,816	136
Total	**16,632**	**2,140**	**143**	**1,283**	**20,198**	**2,264**	**74**	**17,933**	**-73**
1989 January	1,503	397	16	119	2,035	45	6	2,009	-25
February	1,371	548	15	107	2,041	28	5	1,996	12
March	1,455	319	14	116	1,904	93	6	1,945	-140
April	1,348	123	12	110	1,593	164	6	1,566	-143
May	1,362	41	12	107	1,522	285	4	1,365	-132
June	[E] 1,311	23	11	109	1,454	356	6	[R] 1,212	[R] -120
July	[E] 1,334	47	11	110	1,502	365	6	1,213	-82
7-Month Total	[E] **9,684**	**1,498**	**91**	**778**	**12,051**	**1,336**	**39**	**11,306**	**-630**
1988 7-Month Total	**9,747**	**1,450**	**84**	**745**	**12,026**	**1,256**	**39**	**11,131**	**-400**
1987 7-Month Total	**9,633**	**1,236**	**59**	**524**	**11,453**	**1,124**	**29**	**10,428**	**-128**

[a]Data for 1980 through 1987 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.
•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. • Data through 1987 are final. Subsequent data are preliminary.
Sources: See end of section.

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 January	106	53	741	382	584	185	1,892	2,051
February	95	45	689	361	511	158	1,719	1,859
March	100	44	575	303	501	191	1,570	1,714
April	94	42	402	213	465	206	1,286	1,422
May	93	42	223	132	451	243	1,048	1,184
June	89	40	147	97	442	284	969	1,099
July	91	38	126	93	432	319	970	1,099
August	93	40	117	90	455	339	1,001	1,134
September	89	38	126	100	437	268	932	1,058
October	94	41	223	140	502	238	1,103	1,238
November	99	43	354	201	522	217	1,293	1,436
December	108	51	592	303	592	197	1,683	1,843
Total	**1,149**	**519**	**4,315**	**2,414**	**5,895**	**2,844**	**15,468**	**17,137**
1988 January	107	56	852	419	567	167	2,005	2,168
February	97	49	755	389	562	170	1,875	2,021
March	102	47	595	319	587	204	1,706	1,855
April	94	41	399	219	502	199	1,319	1,454
May	95	43	259	157	502	240	1,159	1,297
June	91	42	153	115	486	280	1,034	1,167
July	92	43	123	106	476	328	1,034	1,169
August	93	43	115	111	511	344	1,082	1,218
September	88	42	125	114	495	233	967	1,097
October	96	43	231	154	519	182	1,086	1,225
November	98	45	391	223	540	151	1,305	1,448
December	103	50	632	317	577	137	1,663	1,816
Total	**1,155**	**544**	**4,630**	**2,644**	**6,325**	**2,635**	**16,234**	**17,933**
1989 January	104	51	753	375	580	146	1,854	2,009
February	95	51	740	377	562	171	1,850	1,996
March	101	48	651	341	594	209	1,796	1,945
April	94	42	418	228	550	233	1,430	1,566
May	95	44	260	161	557	249	1,226	1,365
June	91	44	161	119	539	259	1,077	[R] 1,212
6-Month Total	**580**	**280**	**2,983**	**1,601**	**3,382**	**1,267**	**9,233**	**10,093**
1988 6-Month Total	**586**	**278**	**3,013**	**1,618**	**3,206**	**1,260**	**9,098**	**9,962**
1987 6-Month Total	**577**	**266**	**2,777**	**1,488**	**2,954**	**1,267**	**8,485**	**9,329**

[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. • Data through 1987 are final. Subsequent data are preliminary.
Sources: See end of section.

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**	**441**
1974 Total	**2,912**	**2,050**	**4,962**	**16**	**.8**	**1,784**	**1,701**	**83**
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 January	3,818	2,280	6,098	67	3.0	38	513	-475
February	3,815	1,988	5,803	116	6.2	35	320	-285
March	3,813	1,879	5,693	115	6.5	105	210	-105
April	3,812	1,938	5,750	97	5.3	163	101	62
May	3,811	2,206	6,017	130	6.3	293	28	265
June	3,810	2,437	6,247	113	4.9	248	21	227
July	3,813	2,636	6,449	65	2.5	226	27	199
August	3,813	2,836	6,648	-7	-.2	241	43	198
September	3,813	3,049	6,862	-17	-.6	227	19	209
October	3,813	3,106	6,919	-102	-3.2	146	86	60
November	3,792	3,059	6,851	-18	-.6	105	153	-48
December	3,792	2,756	6,548	7	.3	59	359	-300
Total						**1,887**	**1,881**	**6**
1988 January	3,792	2,229	6,021	-51	-2.3	49	576	-527
February	3,791	1,827	5,618	-161	-8.1	53	456	-402
March	3,790	1,684	5,474	-196	-10.4	102	248	-146
April	3,790	1,770	5,560	-168	-8.7	166	81	86
May	3,790	2,028	5,818	-178	-8.1	292	34	258
June	3,792	2,293	6,085	-144	-5.9	290	25	265
July	3,793	2,567	6,359	-69	-2.6	304	30	274
August	3,791	2,834	6,625	-1	-.1	296	30	266
September	3,791	3,121	6,912	72	2.4	317	31	286
October	3,792	3,243	7,035	137	4.4	212	88	123
November	3,803	3,197	6,999	138	4.5	148	173	-25
December	3,800	2,871	6,672	115	4.2	35	368	-333
Total						**2,264**	**2,140**	**125**
1989 January	3,800	2,520	6,320	291	13.1	45	397	-352
February	3,798	2,000	5,798	173	9.5	28	548	-520
March	3,798	1,774	5,572	90	5.4	93	319	-226
April	3,792	1,825	5,617	55	3.1	166	121	44
May	3,798	2,058	5,856	30	1.5	285	41	244
June	3,798	2,372	6,171	79	3.4	356	23	333
July	3,802	2,643	6,446	76	3.0	365	47	317

[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. Current capacity is 8,124.

[b]For 1980 through 1987, 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.

Notes: • 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: See end of section.

Figure 4.1 Natural Gas Consumption, Production, and Imports

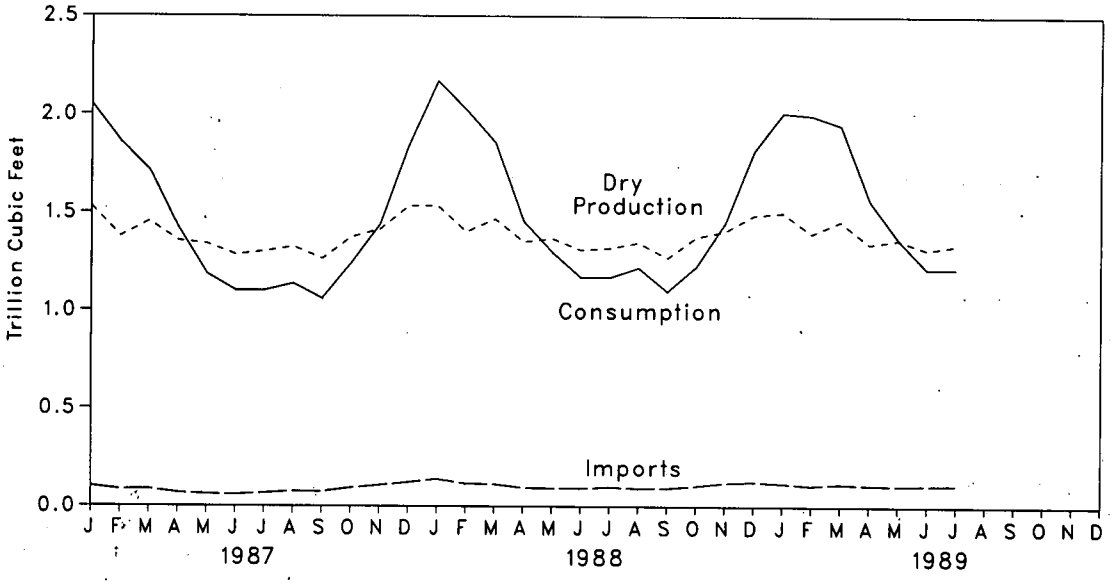
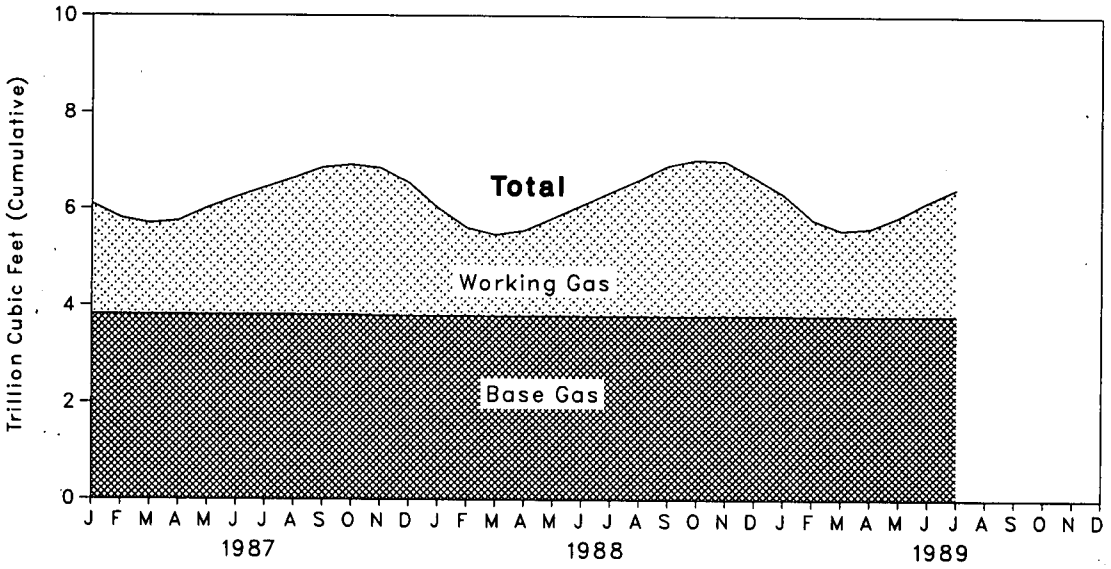


Figure 4.2 Natural Gas in Storage, End of Period



Notes and Sources for the Natural Gas Section

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) 1987.* These data are not available for periods prior to 1980. For 1987, of the 32 producing States, 22 reported data on nonhydrocarbon gases removed. These 22 States accounted for 58 percent of total 1987 gross withdrawals. In addition, gross withdrawals data from four States, which together accounted for 38 percent of the 1987 total production, did not include all or most of the nonhydrocarbon gases removed on leases. Two States reported quantities unknown but considered insignificant. For further information see the EIA *Natural Gas Monthly (NGM).*

Monthly data are reported by three States and computed for six States. All monthly data are considered preliminary until after publication of the EIA *NGA* for that year. For further information on methods of estimating preliminary monthly data, see the EIA *NGM.*

Monthly data are revised and considered final after publication of the EIA *NGA* by proportionally allocating the differences between annual data published in the EIA *NGA* and the sum of the preliminary monthly data (January-December).

2. Production: Annual data. Final annual data are from the EIA *NGA 1987.*

Estimated Monthly Data. All 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. All monthly data are considered preliminary until after publication of the EIA *NGA* for that year. 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. The difference between annual production data published in the EIA *NGA 1987* and the sum of preliminary monthly data (January-December) is allocated proportionally to the preliminary monthly data.

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

Annual data for extraction loss are from the EIA *NGA* 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 each month based on its total natural gas disposition.

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 1987.* Unknown quantities of supplemental gaseous fuels are included in consumption data for 1979 and earlier years.

All monthly data are considered preliminary until after the publication of the EIA *NGA* for that year. 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. This ratio is applied to the monthly sum of these 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 liquefied natural gas via tanker to Japan.

Annual and final monthly data are published 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* for that year.

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

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

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

8. Natural Gas Storage: Gas in storage at the end of a reporting period may not equal the quantity derived by adding or subtracting net injections or withdrawals from the quantity in storage at the end of the previous period. This 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.

All monthly data concerning underground storage are collected from the essentially identical Forms FPC-8 and EIA-191. 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 FPC-8/EIA-191 survey are adjusted to correspond to data from Form EIA-176 following publication of the EIA *Natural Gas Annual*.

The final monthly and annual storage and withdrawal data for 1980 through 1987 include both underground and liquefied natural gas (LNG) storage. Underground storage data are taken from the FPC-8/EIA-191 surveys in the manner described earlier. Annual data on LNG additions and withdrawals are taken 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 it to annual LNG data.

Sources

Table 4.1: 1973 through 1987: Energy Information Administration (EIA), *Natural Gas Annual 1987;* January 1988 forward: EIA, *Natual Gas Monthly.*

Withdrawals from and Additions to Storage: 1973 through 1987: EIA, *Natural Gas Annual 1987;* January 1988 forward: Form FPC-8 and Form EIA-191, "Underground Gas Storage Report."

Supplemental Gaseous Fuels: 1980 through 1987: EIA, *Natural Gas Annual 1987;* January 1988 forward: EIA, *Natural Gas Monthly.*

Imports and Exports: 1973 through 1987: Form FPC-14, "Imports and Exports of Natural Gas"; January 1988 forward: EIA, *Natural Gas Monthly.*

Consumption: All data except electric utility--1973 through 1987: EIA, *Natural Gas Annual, 1987;* January 1988 forward: Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers," and EIA, *Natural Gas Monthly.* Electric utility data--EIA, Form 759, "Monthly Power Plant Report" (formerly Form FPC-4).

Unaccounted For: 1973 through 1987: EIA, *Natural Gas Annual 1987;* January 1988 forward: EIA, *Natural Gas Monthly.*

Section 5. Oil and Gas Resource Development

In August 1989, the number of crews engaged in seismic exploration increased by 7 from the previous month. The August 1989 total of 136 crews was 52 lower than in the previous August. Of the total, 110 were land crews and 26 were marine vessels. The number of land crews was down by 46 from August 1988 and the number of marine vessels was down by 6.

The August 1989 rotary rig count of 886 was 6 percent higher than in the previous month but 5 percent lower than in August 1988. Of the total number of rigs in operation, 772 were onshore and 114 were offshore. The number of onshore rigs was down 4 percent from the number in August 1988 and the number of offshore rigs was down 7 percent.

Exploratory and development well completions during July 1989 totaled an estimated 2,220, up 2 percent from the previous month but 9 percent lower than the July 1988 total. Oil well completions were 820, down 20 percent from the level in July 1988, and gas well completions totaled 690, up 17 percent from the July 1988 total. Total footage drilled in July 1989 was 10.24 million feet, up 1 percent from the total in June 1989 but down 12 percent from the total in July 1988.

Figure 5.1 Seismic Crews, Rotary Rigs, and Footage Drilled

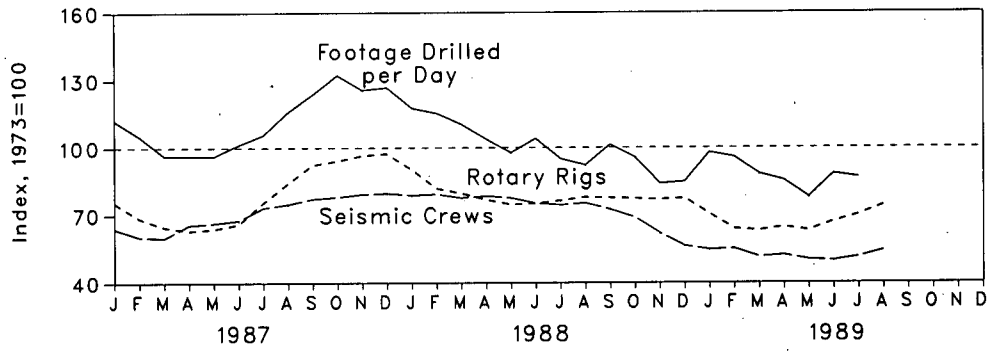


Figure 5.2 Total Oil and Gas Wells Completed

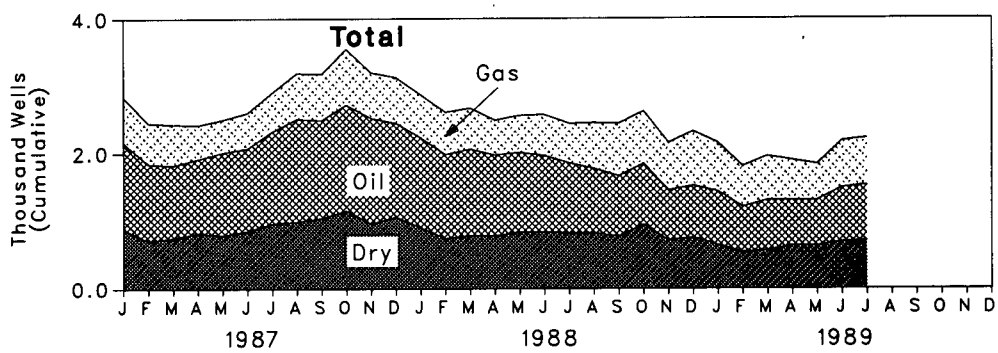


Table 5.1 Seismic Crews and Rotary Rigs

	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 January	18	142	160	88	812	900
February	19	132	151	75	743	818
March	18	132	150	76	696	772
April	19	145	164	73	681	754
May	20	146	166	76	687	763
June	22	147	169	85	703	788
July	24	159	183	97	804	901
August	28	159	187	109	894	1,003
September	29	164	193	114	987	1,101
October	32	163	195	116	1,008	1,124
November	28	170	198	118	1,034	1,152
December	27	172	199	128	1,034	1,162
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
8-Month Average	**23**	**108**	**131**	**102**	**698**	**800**
1988 8-Month Average	**30**	**163**	**193**	**123**	**820**	**943**
1987 8-Month Average	**21**	**145**	**166**	**85**	**754**	**839**

[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: See end of section.

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	**38.75**	**18.73**	**25.96**	**83.43**	**374.85**
1983 Total	**36.77**	**14.28**	**23.85**	**74.90**	**314.73**
1984 Total	**42.20**	**16.79**	**25.36**	**84.35**	**367.33**
1985 Total	**34.57**	**14.10**	**20.51**	**69.18**	**306.98**
1986 Total	**18.37**	**7.89**	**12.17**	**38.43**	**173.11**
1987 January	1.28	.68	.88	2.83	13.27
February	1.13	.61	.71	2.45	11.26
March	1.07	.61	.75	2.42	11.41
April	1.09	.51	.82	2.42	11.13
May	1.22	.49	.79	2.50	11.57
June	1.22	.53	.85	2.61	11.82
July	1.36	.58	R .96	R 2.90	R 12.73
August	1.52	.68	.99	3.20	13.77
September	1.45	.69	R 1.04	R 3.18	R 14.30
October	1.57	.83	1.15	3.55	15.76
November	1.56	.68	R .96	R 3.20	R 14.45
December	1.39	.68	1.06	3.13	15.02
Total	**15.86**	**R 7.56**	**R 10.97**	**R 34.38**	**R 156.49**
1988 January	1.33	.64	.90	2.87	13.93
February	1.24	.63	.74	2.60	12.77
March	1.28	.61	.78	2.67	13.07
April	1.19	.52	.78	2.48	12.17
May	1.18	.55	.83	2.56	11.80
June	1.13	.61	.83	2.57	11.90
July	R 1.03	.59	R .82	R 2.44	R 11.61
August	.95	.68	.82	2.44	10.90
September	.89	.78	.77	2.44	11.61
October	.90	.78	.94	2.62	12.19
November	.74	.70	.71	2.15	10.30
December	.77	.80	.75	2.32	11.24
Total	**R 12.62**	**7.88**	**R 9.66**	**R 30.16**	**R 143.49**
1989 January	R .79	R .72	R .64	R 2.15	R 10.23
February	.66	.60	.54	1.80	10.07
March	.74	.65	.56	1.95	10.30
April	.67	.59	.63	1.88	9.77
May	.67	.53	.63	1.83	9.21
June	.80	.69	.69	2.18	10.10
July	.82	.69	.71	2.22	10.24
7-Month Total	**5.15**	**4.46**	**4.39**	**14.01**	**69.92**
1988 7-Month Total	**8.37**	**4.15**	**5.68**	**18.20**	**87.25**
1987 7-Month Total	**8.37**	**4.00**	**5.76**	**18.13**	**83.19**

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.

Source: See end of section.

Notes and Sources for the Oil and Gas Resource Development Section

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*.

Sources

- Crews Engaged: Society of Exploration Geophysicists, "Monthly Seismic Crew Count" and annual reports published in their bulletins, *Geophysics* and *Leading Edge*.
- Rotary Rigs: Hughes Tool Company, "Rotary Rigs Running--by State."
- Wells and Footage Drilled: EIA computations based on well reports submitted to the American Petroleum Institute by Petroleum Information Corporation.

Section 6. Coal

Coal production in July 1989 totaled 65 million short tons, 6 percent lower than in July 1988.

Electric utility coal consumption in June 1989 totaled 64 million short tons, 2 percent lower than in June 1988. During the first 6 months of 1989 coal consumption at electric utilities was 369 million short tons, 2 percent above the 363 million short tons consumed during the first 6 months of 1988.

Electric utility coal stocks were 149 million short tons at the end of June 1989, 8 percent less than at the end of June 1988.

Exports of coal in June 1989 totaled 10 million short tons, 20 percent more than in June 1988. Coal exports for January through June 1989 totaled 50 million short tons, 22 percent higher than exports during the same period in 1988.

Imports of coal in June 1989 totaled 218 thousand short tons, 15 percent less than in June 1988. Coal imports during the first 6 months of 1989 totaled 1 million short tons, 8 percent more than imports during the first 6 months of 1988.

Figure 6.1 Coal Production, Consumption, and Exports

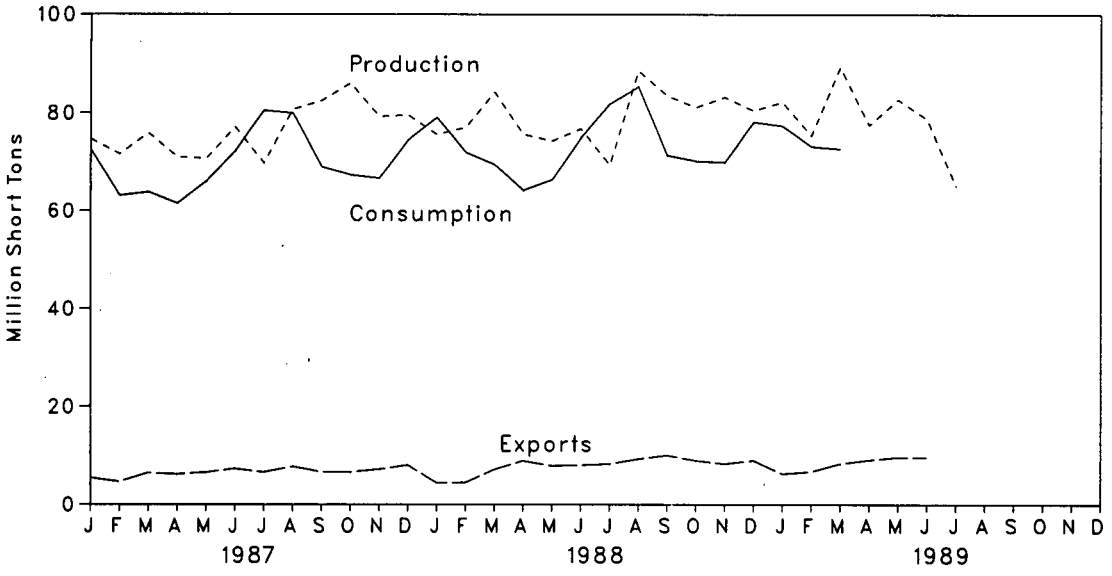


Figure 6.2 Coal Stocks, End of Period

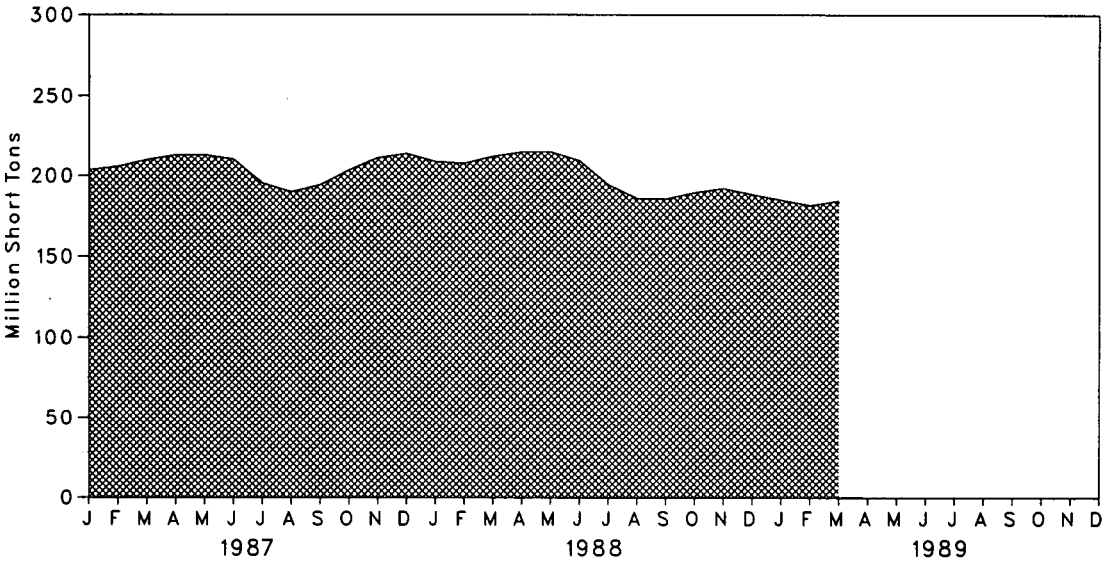


Table 6.1 Coal Overview
(Thousand Short Tons)

	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 January	74,681	72,648	134	5,471	203,432
February	71,662	63,091	85	4,643	205,551
March	75,857	63,784	111	6,462	209,733
April	71,044	61,472	229	6,229	212,699
May	70,707	65,950	135	6,557	212,788
June	77,072	72,204	118	7,328	209,976
July	69,774	80,479	120	6,611	195,431
August	80,707	79,935	191	7,758	189,919
September	82,477	68,984	164	6,665	194,373
October	85,992	67,299	86	6,633	203,544
November	79,242	66,634	263	7,210	211,067
December	79,549	74,462	109	8,042	213,780
Total	**918,762**	**836,941**	**1,747**	**79,607**	
1988 January	75,540	79,019	159	4,434	208,717
February	77,025	72,009	162	4,482	207,712
March	84,222	69,502	221	7,145	212,044
April	75,589	64,179	107	8,943	214,768
May	74,277	66,327	224	7,905	214,923
June	76,725	74,904	257	8,053	209,386
July	69,422	81,845	203	8,303	194,636
August	88,535	85,320	205	9,322	186,020
September	83,511	71,383	29	10,066	185,691
October	81,176	70,219	229	9,010	189,629
November	83,227	69,978	207	8,338	192,288
December	80,513	78,130	131	9,023	188,468
Total	**949,761**	**882,815**	**2,134**	**95,023**	
1989 January	82,250	77,325	66	6,306	185,086
February	75,322	73,220	131	6,748	181,621
March	89,318	72,741	334	8,375	184,485
April	77,483	NA	158	9,104	NA
May	82,779	NA	312	9,685	NA
June	78,804	NA	218	9,657	NA
July	65,093	NA	NA	NA	NA
7-Month Total	**551,048**	**NA**	**NA**	**NA**	
1988 7-Month Total	**532,799**	**507,785**	**1,333**	**49,265**	
1987 7-Month Total	**510,796**	**479,628**	**933**	**43,299**	

[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 1987 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • See Note 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 January	62,414	2,645	6,865	724	72,648
February	53,715	2,506	6,236	634	63,091
March	54,647	2,681	6,005	452	63,784
April	51,435	3,298	6,137	603	61,472
May	56,484	3,235	5,868	364	65,950
June	63,500	2,812	5,605	288	72,204
July	70,736	3,265	5,973	504	80,479
August	70,075	3,249	6,135	476	79,935
September	59,259	3,193	5,899	633	68,984
October	57,117	3,297	6,228	656	67,299
November	55,961	3,326	6,653	694	66,634
December	62,551	3,452	7,572	888	74,462
Total	**717,894**	**36,957**	**75,175**	**6,914**	**836,941**
1988 January	67,901	3,465	6,826	826	79,019
February	61,244	3,297	6,789	678	72,009
March	58,606	3,595	6,801	500	69,502
April	54,158	3,508	5,904	608	64,179
May	56,346	3,686	5,937	358	66,327
June	65,167	3,353	5,944	440	74,904
July	71,599	3,605	5,962	679	81,845
August	75,271	3,418	5,972	658	85,320
September	61,546	3,461	5,989	388	71,383
October	59,529	3,550	6,694	446	70,219
November	59,271	3,403	6,710	594	69,978
December	66,884	3,568	6,724	955	78,130
Total	**757,522**	**41,910**	**76,252**	**7,130**	**882,815**
1989 January	66,454	3,568	6,671	633	77,325
February	62,613	3,295	6,618	693	73,220
March	61,912	3,722	6,595	512	72,741
April	55,932	NA	NA	NA	NA
May	58,360	NA	NA	NA	NA
June	63,623	NA	NA	NA	NA
6-Month Total	**368,894**	**NA**	**NA**	**NA**	**NA**
1988 6-Month Total	**363,422**	**20,904**	**38,203**	**3,411**	**425,940**
1987 6-Month Total	**342,195**	**17,175**	**36,716**	**3,063**	**399,150**

[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 1987 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 January	157,061	2,886	9,903	169,850	33,582	203,432
February	158,322	2,780	9,377	170,479	35,071	205,551
March	161,648	2,675	8,850	173,173	36,560	209,733
April	165,103	3,028	8,881	177,012	35,686	212,699
May	165,683	3,382	8,911	177,976	34,813	212,788
June	163,361	3,735	8,941	176,037	33,939	209,976
July	150,217	3,603	9,393	163,213	32,217	195,431
August	146,106	3,472	9,845	159,422	30,496	189,919
September	151,961	3,340	10,297	165,598	28,775	194,373
October	160,942	3,521	10,457	174,920	28,624	203,544
November	168,274	3,703	10,617	182,594	28,472	211,067
December	170,797	3,884	10,777	185,459	28,321	213,780
1988 January	163,581	3,942	10,058	177,582	31,135	208,717
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	146,947	2,964	8,672	158,583	31,046	189,629
November	149,785	3,051	8,720	161,556	30,732	192,288
December	146,145	3,137	8,768	158,051	30,418	188,468
1989 January	141,682	3,264	8,073	153,019	32,067	185,086
February	137,136	3,391	7,378	147,905	33,716	181,621
March	138,919	3,518	6,683	149,120	35,365	184,485
April	144,577	NA	NA	NA	NA	NA
May	150,833	NA	NA	NA	NA	NA
June	148,831	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 1987 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding.
Sources: See end of section.

Notes and Sources for the Coal Section

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 the *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 through 1987, 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 through 1987, 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 taken as 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 through 1987, 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 distrib-

utors 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,* DOE/EIA-0121.

Sources

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

Consumption and Stocks: 1973 through September 1977: Bureau of Mines, *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 FPC Form 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 Fuel Consumption Report-Manufacturing Plants"; January 1980 forward: EIA, Form EIA-3, "Quarterly Fuel Consumption Report-Manufacturing Plants" and Form EIA-6, "Coal Distribution Report."
- Residential and Commercial Consumption and Stocks-1973 through 1976: Bureau of Mines, *Minerals Yearbook;* January 1977 through September 1977: Bureau of Mines, 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: Bureau of the Census, U.S. Department of Commerce, Monthly Reports IM-145 (Imports) and EM-522 (Exports).

Section 7. Electric Utilities

During June 1989, electric utilities generated 235 billion kilowatthours of electricity, 1 percent[28] above the June 1988 generation level. Coal-fired generation totaled 128 billion kilowatthours, 3 percent lower than the June 1988 level. Nuclear generation totaled 43 billion kilowatthours, 3 percent below the level 1 year earlier. Hydroelectric generation was 26 billion kilowatthours in June 1989, 37 percent above the June 1988 level. Natural gas-fired generation was 25 billion kilowatthours in June 1989, 8 percent lower than the June 1988 level. Petroleum-fired generation totaled 13 billion kilowatthours, 29 percent above the level 1 year earlier.

During the first half of 1989, electric utilities generated 1,340 billion kilowatthours of electricity, 3 percent above the first half 1988 generation level. Coal-fired generation totaled 751 billion kilowatthours, 2 percent above the first half 1988 level. Nuclear generation totaled 239 billion kilowatthours, 6 percent below the level 1 year earlier. Hydroelectric generation was 139 billion kilowatthours in the first half of 1989, 16 percent above the first half 1988 level. Natural gas-fired generation was 121 billion kilowatthours, almost 1 percent below the level 1 year earlier. Petroleum-fired generation totaled 83 billion kilowatthours, 34 percent above the first half 1988 level.

Sales of electricity to all ultimate consumers in the United States in June 1989 were 220 billion kilowatthours, 4 percent above June 1988 sales. Sales to industrial consumers totaled 78 billion kilowatthours in June 1989, 5 percent above the level in June 1988. Sales to residential consumers during June 1989 were 71 billion kilowatthours, 5 percent above the level of sales during the previous June. Commercial sales were 62 billion kilowatthours, 1 percent higher than the amount sold to commercial consumers 1 year earlier. In June 1989, other sales totaled 8 billion kilowatthours, 12 percent above the June 1988 level.

During the first half of 1989, sales of electricity to all ultimate consumers in the United States were 1,275 billion kilowatthours, 3 percent above the first-half 1988 sales. Sales to industrial consumers totaled 444 billion kilowatthours in June 1989, 3 percent higher than the level of sales during the same period in 1988. Sales to residential consumers were 438 billion kilowatthours, 2 percent above the level of sales during the first half of 1988. Commercial sales were 349 billion kilowatthours, 3 percent more than the amount sold to commercial consumers 1 year earlier. During the first half of 1989 other sales totaled 44 billion kilowatthours, 11 percent higher than the first half 1988 level.

Electric utility consumption of petroleum (excluding petroleum coke) during June 1989 was 21 million barrels, 28 percent above the June 1988 level. Coal consumption during June 1989 was 64 million short tons, 2 percent lower than consumption in June 1988. During June 1989, electric utilities consumed 259 billion cubic feet of natural gas, 8 percent below the June 1988 consumption level.

During the first half of 1989 electric utility consumption of petroleum (excluding petroleum coke) was 140 million barrels, 35 percent above the first half 1988 level. Coal consumption during the first half of 1989 was 369 million short tons, 2 percent higher than consumption during the first half of 1988 rate. During the first half of 1989, electric utilities consumed 1,267 billion cubic feet of natural gas, less than 1 percent above the first half 1988 consumption level.

On June 30, 1989, electric utility stocks of all types of coal totaled 149 million short tons, 8 percent lower than the level on June 30, 1988. Stocks of petroleum (excluding petroleum coke) on June 30, 1989, totaled 67 million barrels, 3 percent below the level on June 30, 1988.

[28]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 January	126,631	11,927	17,788	39,975	25,412	1,017	222,749
February	109,648	10,502	15,120	36,598	21,226	940	194,034
March	111,920	10,007	18,349	37,290	23,248	1,034	201,849
April	105,474	7,912	19,602	33,518	22,025	965	189,496
May	115,155	8,146	23,239	34,320	24,202	1,012	206,074
June	129,351	10,655	27,090	36,560	20,863	1,071	225,589
July	143,503	12,547	30,512	40,056	20,195	1,103	247,915
August	143,194	11,289	32,262	41,352	18,446	1,101	247,645
September	120,777	7,696	25,678	39,666	18,180	1,011	213,008
October	117,743	6,819	22,985	36,492	17,955	1,015	203,009
November	114,172	9,803	21,005	37,438	16,857	983	200,258
December	126,213	11,189	18,992	42,006	21,087	1,013	220,500
Total	**1,463,781**	**118,493**	**272,621**	**455,270**	**249,695**	**12,267**	**2,572,127**
1988 January	137,626	15,976	16,276	44,658	22,031	1,033	237,600
February	126,080	11,894	16,480	42,246	19,105	898	216,702
March	119,858	9,770	19,743	43,912	19,514	1,041	213,838
April	108,946	7,496	19,238	40,067	19,104	959	195,809
May	115,006	7,215	23,149	40,650	21,238	922	208,180
June	132,029	9,757	26,804	44,079	18,833	1,004	232,507
July	144,084	14,051	31,284	49,828	16,904	1,084	257,235
August	152,141	16,070	32,702	48,985	16,447	1,064	267,408
September	124,249	10,018	22,213	46,270	16,270	1,001	220,023
October	121,114	13,240	17,316	42,581	15,112	1,013	210,377
November	120,841	14,977	14,547	39,578	18,466	985	209,394
December	136,228	18,355	13,027	44,046	19,913	980	232,550
Total	**1,538,203**	**148,819**	**252,779**	**526,901**	**222,938**	**11,983**	**2,701,624**
1989 January	134,876	15,328	13,886	46,328	19,965	959	231,343
February	126,936	17,381	16,531	38,725	18,620	874	219,066
March	126,564	16,674	19,920	39,636	22,642	1,000	226,436
April	115,273	11,569	22,451	33,495	24,075	886	207,749
May	118,958	9,939	23,595	38,339	28,033	940	219,803
June	128,454	12,590	24,547	42,976	25,881	948	235,397
6-Month Total	**751,062**	**83,481**	**120,930**	**239,499**	**139,216**	**5,608**	**1,339,796**
1988 6-Month Total	**739,545**	**62,108**	**121,689**	**255,613**	**119,826**	**5,856**	**1,304,637**
1987 6-Month Total	**698,179**	**59,148**	**121,188**	**218,261**	**136,976**	**6,040**	**1,239,792**

[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 4, "Monthly Power Plant Report," • October 1977 through 1981: Federal Energy Regulatory Commission, FPC Form 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	
	Old	New	Old	New	Old	New	Old	New	Old	New
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**	**577,275**	**840,588**	**838,718**	**81,849**	**88,887**	**2,278,372**	**2,284,972**
1985 Total	**790,977**	**793,828**	**608,968**	**604,679**	**824,523**	**835,207**	**85,075**	**91,988**	**2,309,543**	**2,325,702**
1986 Total[c]		**817,663**		**641,469**		**808,292**		**83,409**		**2,350,835**
1987 January		82,132		54,503		65,528		7,435		209,598
February		73,435		52,216		65,259		7,157		198,066
March		67,370		51,259		67,803		7,021		193,453
April		60,014		49,706		67,962		6,854		184,536
May		58,499		53,465		69,910		7,050		188,924
June		68,859		59,265		72,365		7,308		207,798
July		83,751		64,427		73,485		7,586		229,249
August		88,160		65,103		74,520		7,669		235,451
September		73,439		61,269		74,419		7,280		216,407
October		60,848		55,915		73,147		7,136		197,046
November		60,008		52,118		70,870		7,104		190,100
December		73,099		54,462		69,999		7,254		204,814
Total		**849,613**		**673,707**		**845,266**		**86,854**		**2,455,440**
1988 January		89,529		58,723		69,984		6,873		225,109
February		80,248		56,682		70,701		6,767		214,398
March		71,560		55,127		71,435		6,560		204,682
April		61,395		53,456		70,782		6,365		191,998
May		57,566		54,379		72,471		6,410		190,826
June		68,218		61,567		74,690		6,917		211,392
July		85,362		65,189		76,827		7,208		234,585
August		93,870		67,809		80,153		7,348		249,180
September		77,532		64,936		75,976		7,148		225,592
October		63,767		58,914		75,076		6,967		204,724
November		63,630		55,348		72,834		6,635		198,446
December		77,184		58,073		73,098		6,910		215,265
Total		**889,860**		**710,204**		**884,026**		**82,108**		**2,566,198**
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
6-Month Total		**438,315**		**348,625**		**444,297**		**44,205**		**1,275,441**
1988 6-Month Total		**428,515**		**339,934**		**430,062**		**39,893**		**1,238,405**
1987 6-Month Total		**410,308**		**320,414**		**408,827**		**42,826**		**1,182,374**

[a]Electricity sales to all ultimate consumers.
[b]Includes sales of electricity to Government, railways, street lighting authorities, and sales not included elsewhere.
[c]Beginning in January 1986, monthly Form EIA-826 electricity sales estimates, which are preliminary Form EIA-861 values, are based on a new sample and new expansion factors from data reported on Form EIA-861.

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

Sources: **Old Series:** • 1973 through February 1980: Federal Power Commission, FPC Form 5, "Monthly Statement of Electric Operating Revenue and Income," • March 1980 through 1982: Federal Energy Regulatory Commission, FERC Form 5, "Electric Utility Company Monthly Statement," • 1983 through 1985, Energy Information Administration, Form EIA-826, "Electric Utility Company Monthly Statement." **New Series:** • 1984 and 1985 annual data: Energy Information Administration, Form EIA-861, "Annual Electric Utility Report." • 1986 annual data and 1987 monthly and annual data: Energy Information Administration, Form EIA-826, "Electric Utility Company Monthly Statement." • 1988 forward: Energy Information Administration, Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions."

Figure 7.1 Coal Consumed to Produce Electricity

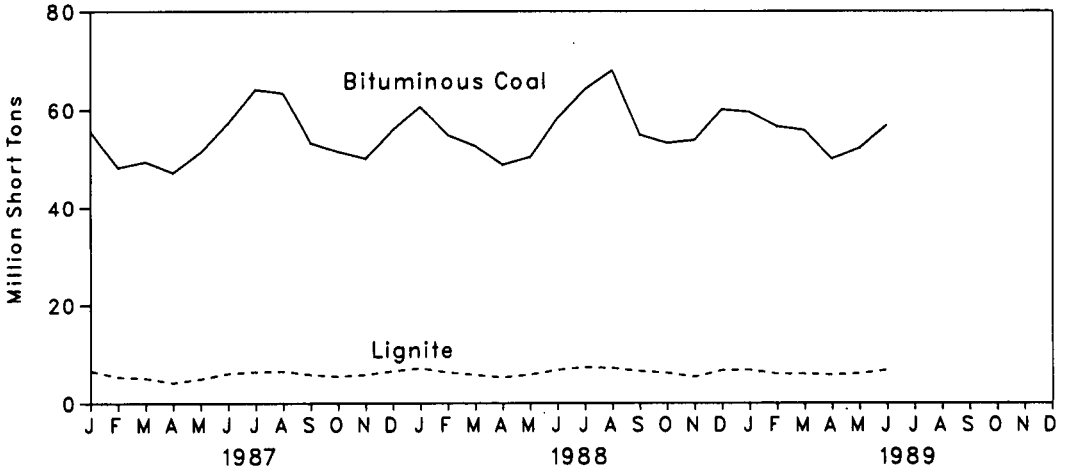


Figure 7.2 Petroleum Consumed to Produce Electricity

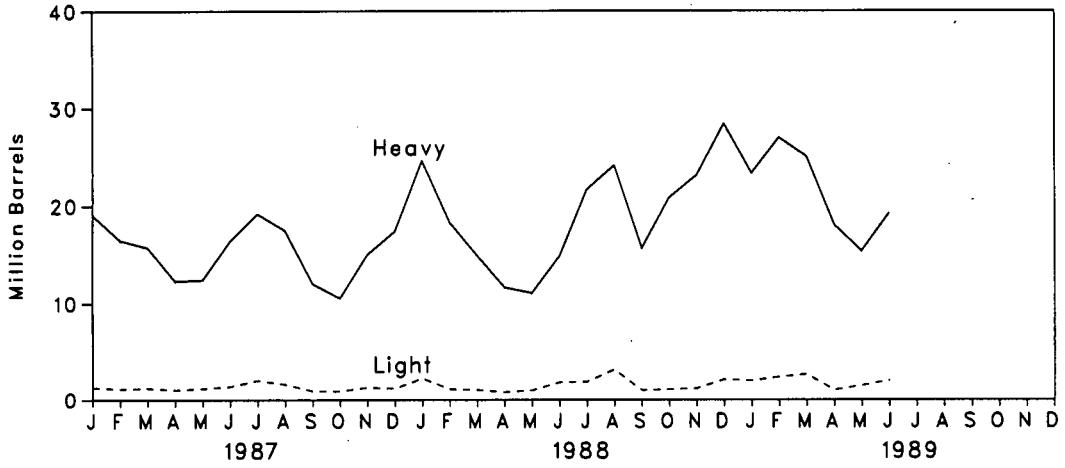


Figure 7.3 Natural Gas Consumed to Produce Electricity

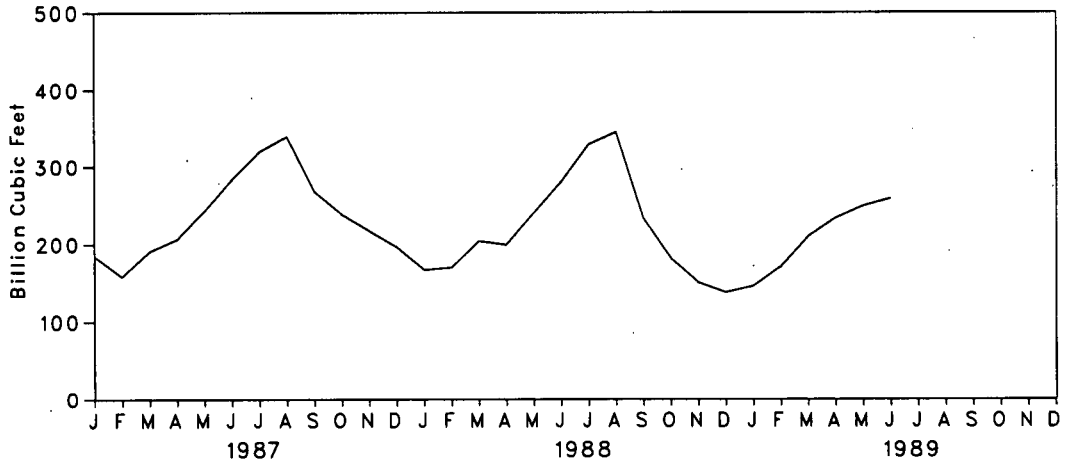


Table 7.3 Fossil Fuels Consumed by Electric Utilities To Generate Electricity

	Coal				Petroleum				
	Anthracite	Bituminous Coal	Lignite	Total	Heavy[a]	Light[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 January	68	55,682	6,664	62,414	19,069	1,317	20,386	28	184,722
February	75	48,243	5,397	53,715	16,510	1,149	17,658	29	158,341
March	79	49,428	5,140	54,647	15,741	1,227	16,968	28	190,893
April	75	47,153	4,207	51,435	12,297	1,033	13,330	23	206,438
May	91	51,415	4,977	56,484	12,420	1,183	13,603	31	242,615
June	100	57,307	6,093	63,500	16,384	1,407	17,790	26	283,554
July	105	64,203	6,428	70,736	19,193	2,075	21,268	28	319,239
August	95	63,456	6,524	70,075	17,470	1,648	19,118	31	338,646
September	72	53,338	5,850	59,259	12,015	924	12,939	31	268,080
October	66	51,572	5,479	57,117	10,538	891	11,429	35	238,185
November	60	50,095	5,805	55,961	14,995	1,307	16,302	27	216,781
December	85	55,930	6,535	62,551	17,380	1,207	18,587	30	196,556
Total	**972**	**647,824**	**69,098**	**717,894**	**184,011**	**15,367**	**199,378**	**348**	**2,844,051**
1988 January	77	60,665	7,159	67,901	24,593	2,297	26,890	24	166,840
February	85	54,897	6,263	61,244	18,320	1,136	19,456	27	169,688
March	92	52,739	5,775	58,606	14,906	1,044	15,951	36	204,042
April	87	48,814	5,258	54,158	11,636	805	12,441	33	199,322
May	88	50,411	5,847	56,346	11,069	998	12,067	33	239,799
June	74	58,319	6,774	65,167	14,806	1,856	16,662	42	280,303
July	99	64,191	7,309	71,599	21,643	1,928	23,571	47	328,287
August	106	68,009	7,156	75,271	24,106	3,207	27,313	41	344,232
September	86	54,941	6,519	61,546	15,638	1,004	16,642	31	232,665
October	83	53,283	6,162	59,529	20,809	1,100	21,909	30	181,673
November	80	53,846	5,346	59,271	23,092	1,200	24,293	31	150,506
December	108	60,094	6,681	66,884	28,401	2,173	30,574	36	137,449
Total	**1,063**	**680,211**	**76,249**	**757,522**	**229,019**	**18,748**	**247,768**	**409**	**2,634,804**
1989 January	98	59,571	6,784	66,454	23,313	2,057	25,370	47	145,632
February	75	56,593	5,945	62,613	26,957	2,425	29,382	33	170,603
March	82	55,845	5,986	61,912	25,032	2,718	27,749	35	209,384
April	96	50,048	5,789	55,932	18,058	1,044	19,101	38	233,268
May	98	52,253	6,009	58,360	15,358	1,520	16,878	36	248,901
June	75	56,829	6,719	63,623	19,253	2,069	21,322	38	258,759
6-Month Total	**524**	**331,139**	**37,231**	**368,894**	**127,970**	**11,833**	**139,804**	**226**	**1,266,548**
1988 6-Month Total	**501**	**325,845**	**37,076**	**363,422**	**95,330**	**8,136**	**103,466**	**194**	**1,259,993**
1987 6-Month Total	**489**	**309,229**	**32,477**	**342,195**	**92,420**	**7,315**	**99,735**	**164**	**1,266,564**

[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 4, "Monthly Power Plant Report," • October 1977 through 1981: Federal Energy Regulatory Commission, FPC Form 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

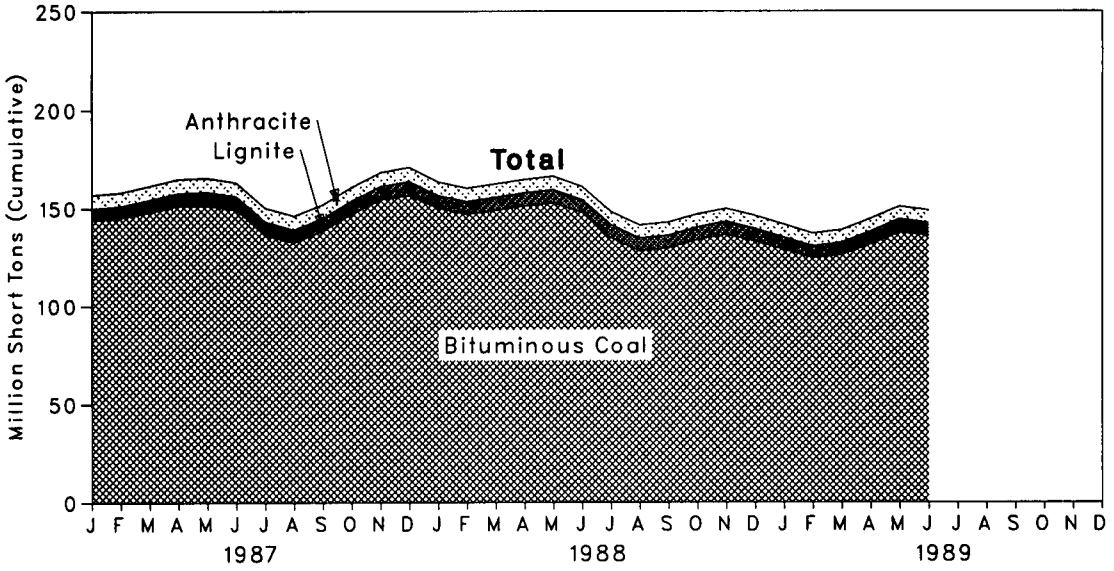


Figure 7.5 Petroleum Stocks at Electric Utilities, End of Period

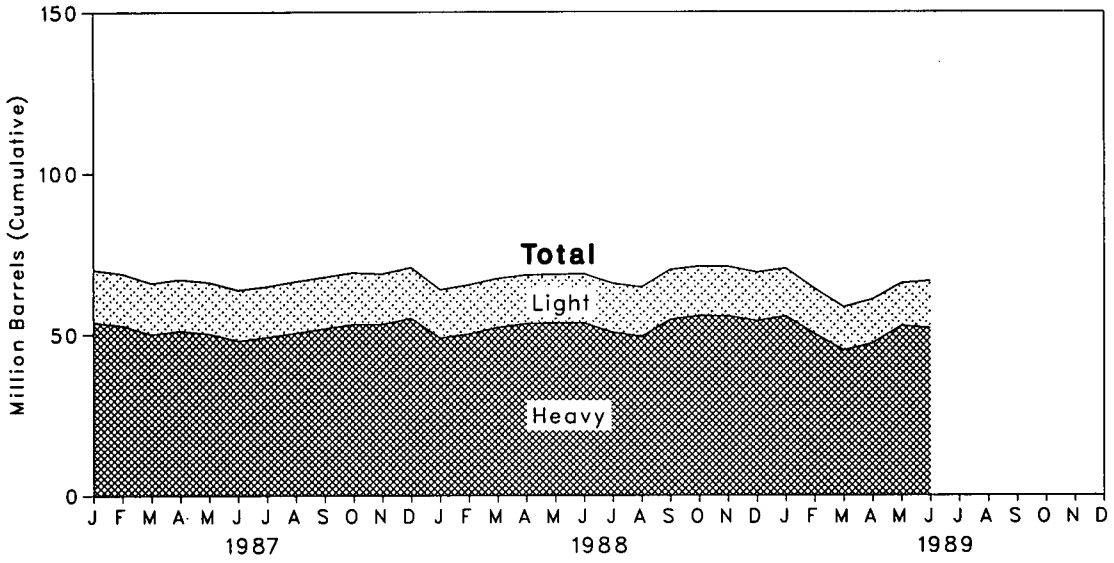


Table 7.4 Coal and Petroleum Stocks at Electric Utilities, End of Period

	Coal				Petroleum			
	Anthracite	Bituminous Coal	Lignite	Total	Heavy[a]	Light[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 January	7,091	144,044	5,926	157,061	53,789	16,365	70,153	35
February	7,087	145,206	6,030	158,322	52,847	16,085	68,932	34
March	7,098	148,020	6,530	161,648	50,035	15,946	65,981	41
April	7,103	151,205	6,795	165,103	51,201	15,970	67,171	35
May	7,098	151,329	7,255	165,683	50,221	16,006	66,227	43
June	7,098	149,394	6,868	163,361	48,047	15,822	63,869	55
July	7,102	136,385	6,729	150,217	49,123	15,819	64,942	64
August	7,083	132,535	6,488	146,106	50,451	16,038	66,489	57
September	7,068	138,490	6,403	151,961	51,858	16,029	67,887	48
October	7,070	147,034	6,838	160,942	53,175	16,081	69,256	60
November	6,963	154,545	6,767	168,274	53,160	15,704	68,864	63
December	6,940	156,670	7,187	170,797	55,069	15,759	70,827	51
1988 January	6,905	150,019	6,657	163,581	48,872	15,107	63,979	56
February	6,864	146,977	6,583	160,424	50,168	15,277	65,445	55
March	6,821	148,955	6,826	162,603	52,197	15,223	67,420	58
April	6,780	152,121	6,848	165,750	53,375	15,149	68,524	54
May	6,732	152,743	6,853	166,328	53,579	15,098	68,676	56
June	6,785	147,752	6,677	161,215	53,533	15,337	68,870	77
July	6,659	134,933	6,641	148,234	50,681	15,213	65,894	73
August	6,614	128,139	6,635	141,389	49,308	15,395	64,703	63
September	6,601	129,707	6,522	142,830	54,636	15,518	70,154	82
October	6,611	133,965	6,371	146,947	55,830	15,332	71,161	83
November	6,595	136,652	6,539	149,785	55,752	15,320	71,072	90
December	6,561	133,072	6,512	146,145	54,187	15,086	69,273	86
1989 January	6,513	128,902	6,266	141,682	55,670	14,829	70,498	58
February	6,494	124,424	6,217	137,136	50,071	14,109	64,180	56
March	6,475	126,078	6,367	138,919	45,129	13,373	58,503	62
April	6,447	131,653	6,477	144,577	47,237	13,603	60,841	102
May	6,416	137,650	6,767	150,833	52,595	13,279	65,874	64
June	6,427	135,976	6,428	148,831	51,922	14,619	66,541	77

[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 4, "Monthly Power Plant Report," • October 1977 through 1981: Federal Energy Regulatory Commission, FPC Form 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 January	19,718	668	20,386	61,042	9,111	70,153
February	17,004	655	17,658	59,907	9,025	68,932
March	16,335	633	16,968	57,052	8,929	65,981
April	12,873	457	13,330	58,250	8,921	67,171
May	13,017	586	13,603	57,521	8,706	66,227
June	16,976	814	17,790	55,063	8,806	63,869
July	19,754	1,513	21,268	56,236	8,706	64,942
August	17,948	1,170	19,118	57,748	8,741	66,489
September	12,441	498	12,939	58,902	8,984	67,887
October	11,108	321	11,429	60,138	9,117	69,256
November	15,651	651	16,302	59,873	8,991	68,864
December	17,994	593	18,587	61,705	9,123	70,827
Total	**190,818**	**8,560**	**199,378**			
1988 January	25,334	1,556	26,890	55,231	8,749	63,979
February	18,888	567	19,456	56,448	8,997	65,445
March	15,478	473	15,951	58,686	8,734	67,420
April	12,117	325	12,441	59,743	8,781	68,524
May	11,659	407	12,067	59,882	8,795	68,676
June	15,355	1,307	16,662	60,025	8,845	68,870
July	22,158	1,413	23,571	57,126	8,768	65,894
August	24,601	2,712	27,313	55,890	8,814	64,703
September	16,100	542	16,642	60,991	9,162	70,154
October	21,307	602	21,909	62,002	9,160	71,161
November	23,579	714	24,293	61,990	9,082	71,072
December	28,912	1,661	30,574	60,311	8,962	69,273
Total	**235,490**	**12,278**	**247,768**			
1989 January	24,160	1,211	25,370	61,456	9,043	70,498
February	27,880	1,502	29,382	55,689	8,490	64,180
March	25,826	1,924	27,749	50,490	8,013	58,503
April	18,564	537	19,101	52,787	8,054	60,841
May	15,922	956	16,878	57,994	7,879	65,874
June	19,832	1,490	21,322	57,609	8,932	66,541
6-Month Total	**132,184**	**7,620**	**139,804**			
1988 6-Month Total	**98,832**	**4,635**	**103,466**			
1987 6-Month Total	**95,922**	**3,812**	**99,735**			

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

Section 8. Nuclear

In June 1989, U.S. nuclear generating units produced a total of 43 net terawatthours (billion kilowatthours) of electricity, 3 percent[29] lower than in June 1988. Nuclear units generated at an average capacity factor of 61.4 percent, 3 percentage points below the level in June 1988. Nuclear power supplied 18.3 percent of the total electricity generated in June 1989, compared with 19.0 percent in June 1988.

Nuclear generation during the first 6 months of 1989 decreased 6 percent compared with generation in the first 6 months of 1988. The average monthly nuclear share of electricity for the first 6 months of 1989 was 17.8 percent compared with 19.6 percent for the same period in 1988. During the first half of 1989, the average monthly nuclear capacity factor for U.S. nuclear units was 57.1 percent compared with 62.3 percent in 1988.

No Low or Full Power Operating Licenses were issued by the Nuclear Regulatory Commission (NRC) during June 1989. On May 26, 1989, Seabrook 1, a 1,186 net-megawatt-electric (MWe) unit located in Seabrook, New Hampshire, was issued a Low Power Operating License by the NRC authorizing fuel loading and low-power testing.

On June 30, 1989, there were 110 operable nuclear generating units in the United States, with a collective net summer generating capability of 97 million kilowatts of electricity. (This total does not include Shoreham, as it is not currently scheduled to operate). Of the 110 operable units, 29 units generated at less than 25 percent of capacity and 14 units were out of service at least part of the month for maintenance or refueling.

As of June 30, there were 122 domestic nuclear generating units in all stages of construction and operation, with an aggregate design capacity of 114 million net kilowatts.

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

Figure 8.1 Nuclear and Total Net Generation of Electricity

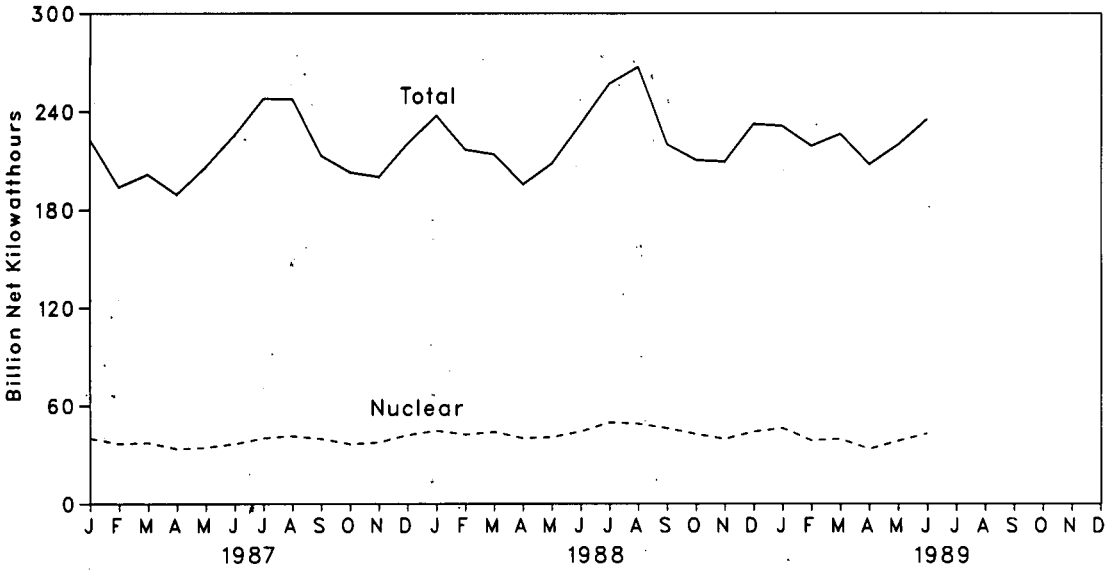


Figure 8.2 Nuclear Power Plants' Capacity Factor and Share of Total Net Generation

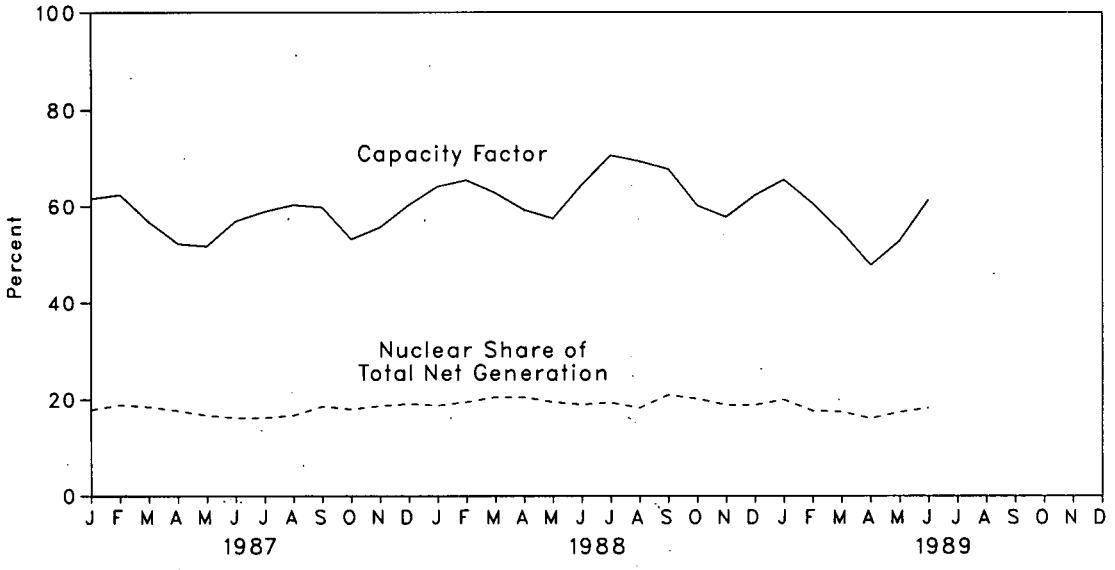


Table 8.1 Nuclear Power Plant Operations

	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 January	102	39,975	17.9	87.248	61.6
February	102	36,598	18.9	87.248	62.4
March	103	37,290	18.5	88.446	56.7
April	103	33,518	17.7	89.330	52.2
May	103	34,320	16.7	89.330	51.7
June	103	36,560	16.2	89.330	56.9
July	105	40,056	16.2	91.488	58.9
August	106	41,352	16.7	92.324	60.3
September	106	39,666	16.6	92.324	59.8
October	106	36,492	16.0	92.324	53.1
November	107	37,438	18.7	93.583	55.6
December	107	42,006	19.1	93.583	60.3
Year		**455,270**	**17.7**		**57.5**
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	20.5	93.982	59.3
May	108	40,650	19.5	95.089	57.5
June	108	44,079	19.0	95.089	64.5
July	108	49,828	19.4	95.089	70.5
August	108	48,985	18.3	95.089	69.3
September	108	46,270	21.0	95.089	67.7
October	108	42,581	20.2	95.089	60.2
November	108	39,578	18.9	95.089	57.8
December	108	44,046	18.9	95.089	62.3
Year		**526,901**	**19.5**		**63.5**
1989 January	108	46,328	20.0	95.089	65.5
February	108	38,725	17.7	95.089	60.6
March	110	39,636	17.5	97.526	54.6
April	110	33,495	16.1	97.526	47.8
May	110	38,339	17.4	97.526	52.8
June	110	42,976	18.3	97.188	61.4

[a]Monthly data are the status as of the last day of the month. Yearly data are the status as of December 31 of each year.
[b]See Note 1 at end of section.
[c]When possible, net summer capability is used. When a unit has not operated long enough to permit determination of a net summer capability, an estimation is made based on the net design electrical rating. For the definitions of net summer capability and net design electrical rating, see Note 3 at end of section.
[d]For an explanation of the method of calculating the capacity factor, see Note 4 at end of section.
Note: Geographic coverage is the 50 States and the District of Columbia.
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**	**60**	**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 January	102	6	18	0	2	0	128	119
February	102	6	18	0	2	0	128	119
March	103	6	17	0	2	0	128	119
April	103	5	17	0	2	0	127	119
May	103	6	16	0	2	0	127	119
June	103	6	16	0	2	0	127	119
July	105	4	16	0	2	0	127	119
August	106	3	16	0	2	0	127	119
September	106	4	15	0	2	0	127	119
October	106	4	15	0	2	0	127	119
November	107	3	15	0	2	0	127	119
December	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	[f] 13	0	0	0	123	115
December	108	3	[f] 12	0	0	0	123	115
1989 January	108	3	[f] 12	0	0	0	123	115
February	108	3	[f] 12	0	0	0	123	115
March	110	2	[f] 11	0	0	0	123	115
April	110	1	[f] 11	0	0	0	122	114
May	110	[g] 1	[f] 11	0	0	0	122	114
June	110	[g] 1	[f] 11	0	0	0	122	114

[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 Operating License in April 1989. Since the unit is not currently scheduled to operate, it has not been included in the "Operable" column.
Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: See end of section.

Notes and Sources for the Nuclear Section

Notes

1. Operable Units: Nuclear generating units that have been issued a Full Power Operating License by the Nuclear Regulatory Commission (NRC). The Hanford-N unit (840 megawatt-electric (MWe) net summer capability), was included prior to cold shutdown by the Department of Energy (DOE) in February 1988. The Shippingport unit (net summer capability of 60 MWe) operated by DOE was included prior to retirement from service on October 1, 1982, except during March 1974 through August 1977, when it was excluded because of a major core modification outage. The DOE-operated Experimental Breeder Reactor 2 unit (EBR-2) is not included because the electricity it generates is not distributed commercially.

Six units were deleted subsequent to their removal from service: Peach Bottom 1 (net summer capability of 40 MWe) and Indian Point 1 (net summer capability of 265 MWe), both out of service since November 1974; Humboldt Bay (net summer capability of 65 MWe), down since August 1976 for major seismic modifications and subsequently officially retired; Dresden 1 (net summer capability of 200 MWe), out of service since January 1979 for major modifications and officially retired in August 1984; Three Mile Island 2 (net summer capability of 880 MWe), whose core was severely damaged by a loss-of-coolant accident in March 1979; and LaCrosse (net summer capability of 51 MWe), out of service as of April 30, 1987.

Six units with Full Power Operating Licenses have been shut down by the NRC for an extended period. The names of the six units, their net summer capabilities, and dates of shut down are as follows: Browns Ferry 1, 1,065 MWe, March 1985; Browns Ferry 2, 1,065 MWe, September 1984; Browns Ferry 3, 1,065 MWe, March 1985; Peach Bottom 3, 1,035 MWe, March 1987; Nine Mile Point 1, 610 MWe, December 1987; and Shoreham, 809 MWe, April 1989.

2. In Startup: One unit, Seabrook 1 (1,186 MWe), has been issued a Low Power Operating License by the NRC authorizing fuel loading and low power testing prior to issuance of a Full Power Operating License.

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

(a) Net Summer Capability--The steady hourly output which 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. This 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 Report NUREG-0020, "Licensed Operating Reactors."

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

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

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

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

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

Section 9. Price

Crude Oil. The average price of domestic crude oil purchased at the wellhead was $16.40 per barrel in June 1989, 21 percent above the level in June 1988. The refiner acquisition cost of imported crude oil in June 1989 was $18.27 per barrel, 18 percent above the June 1988 level. The cost of domestic crude oil in June 1989 was $18.57, an increase of 17 percent from the June 1988 average.

Motor Gasoline. The national city average retail price of leaded regular gasoline at all types of stations was $1.08 per gallon in July 1989, 16 percent higher than the price in July 1988. The price of unleaded regular gasoline at all types of stations was $1.09 per gallon in July 1989, 13 percent higher than the price in July 1988. The price of unleaded premium gasoline averaged $1.26 per gallon in July 1989, 13 percent higher than the price in July 1988.

Residual Fuel Oil. The average price, excluding taxes, of residual fuel oil sold to end users in June 1989 was 39 cents per gallon, 5 percent below the previous month's price but 17 percent above the June 1988 average. The average resale price, excluding taxes, of residual fuel oil in June 1989 was 35 cents per gallon, 6 percent below the May 1989 average but 15 percent above the price 1 year earlier.

Aviation Fuel. The average price, excluding taxes, of aviation gasoline sold to end users in June 1989 was $1.07 per gallon about the same as the price in the previous month and 23 percent above the price in June 1988. The average price, excluding taxes, of kerosene-type jet fuel sold to end users in June 1989 was 56 cents per gallon, 3 percent below the previous month's price but 6 percent higher than the June 1988 average.

No. 2 Distillate Fuel Oil. The June 1989 national average price, excluding taxes, of heating oil sold to residential customers was 84 cents per gallon, 3 percent below the May 1989 price but 6 percent higher than the June 1988 price. The average price for resale was 50 cents per gallon in June 1989, 6 percent below the price in the previous month but 6 percent higher than the June 1988 average.

Electricity. Beginning with January 1986, there are 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 to all ultimate consumers in the United States in June 1989 was 6.59 cents per kilowatthour, 2 percent above the June 1988 mean price. The national retail price of electricity to residential consumers in June 1989 was 8.03 cents per kilowatthour, 2 percent higher than the June 1988 price. The price of electricity to commercial consumers averaged 7.39 cents per kilowatthour in June 1989, 3 percent above the June 1988 price. The June national retail price of electricity to other consumers was 5.68 cents per kilowatthour, 4 percent below the June 1988 price. The average electricity price to industrial users during June 1989 was 4.83 cents per kilowatthour, 4 percent above the price 1 year earlier.

Natural Gas. In May 1989 (latest data available) the average wellhead price of natural gas was $1.66 per thousand cubic feet, 6 percent more than the May 1988 price. The average price of natural gas delivered to electric utility plants was $2.39 per thousand cubic feet in May 1989, 12 percent above the May 1988 price. The average price of natural gas used by residential consumers in June 1989 was $6.52 per thousand cubic feet, unchanged from the June 1988 price. The average price of natural gas used by industrial consumers in June 1989 was $2.69 per thousand cubic feet, slightly higher than the June 1988 price.

Figure 9.1 Crude Oil Prices

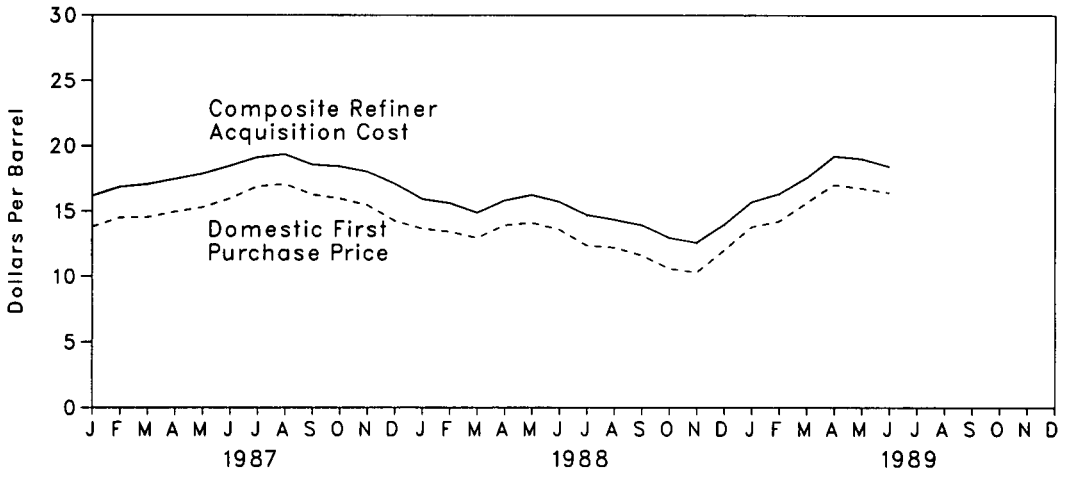


Figure 9.2 Refiner Sales Prices to End Users: Motor Gasoline, Diesel Fuel, and Jet Fuel

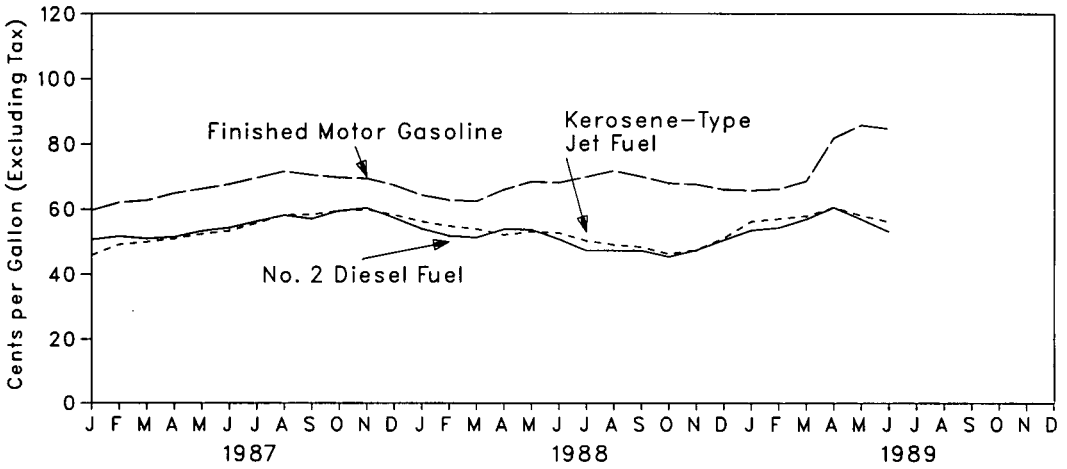


Figure 9.3 Refiner Sales Prices to End Users: No. 2 Fuel Oil, Propane, and Residual Fuel Oil

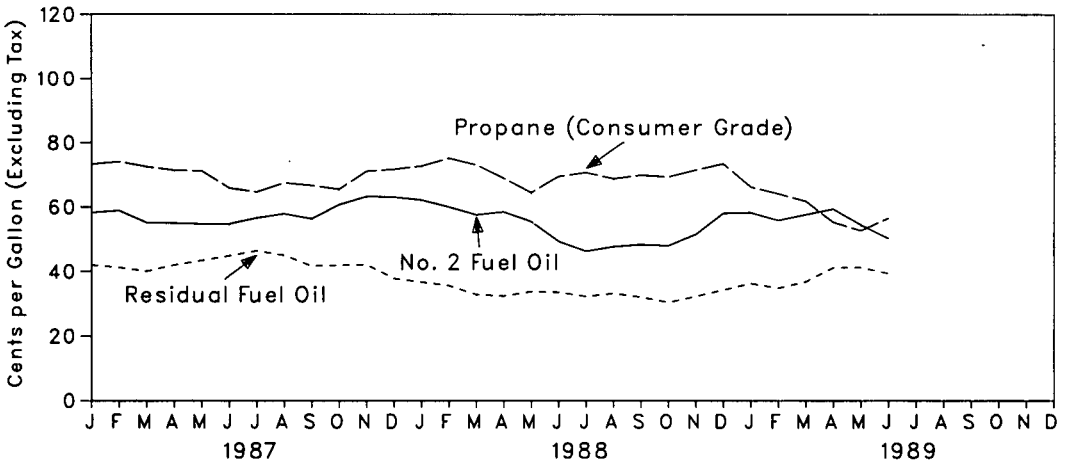


Table 9.1 Crude Oil Price Summary
(Dollars per Barrel)

	Domestic First Purchase Price[a]	FOB 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 January	13.79	15.30	16.16	16.01	16.45	16.16
February	14.51	15.95	16.86	16.77	16.98	16.83
March	14.54	16.31	17.05	16.93	17.26	17.04
April	14.95	16.79	17.53	17.21	17.89	17.44
May	15.29	17.20	17.91	17.63	18.25	17.85
June	15.95	17.53	18.34	18.33	18.71	18.47
July	16.88	17.90	18.87	19.04	19.26	19.13
August	17.06	17.72	18.88	19.39	19.32	19.36
September	16.25	17.09	18.04	18.57	18.57	18.57
October	15.95	16.56	17.67	18.36	18.53	18.43
November	15.46	16.41	17.52	17.94	18.14	18.02
December	14.27	14.73	16.03	17.02	17.20	17.09
Average	**15.40**	**16.69**	**17.65**	**17.76**	**18.13**	**17.90**
1988 January	13.64	13.66	14.92	15.82	16.10	15.92
February	13.41	13.76	14.72	15.61	15.61	15.61
March	12.95	13.46	14.48	14.92	14.82	14.88
April	13.91	14.28	15.17	15.88	15.69	15.81
May	14.11	14.49	15.51	16.35	16.02	16.22
June	13.57	13.99	14.89	15.83	15.52	15.71
July	12.36	13.27	14.08	14.65	14.80	14.71
August	12.20	12.94	13.70	14.36	14.37	14.36
September	11.61	12.28	13.07	13.97	13.90	13.94
October	10.60	11.69	12.42	12.90	13.03	12.96
November	10.30	11.94	12.49	12.61	12.54	12.58
December	11.99	13.21	14.10	13.88	14.08	13.97
Average	**12.57**	**13.27**	**14.09**	**14.76**	**14.64**	**14.71**
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	R 18.23	R 18.97	18.92	19.59	19.22
May	R 16.75	R 17.56	R 18.35	19.02	19.06	19.03
June	16.40	16.83	17.58	18.57	18.27	18.44

[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.
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 FOB and Landed Cost of Crude Oil Imports for the current 2 months are preliminary.

Sources: See end of section.

Table 9.2 FOB 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	**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**	**(d)**	**31.11**	**35.82**	**28.53**	**34.58**	**24.78**	**34.24**	**31.61**	**32.25**
1981 Average	**39.09**	**35.93**	**(d)**	**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 January	16.30	15.22	W	15.55	17.38	14.51	17.42	13.75	15.72	14.81	14.92
February	16.00	17.75	W	15.34	18.07	W	W	13.93	16.52	16.12	15.84
March	W	16.91	W	16.02	17.72	W	17.36	14.76	16.31	16.37	16.34
April	W	17.24	W	16.40	18.44	W	17.79	15.29	16.83	16.46	16.78
May	W	17.28	W	17.68	18.68	16.77	18.36	15.65	17.14	16.83	16.92
June	W	17.67	W	17.78	18.75	W	18.61	16.24	17.58	16.76	17.24
July	W	17.89	W	18.75	18.93	16.43	19.33	16.49	18.07	16.72	17.35
August	18.09	18.46	W	17.54	19.58	W	19.55	15.70	18.18	17.03	17.35
September	W	17.74	W	16.27	18.58	W	18.35	15.50	17.47	16.89	17.05
October	W	17.66	W	16.64	18.69	12.74	18.40	15.69	17.39	14.22	16.01
November	W	17.56	NA	15.51	18.49	12.99	17.90	14.47	17.03	15.64	16.27
December	W	16.28	NA	12.72	17.61	12.35	W	13.23	15.99	13.29	14.50
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	11.80	16.23	12.37	14.96	12.39	13.29
February	W	16.16	NA	12.91	15.69	12.80	W	12.31	14.59	13.15	13.68
March	W	13.65	NA	11.82	15.69	W	14.68	12.67	13.82	13.31	13.86
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	12.71	15.32	13.80	14.17	13.26	14.17
July	W	14.06	NA	12.26	15.15	11.27	14.43	13.18	13.55	12.23	13.41
August	W	13.58	NA	12.37	14.93	W	14.86	12.65	13.07	11.86	12.91
September	W	12.84	NA	11.69	13.71	9.45	W	12.37	12.33	10.40	12.23
October	W	11.47	NA	10.00	13.66	W	12.69	13.00	11.51	11.36	12.34
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**	**15.15**	**12.27**	**14.80**	**12.97**	**13.44**	**12.64**	**13.46**
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	R 18.73	R 16.85	R 18.34
May	W	W	NA	16.97	R 18.60	W	W	R 16.78	R 18.06	R 16.04	R 17.33
June	W	17.77	NA	16.40	17.74	W	W	15.48	17.29	16.17	16.59

[a]The Free on Board (FOB) 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]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 were purchased on a "netback" basis, or under similar contractual arrangements whereby the actual purchase price is not established at the time the crude 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	**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**	**(d)**	**31.80**	**37.05**	**30.02**	**35.88**	**25.86**	**36.02**	**32.97**	**33.56**
1981 Average	**40.49**	**32.16**	**37.57**	**(d)**	**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 January	16.96	14.65	16.24	W	15.92	18.02	15.87	17.47	14.45	17.18	16.08	16.02
February	16.70	15.49	18.10	17.79	15.67	18.54	17.80	18.14	14.63	18.11	17.29	16.95
March	W	15.72	18.19	17.78	16.32	18.30	17.61	18.02	15.27	17.75	17.49	17.25
April	18.06	16.31	18.32	17.87	16.71	18.96	17.69	18.19	16.03	18.06	17.55	17.69
May	18.51	17.11	18.38	18.00	18.02	19.29	17.66	19.04	16.24	18.36	17.82	17.82
June	W	17.73	19.04	18.37	18.07	19.54	17.80	19.43	16.85	18.65	17.96	18.28
July	W	18.61	19.10	18.69	19.08	19.95	17.69	20.38	17.09	19.13	18.02	18.53
August	19.05	19.00	19.69	19.00	17.89	20.63	18.01	20.41	16.53	19.45	18.36	18.73
September	18.26	17.81	19.18	18.67	16.61	19.38	17.93	18.96	16.14	18.54	18.11	18.14
October	W	17.68	18.97	18.37	16.98	19.45	15.71	19.05	16.26	18.35	16.74	17.41
November	18.18	17.38	18.77	W	15.84	19.44	15.59	18.76	15.19	18.13	17.21	17.54
December	W	16.13	17.75	NA	13.09	18.50	14.79	17.99	13.90	17.15	15.46	16.05
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	17.56	13.10	16.34	14.16	14.61
February	W	14.37	17.44	NA	13.30	16.48	13.99	16.70	13.05	15.87	14.23	14.59
March	W	13.66	15.13	NA	12.22	16.45	14.12	15.72	13.50	15.13	14.35	14.77
April	W	14.39	16.30	NA	13.97	16.88	14.12	16.11	14.18	15.77	14.71	15.27
May	W	15.12	16.94	NA	14.09	17.00	14.51	16.97	14.24	16.01	15.05	15.50
June	W	14.67	16.40	NA	13.21	16.59	13.95	16.29	14.33	15.19	14.34	15.04
July	W	13.28	15.11	NA	12.67	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	12.74	15.72	13.28	14.07	13.29	13.82
September	W	12.89	14.05	NA	12.09	14.49	11.87	14.38	12.98	13.21	12.12	12.98
October	W	11.73	12.60	NA	10.42	14.32	11.93	13.33	13.65	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**	**12.59**	**15.87**	**13.41**	**15.80**	**13.66**	**14.45**	**13.63**	**14.21**
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	R 17.78	20.53	R 18.89	20.00	18.45	R 19.40	R 18.91	R 19.24
May	W	R 17.81	19.37	NA	R 17.37	R 19.64	R 17.33	R 20.04	R 17.32	R 18.94	R 17.59	R 18.18
June	W	17.69	19.00	NA	16.74	18.89	16.95	W	16.17	18.04	17.03	17.45

[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]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 were purchased on a "netback" basis, or under similar contractual arrangements whereby the actual purchase price is not established at the time the crude 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 January	80.6	86.2	100.7	86.8
February	84.8	90.5	104.7	91.1
March	85.6	91.2	105.2	91.8
April	87.9	93.4	107.3	94.0
May	88.8	94.1	107.9	94.8
June	90.6	95.8	109.8	96.6
July	92.1	97.1	111.5	98.0
August	94.6	99.5	113.9	100.4
September	94.0	99.0	113.6	100.0
October	93.1	97.6	112.8	98.8
November	92.8	97.6	112.5	98.7
December	91.2	96.1	111.9	97.5
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

[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 January	39.3	45.5	35.7	37.9	37.4	42.0
February	40.0	43.8	34.4	38.3	37.1	41.2
March	38.8	43.4	33.4	37.2	35.8	40.0
April	39.7	43.9	35.5	39.9	37.1	42.0
May	41.1	44.9	38.6	41.7	39.6	43.4
June	43.7	45.8	40.6	43.5	42.0	44.8
July	44.9	48.3	41.9	44.1	43.4	46.4
August	44.6	46.0	41.4	44.0	42.9	45.0
September	41.4	44.0	36.8	39.7	39.1	41.7
October	41.3	44.5	36.3	39.5	38.8	41.9
November	41.3	45.0	34.6	38.7	37.5	42.1
December	39.2	41.4	28.2	33.0	33.9	37.8
Average	**41.2**	**44.7**	**36.2**	**39.6**	**38.5**	**42.3**
1988 January	36.6	41.8	27.8	31.8	32.3	36.7
February	35.3	40.2	27.3	31.5	32.0	35.6
March	32.3	36.9	25.0	29.1	28.4	32.9
April	33.7	35.8	27.5	30.2	30.0	32.4
May	34.1	36.8	29.5	32.1	31.3	33.8
June	32.9	35.3	28.8	32.3	30.9	33.6
July	32.0	35.7	26.5	30.0	29.0	32.3
August	32.7	36.0	28.3	30.7	30.7	33.2
September	31.4	34.7	26.7	30.1	28.7	32.1
October	29.2	34.4	22.0	26.7	25.0	30.5
November	31.9	36.1	23.9	27.2	27.8	32.3
December	35.6	38.8	25.7	28.6	29.3	34.3
Average	**33.3**	**37.2**	**26.5**	**30.0**	**29.7**	**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	34.1	36.3	35.4	39.4

[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.

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**	**80.6**	**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 January	53.3	82.9	49.0	59.2	50.6	49.5	25.0
February	55.1	84.9	49.7	56.6	49.3	49.6	24.4
March	56.3	83.6	49.1	54.2	49.0	48.7	23.6
April	57.8	84.1	50.2	55.6	49.4	49.7	24.4
May	59.5	85.2	51.6	55.6	51.5	52.1	24.0
June	60.8	86.9	52.7	55.4	52.6	53.1	23.6
July	62.5	86.6	55.3	57.0	54.9	55.1	24.4
August	63.6	86.9	57.0	59.0	55.1	57.1	25.6
September	60.6	86.8	55.9	58.6	53.3	56.0	26.1
October	60.5	86.9	58.0	62.7	56.7	58.1	26.8
November	59.9	87.2	58.6	63.5	57.0	57.9	27.1
December	55.3	86.3	55.6	60.7	54.2	53.8	26.0
Average	**58.9**	**85.9**	**53.8**	**59.2**	**52.7**	**53.4**	**25.2**
1988 January	53.7	86.0	53.0	59.3	52.1	51.2	26.7
February	53.9	84.2	52.1	57.2	48.9	49.1	26.4
March	53.8	84.4	50.2	54.3	47.6	49.1	25.4
April	58.4	84.6	50.3	54.2	50.6	51.5	25.0
May	59.8	85.2	51.1	53.3	50.1	51.3	24.6
June	59.2	85.3	50.7	49.9	46.6	47.8	24.1
July	62.3	86.3	47.5	48.3	43.3	43.4	21.7
August	61.3	86.9	47.8	48.9	44.3	45.0	21.9
September	58.0	86.0	47.0	49.8	43.2	44.8	22.4
October	57.3	84.0	45.2	49.4	41.9	42.0	22.0
November	58.1	83.5	46.6	52.9	45.1	44.6	22.0
December	54.9	84.0	50.1	57.8	49.9	48.0	22.8
Average	**57.7**	**85.2**	**49.4**	**54.9**	**47.3**	**47.3**	**23.9**
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	R 101.8	56.6	55.9	R 52.5	54.1	22.1
June	74.0	101.2	54.5	53.7	49.6	51.0	21.3

[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 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**	**78.6**	**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 January	59.7	87.9	45.9	82.8	58.3	50.7	73.3
February	62.1	89.7	49.2	80.4	58.9	51.7	74.1
March	62.7	90.3	50.0	82.0	55.1	51.0	72.5
April	64.9	89.8	51.0	78.2	55.0	51.5	71.4
May	66.3	90.6	52.4	66.8	54.7	53.3	71.2
June	67.7	91.3	53.4	59.8	54.7	54.3	65.8
July	69.6	91.5	55.7	60.4	56.6	56.3	64.6
August	71.6	92.4	58.2	60.2	57.9	58.1	67.4
September	70.5	91.9	58.3	77.0	56.3	57.0	66.6
October	69.7	91.4	59.5	78.8	60.7	59.5	65.4
November	69.4	91.0	59.9	83.1	63.2	60.4	71.1
December	67.4	90.0	58.2	87.9	63.0	57.3	71.7
Average	**66.9**	**90.7**	**54.3**	**77.0**	**58.1**	**55.1**	**70.1**
1988 January	64.3	88.0	56.2	84.1	62.1	54.0	72.7
February	62.8	87.9	54.8	84.7	60.0	51.8	75.2
March	62.4	87.8	53.9	77.5	57.6	51.3	73.1
April	66.0	87.6	52.1	82.2	58.5	53.8	68.9
May	68.4	89.9	53.0	61.2	55.5	53.7	64.4
June	68.1	87.2	52.7	55.4	49.3	50.8	69.5
July	69.9	90.3	50.3	56.0	46.3	47.3	70.7
August	71.8	93.0	49.1	56.3	47.7	47.3	68.8
September	70.0	91.7	48.4	66.1	48.3	47.3	69.9
October	68.0	89.4	46.3	71.8	48.0	45.4	69.4
November	67.6	89.6	47.5	71.1	51.5	47.4	71.5
December	66.1	89.4	51.1	74.1	58.1	50.5	73.5
Average	**67.2**	**89.4**	**51.2**	**73.8**	**54.3**	**50.0**	**71.3**
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	53.1	56.6

[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**	**115.5**	**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 January	80.0	72.7	80.5	76.2	79.8	78.2	78.1	87.3
February	83.4	73.1	80.3	75.4	81.5	79.5	79.4	92.6
March	82.2	74.2	79.6	74.0	81.5	79.1	79.4	91.9
April	82.4	75.0	79.0	73.5	81.4	78.4	77.9	91.6
May	82.8	74.9	79.9	74.7	80.8	79.8	78.4	91.0
June	81.6	74.1	78.6	74.4	79.5	79.9	74.8	92.3
July	82.2	74.5	78.7	74.3	80.5	80.8	74.7	90.2
August	82.0	74.8	77.2	75.7	79.4	80.3	74.8	92.4
September	82.5	74.7	78.9	76.0	80.5	81.1	76.2	91.4
October	84.3	73.4	81.0	78.0	83.0	83.5	78.8	92.1
November	87.3	75.2	83.1	79.3	86.2	84.3	82.4	93.5
December	87.8	79.1	83.7	81.9	87.1	84.9	82.5	95.3
Average	**83.4**	**74.7**	**80.6**	**76.5**	**82.5**	**81.1**	**79.3**	**91.8**
1988 January	89.2	80.1	85.7	82.4	88.1	85.9	83.7	95.8
February	88.5	79.6	84.1	81.6	87.0	85.6	83.1	95.5
March	87.5	79.1	83.3	80.3	85.2	84.8	NA	92.8
April	88.1	78.6	83.1	79.0	85.6	85.3	82.8	[R] 95.0
May	86.6	77.5	82.4	78.3	85.1	84.9	82.3	91.9
June	86.6	75.4	77.7	79.3	81.6	83.4	80.9	90.4
July	83.6	73.3	76.2	76.5	76.3	81.4	73.4	84.8
August	81.9	75.7	74.1	73.7	79.7	81.1	73.5	84.6
September	80.8	71.8	79.2	74.0	79.7	77.5	71.1	84.7
October	79.9	69.0	77.8	71.9	76.7	76.4	70.4	83.1
November	80.5	72.0	78.0	73.1	80.1	77.2	73.5	84.5
December	84.4	80.2	82.8	77.9	83.9	81.6	79.6	88.6
Average	**85.3**	**77.6**	**82.0**	**78.6**	**84.4**	**82.5**	**79.7**	**90.9**
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	[R] 81.0	86.8	83.1	88.8	[R] 86.9	[R] 83.4	92.1
June	85.7	73.5	83.4	79.5	87.8	84.3	80.3	91.7

[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 January	82.0	83.5	84.0	75.2	75.8	75.6	76.9	73.0
February	84.8	84.7	85.0	76.0	79.6	77.6	78.1	72.3
March	85.4	83.0	84.4	74.6	80.1	75.2	78.3	71.2
April	84.4	82.6	84.3	74.1	81.3	73.2	78.3	73.1
May	83.7	82.0	84.9	73.2	79.6	74.8	80.1	75.8
June	85.8	82.1	83.5	70.8	77.8	74.2	80.5	75.9
July	87.2	82.4	82.7	72.6	78.5	74.2	79.9	76.7
August	87.1	81.8	83.4	73.9	77.9	75.6	83.7	77.1
September	87.3	82.5	82.8	74.8	78.8	74.6	79.4	77.1
October	88.4	84.2	85.3	77.7	81.0	74.9	87.3	79.4
November	90.4	86.3	87.4	80.8	82.9	78.3	88.2	80.8
December	90.6	87.2	88.0	81.7	82.5	80.5	85.2	79.6
Average	**86.6**	**84.3**	**85.2**	**76.9**	**79.5**	**76.4**	**79.8**	**75.4**
1988 January	90.9	88.1	89.2	83.4	82.2	78.7	85.4	79.9
February	90.3	87.7	88.7	82.6	81.8	76.0	86.1	76.9
March	88.2	86.7	87.5	81.6	82.6	75.5	86.1	76.7
April	89.1	85.7	86.7	81.1	82.8	75.5	87.4	79.6
May	87.9	85.4	85.0	79.7	81.7	73.6	86.7	77.0
June	86.8	82.5	83.6	75.3	79.1	71.8	82.9	78.9
July	85.0	80.9	82.1	71.6	77.4	70.5	83.8	73.8
August	84.2	78.3	78.3	64.5	77.1	67.9	80.5	73.7
September	76.1	75.7	81.1	68.9	76.0	68.9	67.6	69.5
October	78.0	77.8	81.2	70.1	75.0	71.4	68.6	71.0
November	81.4	78.8	83.3	72.4	77.2	74.1	70.6	72.1
December	85.1	84.0	87.8	77.4	79.9	74.4	73.0	75.1
Average	**87.0**	**84.8**	**86.4**	**78.4**	**80.2**	**74.3**	**77.5**	**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	[R] 87.2	[R] 92.7	82.2	[R] 81.4	[R] 77.4	[R] 78.5	78.1
June	88.7	83.0	91.3	77.4	79.9	81.2	77.5	76.6

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 January	76.6	71.8	71.1	72.6	63.1	86.4	68.1	73.0	78.5
February	76.7	71.7	73.3	73.9	65.1	86.9	71.4	75.9	79.9
March	76.1	71.6	71.9	74.0	65.7	83.3	70.9	76.1	79.1
April	74.7	71.8	71.1	74.1	65.4	76.5	70.3	75.9	78.7
May	75.1	72.4	70.9	71.6	65.2	78.2	69.5	74.0	78.6
June	76.1	72.7	75.0	74.3	70.0	84.6	67.6	74.2	77.8
July	77.1	75.5	76.5	73.5	70.5	87.5	NA	77.4	78.7
August	77.4	75.9	73.4	74.5	74.9	88.7	NA	79.3	78.8
September	77.4	74.4	74.6	74.3	77.3	89.5	77.1	81.2	78.9
October	78.1	78.9	76.9	77.5	76.3	92.6	75.1	82.8	81.2
November	80.9	79.7	79.1	79.3	77.3	92.3	74.7	84.3	83.5
December	80.2	77.0	78.7	78.4	76.8	90.6	75.8	84.8	84.0
Average	**77.5**	**74.6**	**74.7**	**75.1**	**68.8**	**86.5**	**72.5**	**79.5**	**80.3**
1988 January	81.6	76.9	76.7	77.2	74.5	88.4	75.9	82.8	84.9
February	80.8	75.7	76.5	76.4	72.3	87.4	75.0	82.1	84.0
March	78.4	74.8	76.5	76.1	70.8	89.1	74.3	81.9	83.3
April	78.6	74.7	77.3	78.1	73.6	88.8	74.4	82.5	83.2
May	77.0	74.5	74.7	76.6	72.7	89.4	74.8	82.4	81.9
June	73.7	73.6	72.4	74.3	70.5	87.8	74.0	77.6	79.3
July	73.4	75.8	70.0	72.9	67.6	85.4	66.6	72.7	77.0
August	74.0	72.3	69.2	71.4	64.5	85.4	64.4	69.8	74.0
September	74.6	72.3	71.4	69.4	67.5	88.2	64.7	73.7	75.3
October	76.7	70.7	71.1	67.8	66.8	86.6	62.5	70.4	75.3
November	75.3	72.4	73.5	69.9	66.6	85.7	62.3	72.7	77.4
December	76.6	72.8	75.6	71.6	66.9	86.0	64.3	75.0	81.6
Average	**77.6**	**74.3**	**74.7**	**74.0**	**68.9**	**87.3**	**70.9**	**78.4**	**81.4**
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	R 100.0	79.7	R 87.2	86.7
June	80.7	81.1	79.3	77.9	79.1	98.0	75.0	77.8	84.0

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]	
	Old Series[c]	New Series	Old Series[c]	New Series	Old Series[c]	New Series	Old Series[c]	New Series	Old Series[c]	New 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**		**7.33**		**5.04**		**6.78**		**6.52**	
1985 Average	**7.79**		**7.47**		**5.16**		**6.96**		**6.71**	
1986 Average[d]	**7.79**	**7.41**	**7.41**	**7.13**	**5.10**	**4.90**	**7.09**	**6.64**	**6.70**	**6.42**
1987 January	7.24	6.93	7.06	6.86	4.84	4.71	6.86	6.46	6.40	6.18
February	7.29	6.95	7.06	6.86	4.78	4.64	6.86	6.53	6.35	6.13
March	7.47	7.14	7.16	6.96	4.79	4.67	6.88	6.54	6.40	6.19
April	7.61	7.26	7.18	6.94	4.75	4.62	7.45	6.87	6.40	6.17
May	7.79	7.47	7.16	6.92	4.79	4.65	6.97	6.56	6.44	6.22
June	8.15	7.80	7.36	7.09	4.97	4.79	7.13	6.77	6.75	6.49
July	8.27	7.80	7.40	7.07	5.12	4.90	7.02	6.66	6.94	6.61
August	8.22	7.76	7.39	7.10	5.06	4.85	7.07	6.70	6.92	6.60
September	8.12	7.66	7.42	7.13	5.00	4.80	7.13	6.90	6.78	6.48
October	7.98	7.63	7.45	7.20	4.85	4.72	7.12	6.83	6.61	6.38
November	7.66	7.39	7.26	7.06	4.68	4.59	6.88	6.46	6.39	6.20
December	7.37	7.09	7.03	6.86	4.70	4.60	6.80	6.43	6.32	6.14
Average	**7.78**	**7.41**	**7.25**	**7.01**	**4.86**	**4.72**	**7.01**	**6.64**	**6.57**	**6.32**
1988 January	7.16	6.92	6.92	6.81	4.67	4.48	6.63	5.90	6.28	6.09
February	7.25	6.98	6.99	6.85	4.65	4.50	6.71	6.49	6.28	6.11
March	7.39	7.13	7.02	6.90	4.62	4.46	6.82	6.37	6.28	6.10
April	7.58	7.30	6.98	6.86	4.60	4.44	6.90	6.09	6.26	6.07
May	7.89	7.58	7.10	6.96	4.61	4.43	6.97	5.90	6.36	6.13
June	8.17	7.86	7.36	7.19	4.84	4.66	6.89	5.94	6.68	6.44
July	8.23	7.92	7.19	7.04	5.28	5.00	6.92	5.51	6.91	6.61
August	8.32	7.95	7.21	7.07	5.27	5.02	6.89	5.38	6.96	6.65
September	8.20	7.84	7.45	7.26	5.00	4.77	6.92	5.94	6.83	6.56
October	8.00	7.71	7.42	7.25	4.81	4.61	6.81	6.24	6.60	6.37
November	7.72	7.47	7.07	6.96	4.58	4.44	6.68	6.32	6.32	6.16
December	7.53	7.28	6.97	6.88	4.57	4.50	6.70	6.64	6.31	6.19
Average	**7.79**	**7.49**	**7.15**	**7.01**	**4.80**	**4.62**	**6.82**	**6.01**	**6.52**	**6.30**
1989 January	7.44	7.16	6.97	6.89	4.65	4.55	6.63	6.46	6.37	6.21
February	7.47	7.17	7.07	6.97	4.69	4.62	6.91	6.83	6.39	6.25
March	7.52	7.24	7.07	6.98	4.69	4.61	6.82	6.62	6.40	6.25
April	7.81	7.52	7.16	7.08	4.70	4.61	6.92	6.45	6.44	6.28
May	8.01	7.72	7.23	7.14	4.73	4.62	6.98	6.24	6.50	6.31
June	8.36	8.03	7.51	7.39	4.99	4.83	7.16	5.68	6.87	6.59
6-Month Average	**7.75**	**7.45**	**7.18**	**7.07**	**4.75**	**4.64**	**6.90**	**6.33**	**6.50**	**6.32**
1988 6-Month Average	**7.54**	**7.26**	**7.06**	**6.93**	**4.66**	**4.50**	**6.82**	**6.10**	**6.36**	**6.16**
1987 6-Month Average	**7.57**	**7.24**	**7.17**	**6.94**	**4.82**	**4.68**	**7.02**	**6.62**	**6.46**	**6.23**

[a]Prices are calculated by dividing revenues by sales. Revenues 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.

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

[c]Data through 1979 cover privately owned electric utilities in Classes A and B. Data for 1980 forward cover selected privately owned electric utilities in Class A whose electric operating revenues were $100 million or more during the previous year.

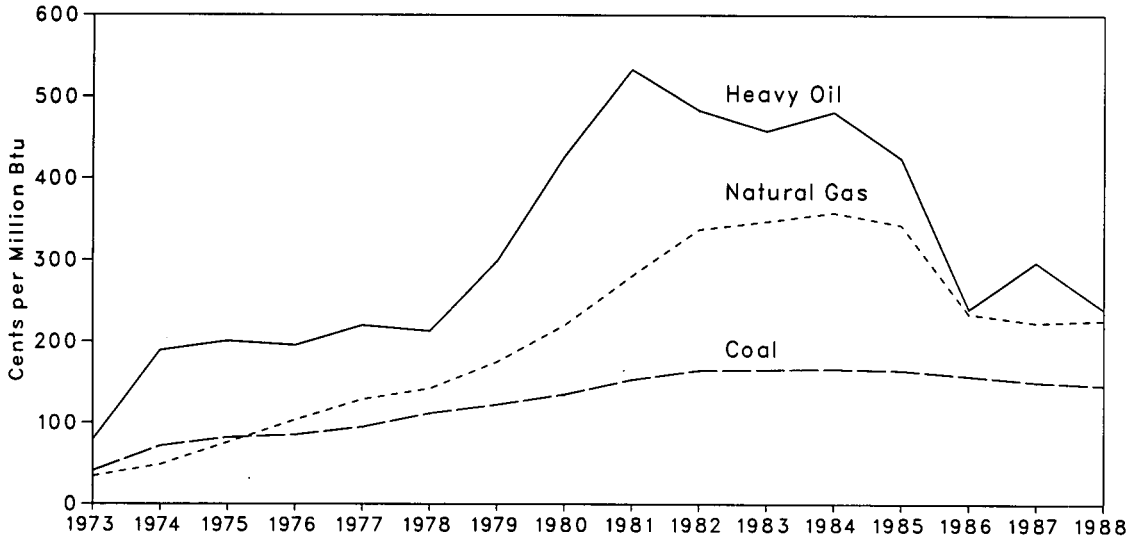
[d]See Note 7 at end of section.

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

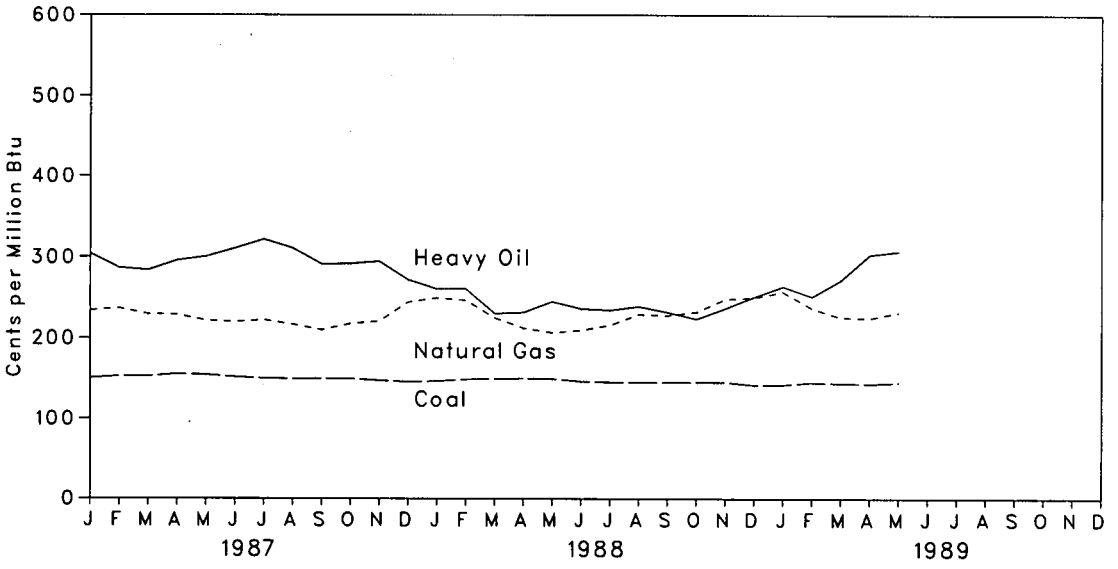


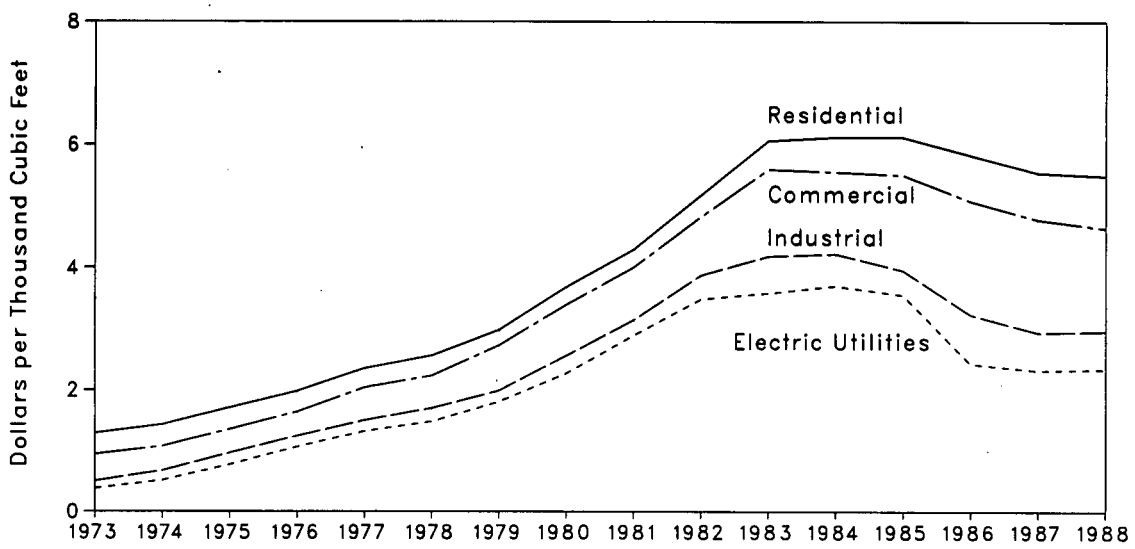
Table 9.10 Cost of Fossil Fuels Delivered to Steam-Electric Utility Plants[a]
(Cents per million Btu)

	Coal	Heavy Oil[b]	Natural Gas[c]	All Fossil Fuels[b]
1973 Average	**40.5**	**78.5**	**33.8**	**47.6**
1974 Average	**70.9**	**189.0**	**48.2**	**91.4**
1975 Average	**81.4**	**200.5**	**75.2**	**104.4**
1976 Average	**84.8**	**195.2**	**103.4**	**111.9**
1977 Average	**94.7**	**219.8**	**129.1**	**129.7**
1978 Average	**111.6**	**212.5**	**142.2**	**141.1**
1979 Average	**122.4**	**298.8**	**174.9**	**163.9**
1980 Average	**135.1**	**426.7**	**219.9**	**192.8**
1981 Average	**153.2**	**533.4**	**280.5**	**225.6**
1982 Average	**164.7**	**483.2**	**337.6**	**224.9**
1983 Average	**165.6**	**457.8**	**347.4**	**220.6**
1984 Average	**166.4**	**481.2**	**358.3**	**219.2**
1985 Average	**164.8**	**424.4**	**343.1**	**209.6**
1986 Average	**157.9**	**240.1**	**234.4**	**175.0**
1987 January	150.4	304.1	233.8	173.3
February	152.7	286.5	236.3	172.1
March	152.6	283.6	229.3	170.0
April	155.2	295.6	228.6	174.2
May	154.4	300.4	221.2	172.7
June	151.6	310.6	219.8	172.3
July	150.0	321.7	221.9	177.3
August	149.3	310.8	216.6	172.6
September	149.6	291.1	209.9	166.1
October	149.6	291.7	217.5	165.6
November	147.4	294.5	220.6	166.1
December	145.8	271.9	244.2	166.8
Average	**150.6**	**297.6**	**223.5**	**170.7**
1988 January	146.6	260.6	249.6	167.4
February	148.8	261.0	246.6	169.5
March	149.4	230.2	224.8	165.8
April	150.0	231.5	212.3	163.0
May	149.6	245.0	206.8	163.3
June	146.4	236.2	209.7	162.4
July	145.6	234.5	215.8	165.5
August	145.4	239.0	229.2	167.2
September	145.5	232.0	228.0	163.2
October	145.6	223.6	232.2	161.6
November	145.6	236.8	248.3	163.4
December	142.3	251.2	250.3	162.2
Average	**146.7**	**240.3**	**226.5**	**164.5**
1989 January	142.7	264.1	257.5	164.9
February	145.3	251.6	236.9	164.7
March	144.4	271.8	225.6	165.0
April	143.6	303.0	224.6	166.6
May	145.3	307.2	231.8	169.6
5-Month Average	**144.2**	**278.6**	**233.3**	**166.3**
1988 5-Month Average	**148.8**	**247.6**	**225.6**	**165.3**
1987 5-Month Average	**153.1**	**294.4**	**229.1**	**172.5**

[a]Data through 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 1983, data cover steam-electric utility plants with a capacity of 50 megawatts or greater.
[b]See Note 8 at end of section.
[c]Includes supplemental gaseous fuels.
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

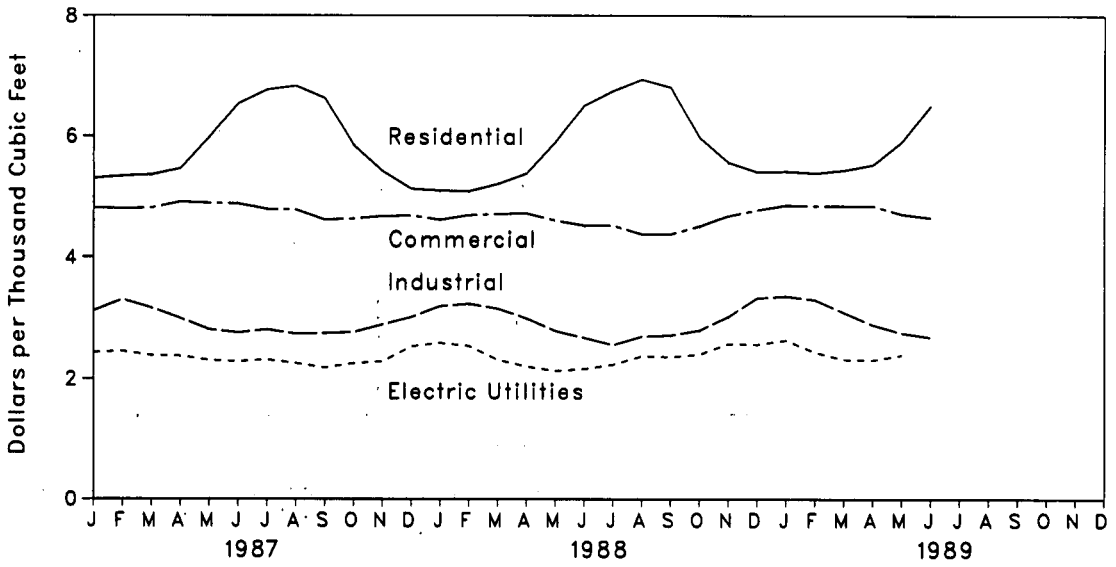


Table 9.11 Natural Gas Prices[a]
(Dollars per Thousand Cubic Feet)

	Wellhead	Major Interstate Pipeline Companies: Imports	Major Interstate Pipeline Companies: Purchases from Producers	City Gate	Delivered to Consumers[b]: Residential	Commercial	Industrial	Electric Utilities[c]	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 January	1.74	2.13	2.29	2.98	5.30	4.81	3.11	2.43	4.46
February	1.73	2.21	2.29	3.03	5.34	4.80	3.30	2.45	4.54
March	1.73	2.30	2.06	2.91	5.36	4.81	3.16	2.38	4.39
April	1.69	2.25	2.05	2.86	5.46	4.91	2.99	2.37	4.20
May	1.65	2.22	2.15	2.81	5.98	4.89	2.81	2.30	3.85
June	1.65	2.26	2.04	2.84	6.55	4.88	2.76	2.28	3.60
July	1.66	2.73	2.19	2.92	6.78	4.79	2.81	2.31	3.51
August	1.63	2.17	1.64	2.89	6.84	4.78	2.74	2.25	3.39
September	1.56	2.36	2.17	2.83	6.64	4.61	2.75	2.18	3.49
October	1.57	1.98	1.96	2.69	5.85	4.63	2.77	2.25	3.74
November	1.64	1.94	2.06	2.76	5.42	4.67	2.89	2.28	3.98
December	1.70	2.00	2.17	2.84	5.13	4.68	3.01	2.53	4.21
Average	**1.67**	**2.17**	**2.10**	**2.87**	**5.54**	**4.78**	**2.94**	**2.32**	**4.05**
1988 January	1.97	1.64	2.04	2.90	5.10	4.61	3.19	2.59	4.42
February	1.88	2.02	2.22	2.93	5.09	4.69	3.23	2.54	4.39
March	1.76	2.32	2.03	2.84	5.21	4.71	3.15	2.31	4.26
April	1.64	2.36	2.09	2.75	5.38	4.72	2.99	2.20	4.10
May	1.57	2.00	2.14	2.70	5.90	4.60	2.79	2.13	3.85
June	1.58	1.98	2.05	2.82	6.52	4.52	2.68	2.16	3.53
July	1.59	2.34	1.93	2.81	6.76	4.52	2.56	2.23	3.34
August	1.59	1.88	2.09	2.87	6.95	4.38	2.70	2.37	3.39
September	1.61	1.95	2.11	3.00	6.82	4.38	2.72	2.36	3.60
October	1.62	1.94	2.29	2.88	5.98	4.51	2.80	2.40	3.95
November	1.72	1.98	2.19	2.94	5.57	4.68	3.02	2.58	4.32
December	1.86	2.03	2.25	3.06	5.41	4.78	3.33	2.57	4.57
Average	**1.71**	**2.02**	**2.12**	**2.89**	**5.49**	**4.64**	**2.96**	**2.34**	**4.09**
1989 January	1.87	1.77	2.35	3.13	5.42	4.86	3.36	2.64	4.67
February	1.88	2.21	2.16	3.07	5.39	4.85	3.30	2.44	4.59
March	1.69	1.99	2.17	2.88	5.44	4.85	3.09	2.32	4.43
April	1.62	2.01	2.22	2.81	5.53	4.85	2.89	2.31	4.15
May	1.66	2.02	2.11	2.93	5.91	4.71	2.76	2.39	3.92
June	NA	2.04	2.04	2.97	6.52	4.65	2.69	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]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.
[d]The decline from the previous month was primarily the result of refunds in the form of reduced charges.
NA=Not available.
Notes: • Geographic coverage is the 50 States and the District of Columbia. • Data through 1987 are final. Subsequent data are preliminary.
Sources: See end of section.

Notes and Sources for the Price Section

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; after February 1976, the price represents an average of actual first purchase prices. The data series was previously called "Actual Domestic Wellhead Price."

2. FOB 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 EIA Form 14, the "Refiners' Monthly Cost Report." These prices were previously published from data collected on ERA Form 49, the "Domestic Crude Oil Entitlements Program Refiners Monthly Report." The ERA Form 49 was discontinued with the decontrol of crude oil on January 28, 1981. Crude oil purchases and costs are defined for EIA Form 14 in accordance with conventions used for ERA Form 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 ERA Form 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 ERA Form 49 excluded unfinished oils but included the Strategic Petroleum Reserve (SPR). Crude oil costs and volumes reported on the FEA Form P110-M-1 included unfinished oils but excluded SPR. Imported averages derived from ERA Form 49 exclude oil purchased for SPR, whereas the composite averages derived from ERA Form 49 include SPR. None of the prices derived from EIA Form 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 1978, 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 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 FEA Form 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 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 the Energy Information Administration.

7. Beginning with January 1986, national average price estimates are based on a statistically derived sample of both publicly and privately owned electric utilities. Prior to that time, national average price estimates were based on a sample of only privately owned electric utilities. Respondents to Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions," formerly the "Electric Utility Company Monthly Statement," consist of a sample of over 200 electric utilities that were statistically chosen using stratification techniques. The respondents were chosen from more than 3,000 electric utilities reporting on Form EIA-861, "Annual Electric Utility Report." This scheme differs from the cut-off sample used prior to January 1986. Data are shown for both the old and new series. Publication of both series will continue until sufficient information exists to estimate historical data based on the new series.

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--Economic Regulatory Administration (ERA), January 1976: FEA Form 90, "Crude Petroleum Production Monthly Report"; February 1976 through September 1979: FEA Form P124, "Domestic Crude Oil Purchaser's (Monthly) Report"; October 1979 through December 1982: ERA Form 182, "Domestic Crude Oil First Purchase Report"; January 1983 forward: EIA Form 182, "Domestic Crude Oil First Purchase Report."
- Crude Oil Import Prices--Energy Information Administration (EIA), 1975 through January 1979: FEA Form F701-M-0, "Transfer Pricing Report"; February 1979 through September 1982: ERA Form 51, "Transfer Pricing Report"; October 1982 through June 1984: EP Form 51, "Monthly Foreign Crude Oil Transaction Report"; July 1984 forward: Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report."
- Refiner Acquisition Costs--EIA, January 1976: FEO Form 96, "Monthly Cost Allocation Report"; February 1976 through June 1978: FEA Form P110-M-1, "Refiners' Monthly Cost Allocation Report"; July 1978 through December 1980: ERA Form 49, "Domestic Crude Oil Entitlements Program Refiners Monthly Report"; January 1981 forward: EIA Form 14, "Refiners' Monthly Cost Report."
- U.S. City Average Retail Motor Gasoline Prices--Bureau of Labor Statistics, *Consumer Prices: Energy,* monthly.
- No. 2 Distillate to Residences--January 1983 forward, EIA Form-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report" and EIA-782B, "Resellers/Retailers' Monthly Petroleum Product Sales Report." Prices prior to January 1983 are EIA estimates using data from FEA Form P112-M-1/EIA-9, "No. 2 Heating Oil Supply/Price Monitoring Report" and EIA Form 9A, "No. 2 Distillate Price Monitoring Report." See Note 6 on the previous page for additional information on the estimated data.
- All Other Petroleum Products--January 1983 forward, EIA Form-782A, "Refiners/Gas Plant Operators' Monthly Petroleum Product Sales Report." Prices prior to January 1983 are EIA estimates using data from FEA Form 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.

Natural Gas:

- Average Wellhead--Annual data through 1982 from EIA, *Natural Gas Annual, 1973* through *1982.* Annual data for 1983 through 1987 from Form EIA-627, "Annual Quantity and Value of Natural Gas Report" and the U.S. 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--FERC Form 11, "Interstate Pipeline Company Purchases, and Industrial Sales".
- City Gate--EIA, October 1983 forward: 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--EIA, FPC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Electricity:

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

Section 10. International

Crude Oil Production. World crude oil production during June 1989 was 59 million barrels per day, up 0.2 million barrels per day from the level in the previous month. World crude oil production in the first half of 1989 averaged 59 million barrels per day, up 3 percent from the first half 1988 level.

Organization of Petroleum Exporting Countries (OPEC) production during June 1989 averaged 23 million barrels per day, up 0.6 million barrels per day from the level during the previous month. OPEC production in the first half of 1989 averaged 22 million barrels per day, a 13-percent increase from the first half 1988 average. Production by the Arab members of OPEC during June 1989 averaged 14 million barrels per day, up 0.1 million barrels per day from the May 1989 level. Production by Arab members of OPEC during the first half of 1989 averaged 13 million barrels per day, 12 percent above the first half 1988 level. During June 1989, production increased in the United Arab Emirates by 270 thousand barrels per day, in Kuwait by 100 thousand barrels per day, and in Qatar by 10 thousand barrels per day. Production decreased in Saudi Arabia by 200 thousand barrels per day and in Iraq by 50 thousand barrels per day. Production was unchanged in Algeria and Libya. Among the non-Arab members of OPEC, production during June 1989 increased in Iran by 300 thousand barrels per day, in Nigeria by 100 thousand barrels per day, and in Venezuela by 50 thousand barrels per day. Production was unchanged in Indonesia.

Among the non-OPEC nations, Canada registered a production increase in June 1989 of 19 thousand barrels per day from the level in the previous month. The United Kingdom and the United States registered decreases in production of 189 thousand barrels per day and 147 thousand barrels per day, respectively. Production was unchanged in Mexico, China, and the U.S.S.R.

Petroleum Consumption. In March 1989, consumption in all Organization for Economic Cooperation and Development (OECD) countries was 39 million barrels per day, almost 1 percent higher than the level in March 1988. Compared with levels 1 year earlier, consumption was higher in Japan by 8 percent and in both Canada and the United States by 2 percent. Consumption in all European OECD countries combined in March 1989 was 13 million barrels per day, 3 percent lower than the level in the previous March. Consumption was higher in Italy by 6 percent but lower in West Germany and in France by 11 percent and 1 percent, respectively, but essentially unchanged in the United Kingdom, compared with levels 1 year earlier.

Petroleum Stocks. For all OECD countries, petroleum stocks at the end of March 1989 totaled 3.4 billion barrels, 2 percent higher than the ending stock level in March 1988. Stocks were higher in Japan by 6 percent and in the United States by 1 percent but lower in Canada by 9 percent, compared with levels 1 year earlier. Stock levels in all European OECD countries as of the end of March 1989 were 1.1 billion barrels, 3 percent higher than in March 1988. Stocks were higher in France by 14 percent, in West Germany by 2 percent, and in Italy by 1 percent but the same level in the United Kingdom, compared with levels 1 year earlier.

Nuclear Electricity Generation. In June 1989, the 20 non-Communist countries with nuclear capacity generated 127 gross terawatthours (billion kilowatthours) of nuclear-generated electricity, slightly more than in June 1988.

Based on *Nucleonics Week* information, as of June 30, 1989, there were 352 operable nuclear generating units in the 20 non-Communist countries. The units had a collective gross generating capacity of 288.7 gigawatts (million kilowatts).

On June 22, 1989, Japan's Tomari-1 unit became commercially operable.

In June 1989, the 110 U.S. units accounted for 103.8 gross gigawatts, 36.0 percent of the total non-Communist 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**	**1,484**	**1,787**
1987 January	950	1,650	1,250	950	285	3,930	1,235	10,250	1,280	2,600	1,290	1,670
February	950	1,670	1,165	950	250	3,796	1,215	9,996	1,250	2,500	1,190	1,670
March	950	1,700	1,105	850	200	3,239	1,195	9,238	1,265	2,500	1,280	1,806
April	950	1,900	1,125	925	150	3,955	1,235	10,240	1,280	2,300	1,182	1,700
May	950	1,900	1,090	930	280	4,119	1,265	10,534	1,300	2,600	1,347	1,725
June	950	2,000	1,180	950	350	4,159	1,435	11,024	1,300	2,500	1,412	1,765
July	1,020	1,950	1,772	1,100	450	4,517	1,605	12,414	1,330	2,500	1,412	1,886
August	1,020	2,200	1,772	1,200	420	4,667	1,855	13,133	1,450	2,700	1,400	1,795
September	1,020	2,300	1,740	900	330	4,567	1,995	12,852	1,310	2,100	1,350	1,745
October	1,020	2,500	1,375	1,000	320	4,552	1,895	12,662	1,320	2,400	1,400	1,750
November	1,020	2,550	1,390	950	300	4,169	1,895	12,274	1,320	2,200	1,450	1,745
December	1,020	2,600	1,350	950	300	4,527	1,645	12,392	1,320	2,200	1,350	1,745
Average	**985**	**2,079**	**1,361**	**972**	**304**	**4,186**	**1,541**	**11,428**	**1,311**	**2,426**	**1,340**	**1,751**
1988 January	950	2,550	1,330	1,000	340	4,230	1,205	11,605	1,220	2,100	1,350	1,790
February	990	2,600	1,200	1,000	400	4,400	1,055	11,645	1,220	2,000	1,400	1,790
March	1,020	2,650	1,205	1,000	300	4,410	1,255	11,840	1,270	2,100	1,350	1,790
April	970	2,650	1,300	950	300	4,550	1,425	12,145	1,320	2,200	1,400	1,805
May	1,000	2,600	1,210	1,000	300	4,565	1,405	12,080	1,320	2,200	1,450	1,805
June	1,000	2,700	1,410	1,000	300	4,665	1,405	12,480	1,320	2,100	1,450	1,805
July	1,000	2,600	1,375	1,000	300	4,725	1,430	12,430	1,320	2,300	1,400	1,805
August	1,000	2,600	1,570	1,000	300	5,270	1,905	13,645	1,320	2,300	1,450	1,805
September	1,000	2,700	1,660	1,050	300	5,410	1,965	14,085	1,220	2,400	1,500	1,880
October	1,000	2,700	1,650	1,100	350	6,450	2,000	15,250	1,320	2,400	1,500	1,880
November	1,040	2,700	1,750	1,100	350	6,650	2,100	15,690	1,220	2,500	1,450	2,030
December	1,040	2,700	1,675	1,100	350	6,775	2,100	15,740	1,320	2,500	1,550	2,030
Average	**1,001**	**2,646**	**1,445**	**1,025**	**324**	**5,178**	**1,606**	**13,224**	**1,283**	**2,259**	**1,438**	**1,851**
1989 January	1,040	2,650	1,250	1,050	400	5,000	1,735	13,125	1,350	2,800	1,450	1,840
February	1,040	2,650	1,350	1,050	420	4,750	1,650	12,910	1,350	2,850	1,450	1,840
March	1,040	2,650	1,390	1,050	340	4,590	1,675	12,735	1,350	3,200	1,600	1,840
April	1,040	2,750	1,695	1,100	330	4,995	1,705	13,615	1,350	2,900	1,650	1,840
May	1,040	2,750	1,995	1,100	410	5,095	1,705	14,095	1,350	2,500	1,650	1,840
June	1,040	2,700	2,095	1,100	420	4,895	1,975	14,225	1,350	2,800	1,750	1,890
6-Mo. Avg.	**1,040**	**2,692**	**1,631**	**1,075**	**386**	**4,889**	**1,741**	**13,455**	**1,350**	**2,841**	**1,593**	**1,848**

[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 1989, total production in that region amounted to approximately 390 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	18,751	11,696	1,474	2,435	2,539	8,680	2,620	11,540	7,850	41,299	55,889
1987 January	17,510	10,992	1,489	2,510	2,640	8,480	2,690	11,634	8,164	40,361	55,116
February	17,015	10,638	1,473	2,540	2,569	8,389	2,690	11,609	8,145	39,698	54,430
March	16,284	9,981	1,484	2,520	2,516	8,464	2,690	11,728	8,021	38,855	53,707
April	16,852	10,707	1,468	2,530	2,537	8,498	2,690	11,659	8,121	39,572	54,354
May	17,696	11,298	1,499	2,555	2,536	8,336	2,690	11,659	8,210	40,398	55,180
June	18,191	11,668	1,585	2,530	1,936	8,279	2,690	11,659	7,976	40,063	54,845
July	19,752	12,838	1,605	2,520	2,486	8,251	2,690	11,713	8,295	42,476	57,313
August	20,819	13,654	1,625	2,545	2,451	8,210	2,690	11,703	8,070	43,286	58,113
September	19,767	13,074	1,554	2,560	2,456	8,205	2,690	11,872	8,369	42,478	57,473
October	20,002	13,086	1,534	2,555	2,501	8,364	2,690	11,703	8,416	42,939	57,765
November	19,459	12,546	1,514	2,560	2,531	8,397	2,690	11,634	8,515	42,542	57,299
December	19,492	12,664	1,559	2,560	2,546	8,318	2,690	11,703	8,504	42,546	57,373
Average	18,584	11,939	1,533	2,540	2,476	E 8,349	2,690	11,690	8,234	41,283	56,096
1988 January	18,540	11,797	1,520	2,560	2,569	8,250	2,710	11,705	8,710	41,740	56,564
February	18,540	11,697	1,600	2,530	2,564	8,374	2,710	11,715	8,604	41,803	56,637
March	18,835	11,962	1,615	2,515	2,564	8,374	2,710	11,655	8,753	42,247	57,021
April	19,355	12,468	1,575	2,490	2,554	8,288	2,710	11,675	8,709	42,562	57,356
May	19,340	12,323	1,600	2,525	2,409	8,229	2,690	11,675	8,589	42,283	57,057
June	19,640	12,623	1,590	2,530	2,039	8,170	2,690	11,675	8,378	41,938	56,712
July	19,740	12,773	1,630	2,530	2,124	8,040	2,690	11,675	8,714	42,364	57,143
August	21,005	13,988	1,645	2,530	2,089	8,079	2,695	11,675	8,609	43,543	58,327
September	21,570	14,478	1,600	2,285	2,114	7,895	2,765	11,675	8,763	43,813	58,667
October	22,835	15,595	1,605	2,530	2,069	8,023	2,790	11,675	8,810	45,458	60,337
November	23,375	16,094	1,605	2,510	2,094	8,023	2,790	11,675	8,703	45,896	60,775
December	23,625	16,144	1,605	2,530	2,084	7,942	2,790	11,675	8,822	46,194	61,073
Average	20,539	13,500	1,599	2,506	2,272	8,140	2,728	11,679	8,681	43,326	58,145
1989 January	21,050	13,878	1,579	2,525	1,814	E 7,913	2,790	11,735	R 9,080	43,542	R 58,486
February	20,855	13,713	1,570	2,495	1,764	E 7,830	2,790	11,735	R 9,028	43,123	R 58,067
March	21,185	13,888	1,575	2,535	1,809	E 7,610	2,790	11,735	R 9,247	R 43,542	R 58,486
April	21,835	14,418	1,589	R 2,520	1,709	E 7,747	2,690	11,735	R 9,120	R 44,091	R 58,945
May	21,895	14,498	R 1,596	R 2,520	1,554	E 7,807	2,690	11,735	R 9,056	R 43,999	R 58,853
June	22,505	14,928	1,615	2,520	1,365	E 7,660	2,690	11,735	8,941	44,177	59,031
6-Mo. Avg.	21,559	14,224	1,587	2,520	1,669	E 7,761	2,740	11,735	9,080	43,752	58,650

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, China, Cuba, Czechoslovakia, East Germany, Hungary, Kampuchea, Laos, Mongolia, North Korea, Poland, Romania, U.S.S.R., Vietnam, and Yugoslavia.

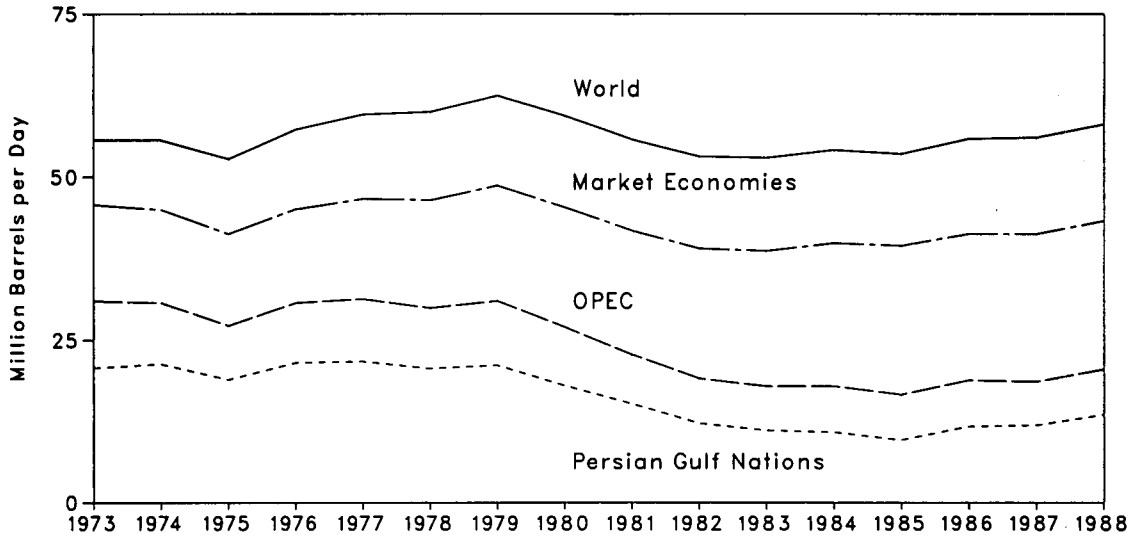
R=Revised data. E=Estimate.

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 1987 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 1987 annual data: *International Energy Annual.* 1988 annual data and 1988 monthly data forward: Sum of all countries.

Figure 10.1 World Crude Oil Production

Yearly



Monthly

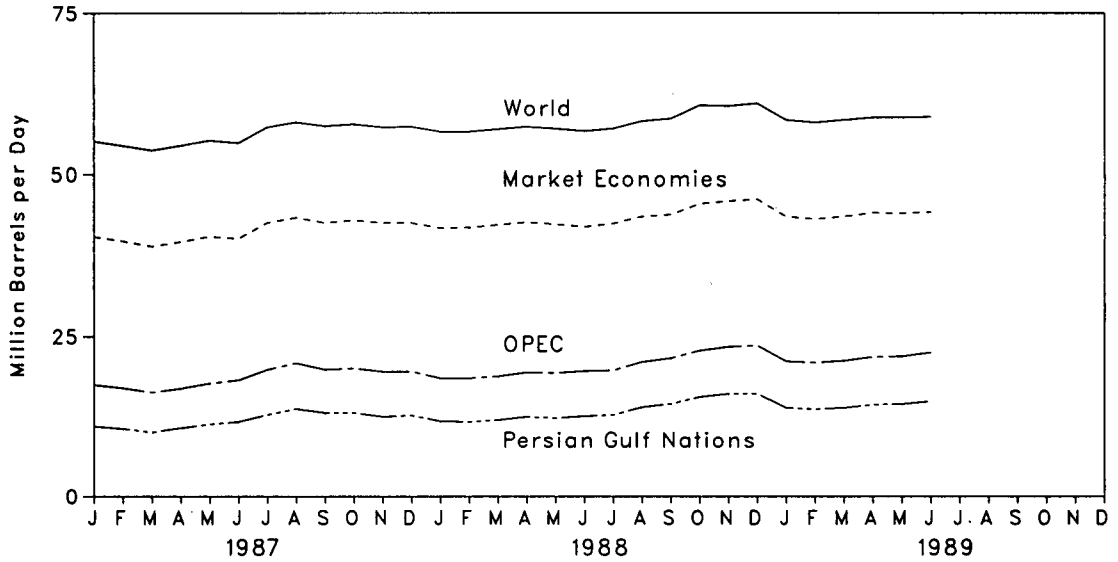
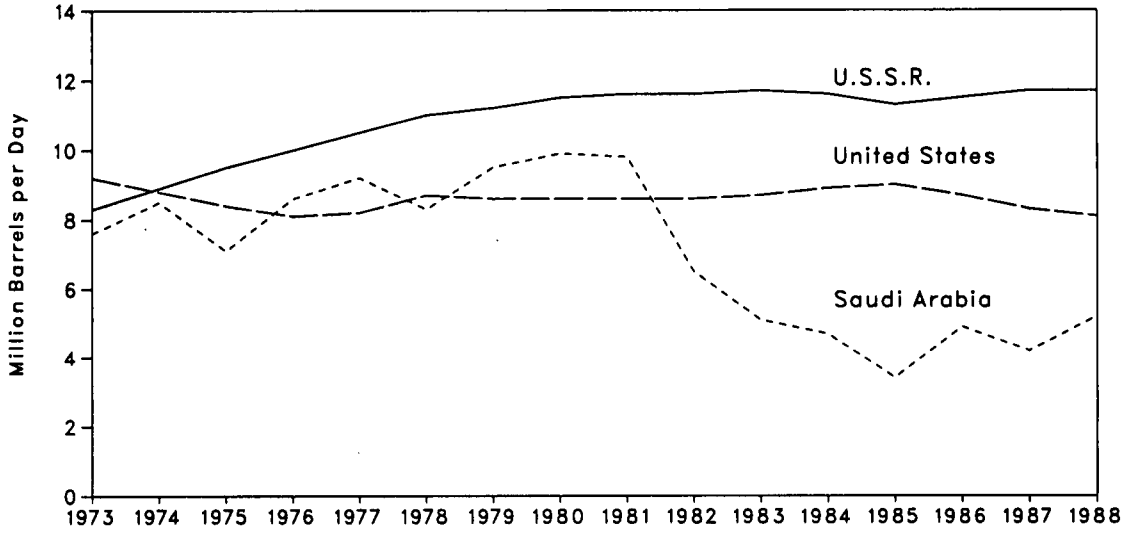


Figure 10.2 Crude Oil Production in Selected Countries

Yearly



Monthly

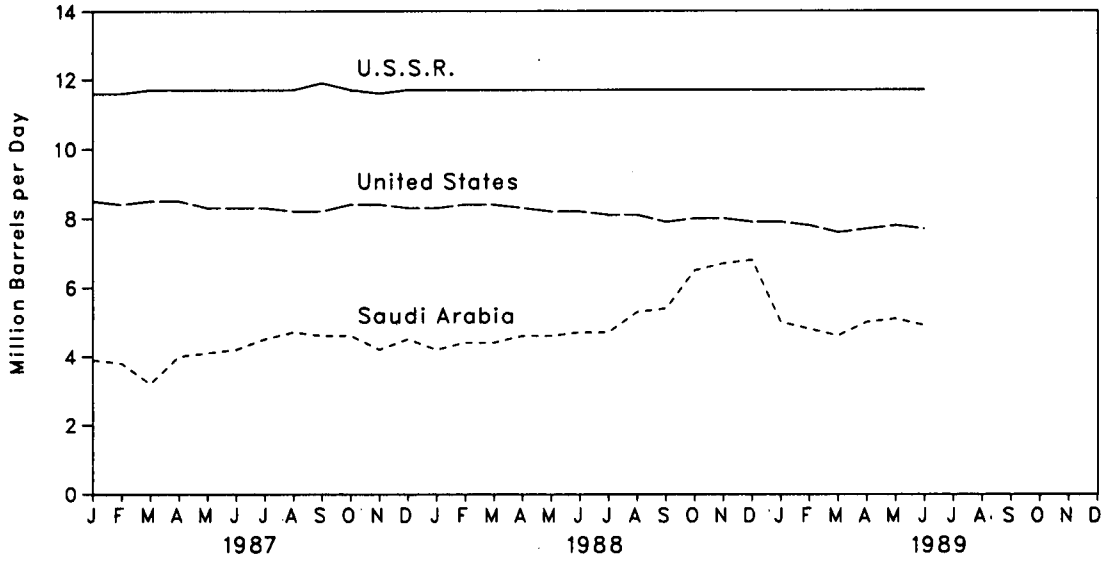


Figure 10.3 Petroleum Consumption in OECD Countries

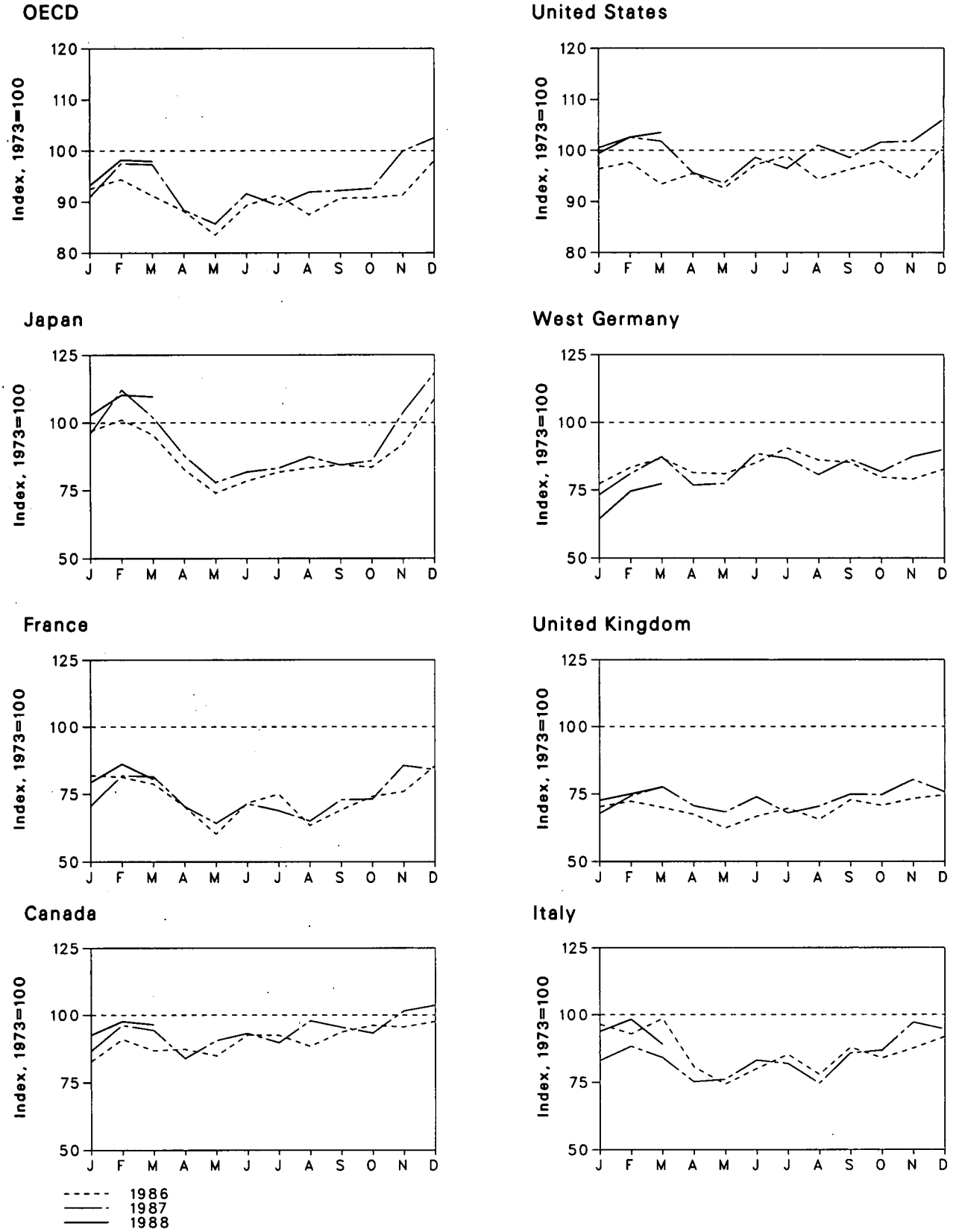


Table 10.2 Petroleum Consumption in OECD Countries[a]
(Thousand Barrels per Day)

	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 January	1,411	1,986	2,069	4,910	1,620	16,684	2,254	12,718	898	36,622
February	1,552	1,972	1,992	5,128	1,663	16,908	2,427	12,861	921	37,370
March	1,481	1,909	2,114	4,844	1,614	16,165	2,531	12,758	868	36,116
April	1,490	1,705	1,732	4,193	1,553	16,524	2,374	11,678	1,015	34,899
May	1,448	1,460	1,596	3,750	1,436	16,026	2,362	10,943	885	33,053
June	1,580	1,738	1,717	3,976	1,534	16,830	2,478	11,974	992	35,351
July	1,578	1,816	1,830	4,141	1,604	17,113	2,637	12,330	985	36,147
August	1,510	1,537	1,671	4,217	1,510	16,346	2,510	11,650	902	34,624
September	1,598	1,679	1,887	4,279	1,674	16,670	2,482	12,408	950	35,905
October	1,640	1,798	1,801	4,233	1,630	16,941	2,325	12,231	907	35,953
November	1,630	1,839	1,880	4,664	1,686	16,343	2,302	12,457	1,028	36,122
December	1,664	2,070	1,972	5,511	1,717	17,445	2,411	13,125	1,045	38,789
Average	**1,548**	**1,789**	**1,855**	**4,484**	**1,603**	**16,665**	**2,424**	**12,255**	**949**	**35,902**
1988 January	1,478	1,711	1,782	4,867	1,563	17,403	2,135	R 11,398	836	R 35,981
February	R 1,641	1,984	1,897	5,690	1,711	17,760	2,360	R 12,590	919	R 38,600
March	R 1,608	1,976	1,805	5,172	1,786	17,612	2,546	R 13,080	1,045	R 38,517
April	1,432	1,707	1,614	4,453	1,627	16,561	2,240	11,615	915	34,976
May	R 1,545	1,557	1,634	3,948	1,575	16,197	2,256	11,247	978	R 33,916
June	R 1,589	1,732	1,784	4,149	1,700	17,059	2,580	12,461	1,008	R 36,265
July	R 1,532	1,671	1,758	4,213	1,565	16,695	2,528	11,948	959	R 35,346
August	R 1,670	1,577	1,602	4,432	1,622	17,482	2,352	11,798	R 999	R 36,381
September	R 1,629	1,769	1,841	4,277	1,724	17,072	2,519	12,585	R 949	R 36,512
October	R 1,591	1,772	1,863	R 4,358	1,718	17,580	2,384	R 12,173	951	R 36,654
November	R 1,732	2,076	2,084	R 5,265	1,849	17,620	2,549	R 13,980	R 938	R 39,535
December	R 1,768	2,039	2,030	6,001	1,742	18,365	2,622	R 13,499	952	R 40,586
Average	**1,601**	**1,798**	**1,807**	**4,732**	**1,681**	**17,283**	**2,422**	**R 12,359**	**954**	**36,930**
1989 January	R 1,577	R 1,922	2,012	R 5,215	1,673	17,211	1,878	R 11,981	R 917	R 36,901
February	R 1,664	R 2,087	2,107	R 5,593	1,727	17,765	2,172	R 12,789	R 1,061	R 38,872
March	1,644	1,951	1,912	5,561	1,780	17,907	2,254	12,653	974	38,739
3-Mo. Average	**1,627**	**1,983**	**2,007**	**5,452**	**1,727**	**17,623**	**2,099**	**12,464**	**981**	**38,147**

[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 1986 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

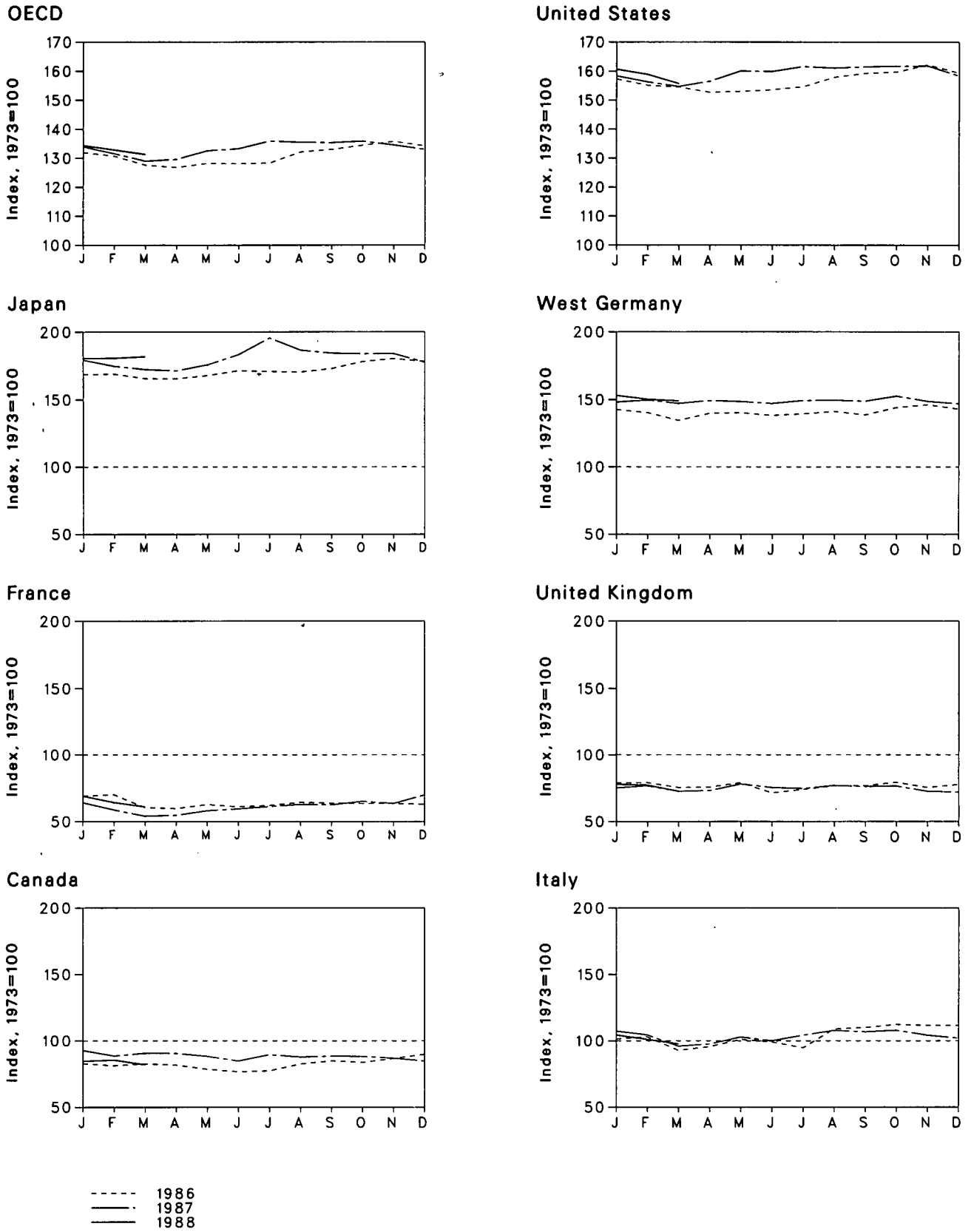


Table 10.3 Petroleum Stocks[a] in OECD Countries,[b] End of Period
(Million Barrels)

	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 January	116	138	154	511	123	1,586	258	1,136	66	3,415
February	114	140	156	512	123	1,563	254	1,125	68	3,381
March	115	122	141	502	118	1,557	243	1,061	68	3,303
April	114	120	145	502	118	1,539	253	1,063	64	3,283
May	110	126	154	509	123	1,542	254	1,094	64	3,318
June	107	123	151	520	111	1,548	250	1,075	65	3,315
July	108	125	144	518	116	1,558	252	1,069	68	3,321
August	115	130	165	516	120	1,592	256	1,127	69	3,420
September	119	128	167	524	120	1,606	251	1,127	69	3,444
October	117	128	171	540	124	1,610	261	1,141	72	3,480
November	121	128	169	547	118	1,635	265	1,141	71	3,514
December	126	127	169	540	121	1,607	259	1,130	72	3,474
1988 January	130	129	163	544	117	1,597	R 268	R 1,131	68	R 3,469
February	124	118	159	530	120	1,576	R 271	R 1,107	69	R 3,406
March	127	108	146	522	113	1,559	266	1,065	65	3,338
April	127	110	148	519	114	1,578	R 270	R 1,066	66	R 3,355
May	123	117	156	533	122	1,614	R 269	R 1,098	65	R 3,433
June	118	120	152	556	118	1,612	266	1,099	64	3,450
July	R 125	123	158	593	117	1,629	270	1,103	R 67	R 3,517
August	123	126	164	566	120	1,624	271	1,127	66	R 3,506
September	124	126	162	559	119	1,628	270	1,127	66	3,504
October	R 123	131	164	557	119	1,630	276	R 1,144	64	R 3,518
November	R 122	128	158	558	113	1,631	269	1,104	69	R 3,483
December	119	140	155	538	112	1,597	266	1,121	71	3,446
1989 January	R 118	138	159	547	121	1,620	277	R 1,125	69	R 3,479
February	R 119	129	154	548	121	1,602	272	R 1,102	69	R 3,440
March	115	123	148	551	113	1,569	270	1,095	68	3,397

[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) includes 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 1986 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 Non-Communist 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 January	.7	4.1	0	7.2	1.8	27.3	.5	.1	14.7	.2	.1
February	.5	3.6	0	6.7	1.6	25.2	.5	.1	13.0	(s)	(s)
March	.6	3.4	(s)	7.0	1.8	25.8	.4	(s)	15.1	.1	(s)
April	.7	3.3	.3	6.7	1.7	20.6	.5	0	14.4	.4	(s)
May	.6	2.9	.4	4.8	1.3	20.2	.4	0	14.2	.4	(s)
June	.4	2.3	.3	6.5	1.3	19.7	.5	0	13.9	.4	(s)
July	.7	3.2	0	6.8	1.4	18.3	.5	0	15.2	.4	(s)
August	.1	3.6	0	6.5	1.6	16.1	.5	0	14.9	.4	0
September	.4	3.6	0	6.3	1.7	20.1	.5	0	16.7	.4	0
October	0	3.6	0	7.4	1.8	20.6	.3	0	17.4	.2	0
November	0	4.0	0	7.1	1.7	24.5	.5	0	16.9	.4	(s)
December	.5	4.3	0	7.5	1.8	27.0	.4	0	16.5	.4	(s)
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	25.4	.4	0	13.3	.4	0
May	.5	3.0	(s)	6.2	1.2	22.6	.4	0	13.8	.4	0
June	.5	3.0	.2	5.8	1.6	23.9	.4	0	14.3	.4	0
6-Month Total	2.8	20.2	1.1	42.0	9.7	157.4	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
1987 6-Month Total	3.6	19.6	1.0	39.0	9.4	138.8	2.8	.2	85.3	1.4	.2

[a]Figures are for gross electricity generation, as opposed to net electricity 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]Some Central Electricity Generating Board figures were unavailable for March 1988. This number does not reflect the total generation for March.

(s)=Less than 0.05 billion gross kilowatthours.

Footnotes continued on following page.

Table 10.4b Nuclear Electricity Generation by Non-Communist Countries[a] (continued)
(Billion Gross Kilowatthours)

	South Africa	South Korea	Spain	Sweden	Switzerland	Taiwan	United Kingdom[b]	West Germany	Non-Communist World Excluding U.S.	United States	Non-Communist World
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**	**36.8**	**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 January	.7	3.2	3.4	7.2	2.3	3.2	5.0	12.2	93.9	42.0	135.9
February	.7	3.0	3.3	6.6	2.1	3.1	5.2	11.8	86.9	38.2	125.0
March	.8	2.5	4.0	7.1	2.3	3.0	6.7	12.6	93.3	39.2	132.5
April	.5	2.4	3.7	6.1	2.2	2.6	4.6	10.7	81.4	35.0	116.5
May	.7	3.1	2.1	4.8	1.9	3.2	4.4	8.7	74.3	36.3	110.6
June	.6	3.8	2.5	3.5	1.1	3.1	4.1	8.6	72.6	38.4	111.0
July	.4	3.3	3.3	2.7	1.3	3.0	3.4	8.6	72.5	42.9	115.3
August	.8	3.2	3.3	4.1	1.0	2.9	4.0	9.3	72.4	43.2	115.6
September	.3	2.9	3.5	5.1	1.9	2.5	5.1	10.3	81.3	41.9	123.2
October	.4	3.2	3.9	6.0	2.3	2.4	3.9	12.0	85.3	38.3	123.6
November	.7	3.4	3.9	6.8	2.2	2.1	3.7	12.5	90.4	39.4	129.8
December	0	3.8	4.2	7.2	2.3	2.1	6.2	12.9	97.1	43.7	140.8
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	[c] 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	82.1	40.8	122.9
June	1.1	3.4	4.2	3.3	1.2	2.0	6.7	9.6	81.6	45.1	126.7
6-Month Total	**4.7**	**22.5**	**27.0**	**33.3**	**12.0**	**12.2**	**38.1**	**75.5**	**549.4**	**252.6**	**801.9**
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**
1987 6-Month Total	**4.0**	**18.0**	**19.1**	**35.3**	**12.0**	**18.2**	**30.0**	**64.5**	**502.4**	**229.1**	**731.5**

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 400° F or less	5.248
Butane	4.326	Other Oils over 400° 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	5.868	5.800	5.800	5.848	3.812
1989[b]	5.800	5.868	5.800	5.800	5.848	3.812

[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	5.272	5.416	6.255	5.406	5.677	5.800	3.614
1984	5.261	5.252	5.425	6.251	5.395	5.613	5.867	3.599
1985	5.203	5.261	5.423	6.247	5.387	5.572	5.819	3.603
1986	5.238	5.335	5.423	6.257	5.418	5.624	5.839	3.640
1987	5.245	5.291	5.424	6.249	5.403	5.599	5.860	3.659
1988	5.240	5.296	5.423	6.250	5.408	5.649	5.859	3.652
1989[b]	5.240	5.296	5.423	6.250	5.408	5.649	5.859	3.652

[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[a]	1,031	1,112	1,031	1,032	1,031	999	1,011
1989[a]	1,031	1,112	1,031	1,032	1,031	999	1,011

[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	26.792	22.381	21.136	21.517	25.000	26.291
1988[c]	21.832	23.089	26.788	22.367	20.923	21.340	25.000	26.316
1989[c]	21.832	23.089	26.788	22.367	20.923	21.340	25.000	26.316

[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[b]	21.828	22.690	26.800	22.344	20.929	21.337	25.000	26.316
1989[b]	21.828	22.690	26.800	22.344	20.929	21.337	25.000	26.316

[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	0.000	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[a]	23.108	25.721	17.428	22.473	25.400	24.800
1989[a]	23.108	25.721	17.428	22.473	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[b]	10,253	10,776	21,263	3,412
1989[b]	10,253	10,776	21,263	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 400 Degrees Fahrenheit or Less. 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 Feedstock, Oils Over 400 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 Feedstock, 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 Standard Average Heating Value of Various Fuels, adopted 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. 1973-1987: 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.* 1988 forward: Estimated by EIA.

Petroleum Products, Consumption by Industrial Users. 1973-1987: 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.* 1988 forward: Estimated by EIA.

Petroleum Products, Consumption by Residential and Commercial Users. 1973-1987: 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.* 1988 forward: Estimated by EIA.

Petroleum Products, Consumption by Transportation Users. 1973-1987: 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.* 1988 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. Heat content and quantity consumed are from Form EIA-176.

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 FERC Form 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 Form 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 FERC Form 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 he 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 FERC Form 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 EIA Form 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 FERC Form 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 EIA Form 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 FERC Form 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 forward: 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 as reported on Form FERC-1, EIA-412 and predecessor forms, and as published beginning with 1982 data in EIA, *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.*

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 multiplied by 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 population-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. Excludes 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 includes 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 phosphorus 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 phosphorus 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 Electricity Generation: 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 Energy Consumption: 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 400 °F end-point, other oils over 400 °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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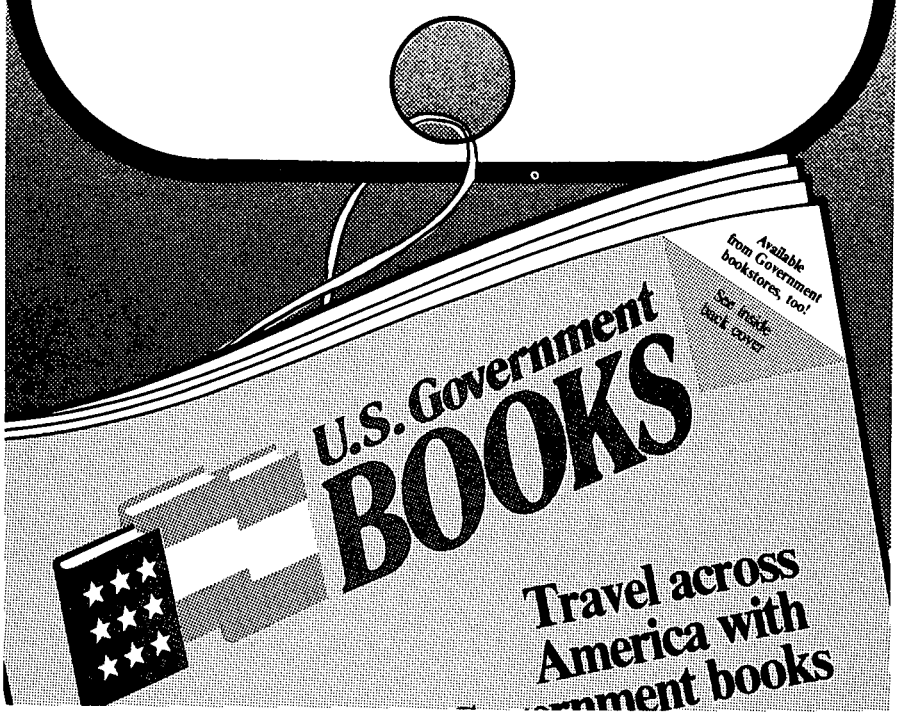

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