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K. Seiferlein

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Annual Energy Review

The *Annual Energy Review* presents historical 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.

Publication of this report is in keeping with responsibilities given the Energy Information Administration in Public Law 95-91 (Section 205(a)(2)) that states:

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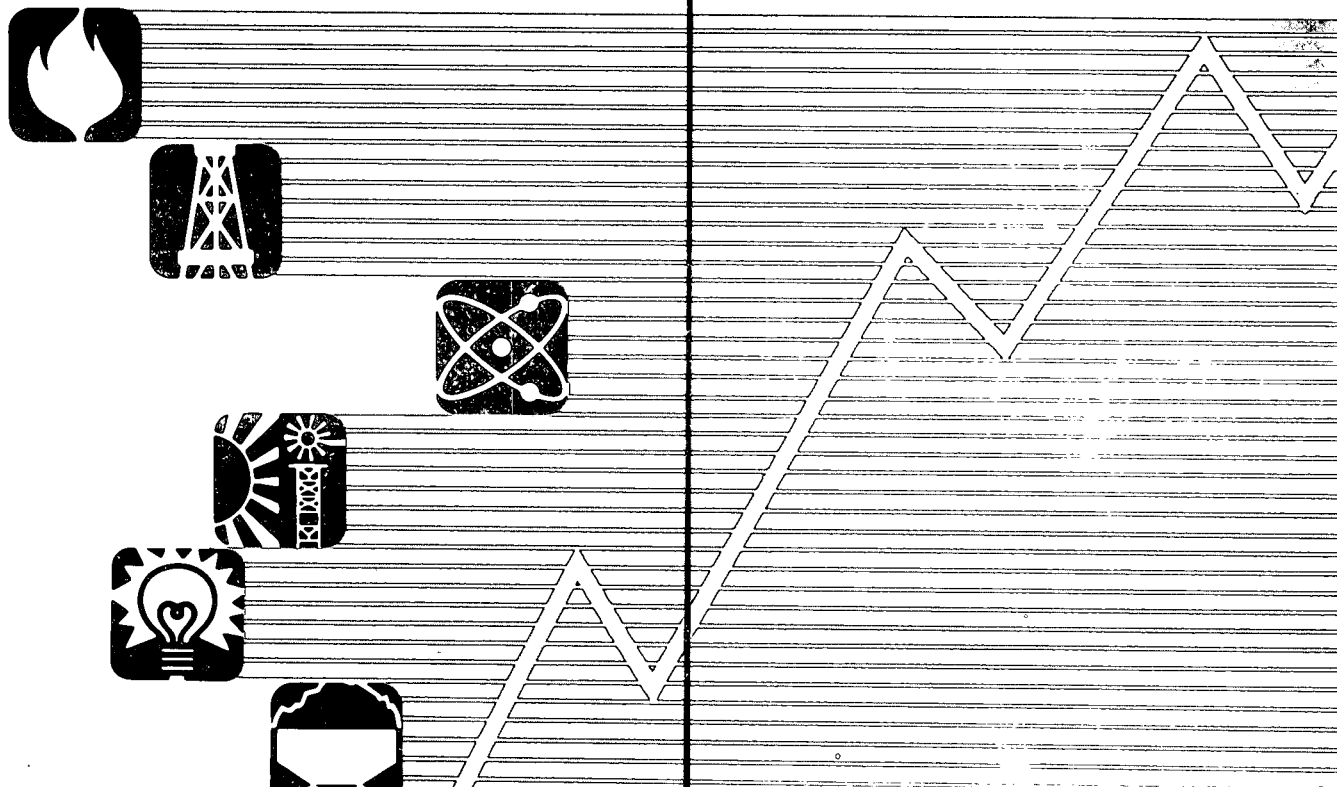

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United States

Introduction. Total energy consumption in the United States in 1984 was 73.7 quadrillion British thermal units (Btu), up 4.6 percent from 1983. This marked the first increase in annual energy consumption since 1979 and reversed a 4-year downturn which saw energy consumption decrease at an annual average rate of 2.8 percent (Table 3). The 1984 increase in consumption was accompanied by an increase of 6.9 percent in economic activity, as measured by real gross national product (GNP), and a 1.2-percent decline in crude oil prices (Tables 21 and 54). Coal was responsible for 40 percent of the 3.2 quadrillion Btu increase in 1984 energy consumption, with petroleum contributing 29 percent and natural gas and nuclear electric power accounting for 21 percent and 11 percent, respectively (Table 3). The role energy conservation continued to play in the economy in 1984 was indicated by a 2-percent decline in energy consumption per dollar of GNP (Table 21).

Despite lower crude oil prices and weakened natural gas marketing conditions, domestic oil and gas drilling activities increased in 1984 after several years of decline. The number of successful oil and gas wells drilled and the success rate were the second highest in history (Table 33). International crude oil markets continued to display weakness in 1984. Overall crude oil production increased for the first time since 1979. However for the fifth consecutive year, crude oil production by the Organization of Petroleum Exporting Countries (OPEC) declined, though the rate of decline abated considerably in 1984. OPEC's share of world crude oil production in 1984 was 33 percent, down from an all-time high of nearly 56 percent in 1973 (Table 95). Another notable international development was an increase of 19 percent in electricity generation from nuclear power plants in non-Communist countries. Generation from nuclear reactors in the United States also increased substantially; however, the U.S. share in 1984 was only one-third of total non-Communist nuclear power generation, down from more than one-half in the mid-1970's (Table 103).

Energy Production. Energy production in the United States reached an all-time high of 65.5 quadrillion Btu in 1984 (Table 1). The 1984 increase of 4.3 quadrillion Btu from the 1983 level was the largest annual increase ever recorded and was the result of increased production from every major energy source. Coal led the list, accounting for 57 percent of the increase; natural gas contributed 28 percent, followed by nuclear electric power (8 percent), crude oil (5 percent), and natural gas plant liquids (4 percent). Hydroelectric power was the only energy source to record lower production in 1984 than in 1983. Nevertheless, output from this source was maintained near the record levels established in 1983 (Table 1.)

Energy Consumption. Energy consumption in the United States increased in 1984, reversing a trend of 4 consecutive yearly declines (Table 21). For the first time since 1978, per capita energy consumption also rose, reaching 312 million Btu in 1984. That figure is still considerably below the peak level of 352 million Btu reached in 1978 (Table 21).

Exploration and Development. After decreases in the number of rotary rigs in operation in 1982 and 1983, the average utilization of 2,428 rigs in 1984 was up 9 percent. Although the 1984 rig count showed an increase, it was still well below the record of 3,970 set in 1981 (Table 31). Petroleum and natural gas well completions also increased in 1984 following 2 years of decline. The 85,884 wells completed in 1984 were 14 percent more than those completed in 1983 (Table 33).

Crude Oil Production. In 1984, domestic crude oil (including lease condensate) production increased to 8.8 million barrels per day, as a result of rising output in the Lower-48 States. During 1983 and 1984, the annual increase in the Lower-48 States averaged about 48,000 barrels per day, compared to an annual decline of nearly 300,000 barrels per day during 1973 through 1979 (Table 40).

Petroleum Imports. The United States increased its dependence on foreign sources of petroleum for the second straight year. OPEC countries also supplied a slightly larger share of U.S. petroleum needs in 1984. However, net petroleum imports from OPEC countries in 1984 were equal to only 13 percent of consumption, compared to 34 percent in 1972 (Table 45).

Petroleum Refining. Total input to distillation units averaged 13.1 million barrels per day in 1984, up 3.9 percent from 1983, a reflection of the

increase in consumption (Table 46). Refinery utilization increased to 76 percent in 1984, the highest level since 1979. The gain in refinery utilization resulted from a rise in input and capacity shutdown. Operable capacity fell to 16.1 million barrels per day on January 1, 1984, compared to 16.9 million barrels per day on January 1, 1983. Since 1981, refinery capacity has fallen by 2.5 million barrels per day (Table 47). The shutdowns were primarily the result of shifts in petroleum demand, economic factors, and changes in government regulations.

Petroleum Consumption. For the first time since 1978, petroleum consumption (product supplied) increased in 1984, reaching 15.7 million barrels per day. This was a 3.1-percent increase from the 1983 level but still considerably below the peak level of 18.8 million barrels per day recorded in 1978. Every end-use sector except electric utilities increased its petroleum consumption; the transportation and industrial sectors showed the largest increases (Table 50). Consumption of all petroleum products increased except for residual fuel oil, which declined for the seventh consecutive year (Table 49).

Natural Gas. Natural gas consumption and marketed production both increased in 1984, ending 4 years of decline. The 17.5 trillion cubic feet consumed in 1984 was 3.9 percent above the 1983 level, which was the lowest level of consumption since 1966 (Table 60). The price of natural gas delivered to residences in 1983 averaged $6.06 per thousand cubic feet, a $0.89-per-thousand-cubic-feet increase over 1982 prices (Table 64). Although 1984 natural gas residential prices are not available, the average wellhead price rose only 2 percent.

Coal. Coal production reached an all-time high of 890 million short tons in 1984, far exceeding the previous record output of 838 million short tons in 1982. Production of coal west of the Mississippi River continued to represent a growing share of total production, accounting for 34 percent in 1984, up from 30 percent in 1980. Similarly, subbituminous coal and lignite production (combined) rose from 23 percent of total production in 1980 to 26 percent in 1984 (Table 66). During 1984 coal consumption increased 7.6 percent to 793 million short tons, as coal burned by electric utilities and industries increased 6.2 and 15.7 percent, respectively (Table 67).

Electricity. Electricity production, which increased each year in the post-World War II period until declining in 1982, increased in 1983 and again in 1984 when a record of 2.41 trillion kilowatthours of generation was set. Electricity production from petroleum and hydroelectric power declined, whereas production from coal, nuclear power, and geothermal power increased, each to record levels. Production from natural gas also increased in 1984 after declining for 3 years (Table 74). Electricity sales to each major end-use sector increased in 1984, the greatest gain being in the industrial sector where sales rose 8.5 percent above 1983 (Table 78).

Prices. Changes in energy prices in 1984 were mixed, though relatively stable overall. Whereas most petroleum prices declined, prices of natural gas, coal, and electricity rose. Of the price changes listed below, only residential electricity prices outpaced inflation in 1984.

- Crude oil wellhead price averaged $25.87 per barrel, 1 percent below the 1983 average (Table 54).
- Refiner acquisition cost for imported crude oil averaged $28.88 per barrel, 1 percent below the 1983 average (Table 56).
- Natural gas wellhead price averaged $2.63 per thousand cubic feet, 2 percent above the 1983 average (Table 63).
- Bituminous coal and lignite prices, free on board at the mines, averaged $27 per short ton, 4 percent above the 1983 average (Table 72).
- Prices at service stations for leaded regular motor gasoline (which accounted for almost half of total motor gasoline consumption in 1984) averaged $1.13 per gallon (including taxes) in 1984, 2 percent below the 1983 average (Table 58).
- Residential heating oil prices averaged $1.09 per gallon, up 1 percent from the 1983 average (Table 58).
- Residential electricity prices averaged 7.56 cents per kilowatthour, 5 percent above the 1983 average (Table 82).

International

World Crude Oil Production. World crude oil production increased to 53.7 million barrels per day in 1984, the first increase in 5 years, but was 14 percent below the record 62.5 million barrels per day established in 1979. OPEC production declined again in 1984 and accounted for 33 percent of world production, compared to 49 percent in 1979. Saudi Arabia accounted for most of the decline with production, since 1980, falling more than 5 million barrels per day (Table 95).

World Crude Oil Prices. Following substantial decreases in 1983, the official price for nearly all major foreign crude oils remained constant in 1984. The official price for Saudi Arabian Light, the "marker" crude, was $29 per barrel on January 1, 1985, the same price as a year earlier (Table 104).

Section 1. Energy Supply and Disposition—Overview

In 1984 the United States recorded growth in all major aspects of energy: production, consumption, imports, and exports.

Production. Based on preliminary data, energy production in the United States reached a record high of 65.5 quadrillion Btu in 1984, an increase of 7 percent from 1983. The 1984 increase of 4.3 quadrillion Btu from the 1983 level was the largest annual increase ever recorded and was the result of increased production from every major energy source. Coal accounted for 57 percent of the increase; natural gas contributed 28 percent, followed by nuclear electric power (8 percent), crude oil (5 percent), and natural gas plant liquids (4 percent). Hydroelectric power was the only energy source to record lower production in 1984 than in 1983 (Table 1).

During the period 1972 through 1984, the pattern of energy production shifted considerably. The production of coal, nuclear generated electricity, and hydroelectric power increased from 28.1 percent of total production to 40.6 percent. During this period, petroleum, natural gas, and natural gas plant liquids production declined from 71.9 percent of the total to 59.1 percent (Table 2).

Consumption. Energy consumption in the United States totaled 73.7 quadrillion Btu during 1984, 4.6 percent above the 1983 level but 6.6 percent below the peak level of 78.9 quadrillion Btu consumed in 1979 (Table 3). During 1984, the United States consumed more of every major energy source except hydroelectric power, which decreased 2.3 percent below the record level of 1983. On a Btu basis, coal increased 8.2 percent, natural gas increased 3.9 percent, petroleum increased 3.2 percent, and nuclear electricity generation and geothermal electricity generation were up 10.7 percent and 27.1 percent, respectively.

Petroleum consumption in 1984 equaled 31.0 quadrillion Btu, 18.3 percent below the peak level of 38.0 quadrillion Btu reached in 1978. Nonetheless, petroleum still contributed the largest share of total energy usage, accounting for 42.1 percent during 1984. The share held by natural gas was 24.5 percent, with coal consumption amounting to 23.3 percent of the total (Table 3).

Total energy consumption by the three major end-use sectors increased during 1984. The industrial sector accounted for 37.8 percent of all energy consumed in the United States during 1984, the residential and commercial sector accounted for 35.2 percent, and the transportation sector consumed 26.9 percent of the total (Table 4).

Consumption of energy by electric utilities for power generation increased in 1983 and again in 1984, after having declined in 1982 for the first time since 1958. The 26.1 quadrillion Btu consumed in 1984 was up 4.5 percent from the 1983 level. Of this total, only 7.8 quadrillion Btu (29.9 percent) were sold to consumers. The remaining 18.3 quadrillion Btu (70.1 percent) represented energy used to generate, transmit, and distribute the electricity (Table 76).

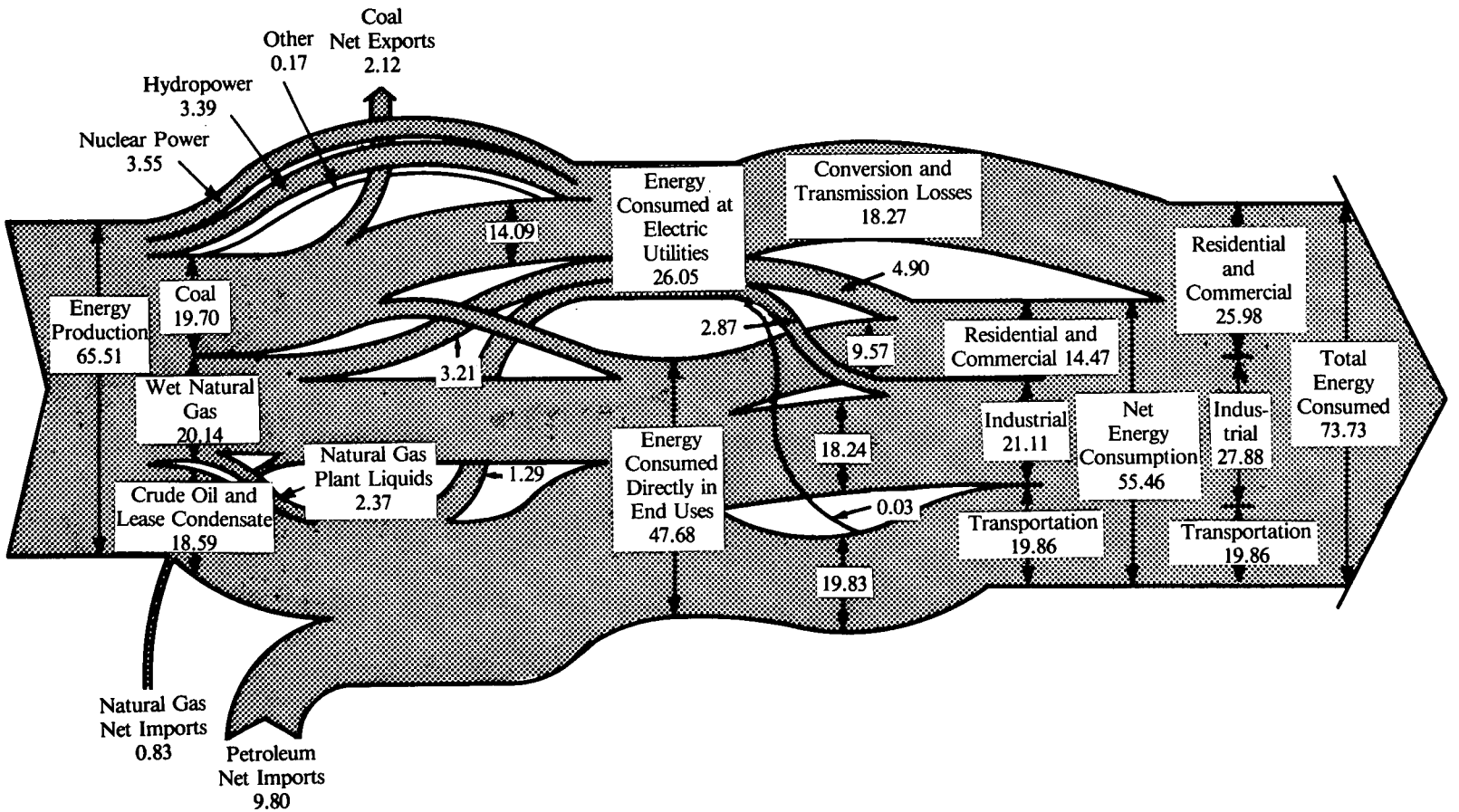
Trade. During 1984, the United States consumed 13 percent more energy than it produced, with the difference met primarily by imported energy, mostly petroleum. Total imported energy during 1984 was 12.7 quadrillion Btu; petroleum accounting for 89 percent of the total. The United States exported 3.8 quadrillion Btu of energy during 1984, of which 56 percent was coal exports. Although net imports of energy increased slightly to 8.9 quadrillion Btu in 1984, they were still 9.1 quadrillion Btu less than the level of imports during the peak year of 1977 (Table 6).

Prices. Prices (as measured at a point nearest to production) of all major fossil fuels except crude oil continued to rise in 1984. In current dollars per million Btu, the price of crude oil remained the highest at $4.46, down from $4.52 in 1983. The price of natural gas rose to $2.36; bituminous coal and lignite, to $1.22; and anthracite reached $2.37. The composite price of these fossil fuels was $2.65. It should be noted, however, that in terms of constant 1972 dollars these preliminary data show that the composite price fell $0.07 to $1.18 (Table 11).

The value of major fossil fuels produced in the United States during 1984 was $155 billion, in current dollars. The total value was comprised of petroleum at $83 billion, followed by natural gas at $48 billion and coal at $24 billion (Table 10).

Diagram 1. Total Energy Flow, 1984
(Quadrillion Btu)

(Quadrillion Btu)



*Total Energy Consumption with conversion and transmission lossess allocated to end-use sectors in proportion to the sectors' use of electricity.

Note: Sum of components does not equal total due to independent rounding; the use of preliminary conversion factors; and the exclusion of changes in stocks, miscellaneous supply and disposition, and unaccounted for quantities.

Figure 1. Energy Supply and Disposition, 1960, 1970, 1980, and 1984

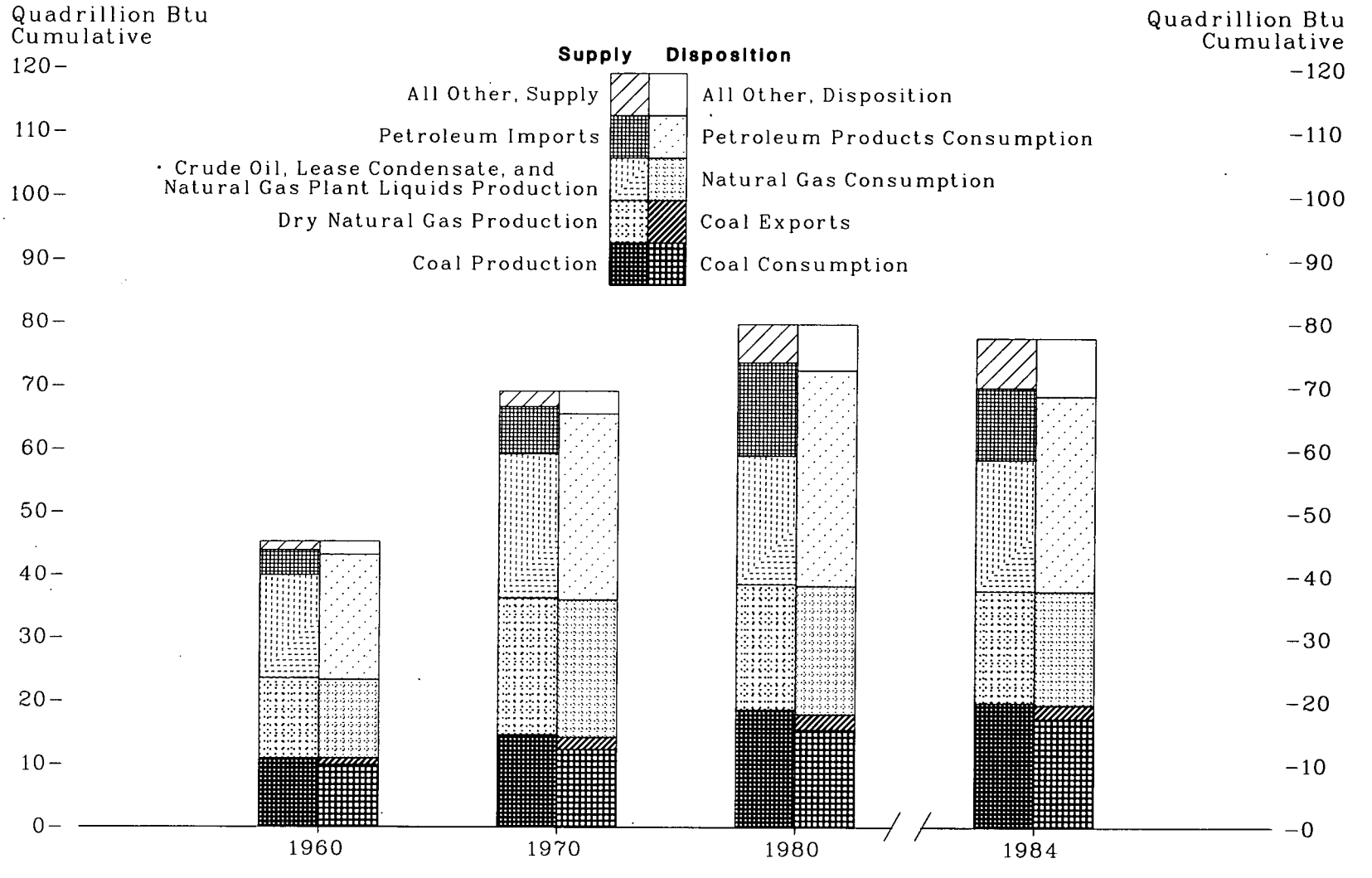


Table 1. Energy Supply and Disposition, 1960, 1970, and 1973-1984

(Quadrillion Btu)

Activity and Energy Source	1960	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984 [1]
Supply														
Production														
Crude Oil and Lease Condensate	14.93	20.40	19.49	18.57	17.73	17.26	17.45	18.43	18.10	18.25	18.15	18.31	18.39	18.59
Natural Gas Plant Liquids	1.46	2.51	2.57	2.47	2.37	2.33	2.33	2.25	2.29	2.25	2.31	2.19	2.18	2.37
Natural Gas [2]	12.66	21.67	22.19	21.21	19.64	19.48	19.57	19.49	20.08	19.91	19.70	18.25	16.53	17.75
Coal	10.83	14.61	14.00	14.08	15.00	15.66	15.76	14.91	17.55	18.60	18.38	18.64	17.25	19.70
Nuclear Power	0.01	0.24	0.91	1.27	1.90	2.11	2.70	3.02	2.78	2.74	3.01	3.13	3.20	3.55
Hydroelectric Power	1.61	2.63	2.86	3.18	3.15	2.98	2.33	2.94	2.93	2.90	2.76	3.26	3.50	3.39
Other [3]	(11)	0.02	0.05	0.06	0.07	0.08	0.08	0.07	0.09	0.11	0.13	0.11	0.13	0.17
Total Production	41.50	62.08	62.07	60.84	59.87	59.90	60.22	61.11	63.81	64.76	64.42	63.89	61.20	65.51
Imports														
Crude Oil [4]	2.20	2.81	6.89	7.40	8.72	11.24	14.03	13.46	13.83	11.19	9.34	7.42	7.08	7.25
Petroleum Products [5]	1.80	4.66	6.58	5.73	4.23	4.43	4.73	4.36	4.11	3.46	3.30	3.36	3.57	4.10
Natural Gas	0.16	0.85	1.06	0.99	0.98	0.99	1.04	0.99	1.30	1.01	0.92	0.95	0.94	0.88
Other [6]	0.07	0.07	0.20	0.30	0.19	0.18	0.30	0.44	0.38	0.31	0.42	0.36	0.44	0.48
Total Imports	4.23	8.39	14.73	14.41	14.11	16.84	20.09	19.25	19.62	15.97	13.97	12.09	12.03	12.71
Adjustments [7]	-0.43	-1.37	-0.46	-0.48	-1.07	-0.18	-1.95	-0.34	-1.66	-1.05	-0.08	-0.51	1.00	-0.68
Total Supply	45.30	69.10	76.34	74.77	72.91	76.55	78.36	80.02	81.77	79.68	78.32	75.47	74.22	77.54
Disposition														
Exports														
Coal	1.02	1.94	1.43	1.62	1.76	1.60	1.44	1.08	1.75	2.42	2.94	2.79	2.04	2.15
Crude Oil and Petroleum Products	0.43	0.55	0.49	0.46	0.44	0.47	0.51	0.77	1.00	1.16	1.26	1.73	1.57	1.55
Other [8]	0.03	0.18	0.14	0.14	0.16	0.12	0.12	0.09	0.11	0.14	0.12	0.11	0.11	0.12
Total Exports	1.48	2.66	2.05	2.22	2.36	2.19	2.07	1.93	2.87	3.72	4.33	4.63	3.72	3.82
Consumption														
Petroleum Products [9]	19.92	29.52	34.84	33.45	32.73	35.17	37.12	37.97	37.12	34.20	31.93	30.23	30.05	31.00
Natural Gas	12.39	21.79	22.51	21.73	19.95	20.35	19.93	20.00	20.67	20.39	19.93	18.51	17.36	18.03
Coal	9.85	12.27	12.98	12.67	12.67	13.59	13.92	13.77	15.04	15.43	15.91	15.32	15.90	17.20
Nuclear Power	0.01	0.24	0.91	1.27	1.90	2.11	2.70	3.02	2.78	2.74	3.01	3.13	3.20	3.55
Hydroelectric Power [10]	1.66	2.65	3.01	3.31	3.22	3.07	2.51	3.14	3.14	3.12	3.11	3.56	3.87	3.78
Other [3]	(11)	0.02	0.05	0.06	0.07	0.08	0.08	0.07	0.09	0.11	0.13	0.11	0.13	0.17
Net Imports of Coal Coke	-0.01	-0.06	-0.01	0.06	0.01	(11)	0.01	0.12	0.06	-0.04	-0.02	-0.02	-0.02	-0.01
Total Consumption	43.81	66.44	74.29	72.55	70.55	74.37	76.29	78.09	78.90	75.96	73.99	70.84	70.50	73.73
Total Disposition	45.30	69.10	76.34	74.77	72.91	76.55	78.36	80.02	81.77	79.68	78.32	75.47	74.22	77.54

[1] Preliminary.
[2] Dry natural gas.
[3] Includes electricity produced from geothermal, wood, waste, wind, photovoltaic, and solar thermal sources connected to electric utility distribution systems (see Note).
[4] Includes imports of crude oil for the Strategic Petroleum Reserve, which began in 1977.
[5] Includes imports of unfinished oils and natural gas plant liquids.
[6] Includes coal, coal coke, and hydroelectric power.
[7] A balancing item. Includes stock changes, losses, gains, miscellaneous blending components, unaccounted for supply, and anthracite shipped overseas to U.S. Armed Forces.
[8] Includes natural gas, coal coke, and hydroelectric power.
[9] Petroleum products supplied includes natural gas plant liquids and crude oil burned as fuel.
[10] Includes industrial generation of hydroelectric power and net electricity imports.
[11] Less than 0.005 quadrillion Btu.

Note: Data do not include the consumption of wood energy (other than that consumed by the electric utility industry) which amounted to an estimated 2.6 quadrillion Btu in 1983 (see Table 86). This table also does not include small quantities of other energy forms for which consistent historical data are not available, such as geothermal, waste, wind, photovoltaic, or solar thermal energy sources except that consumed by electric utilities.

Note: Sum of components may not equal total due to independent rounding.

Sources: See sources for Tables 39, 60, 65, 70, 73, 75, and EIA estimates for industrial hydroelectric power, and conversion factors in the Units of Measure and Conversion Factors section.

Figure 2. Production of Energy by Source, 1949-1984

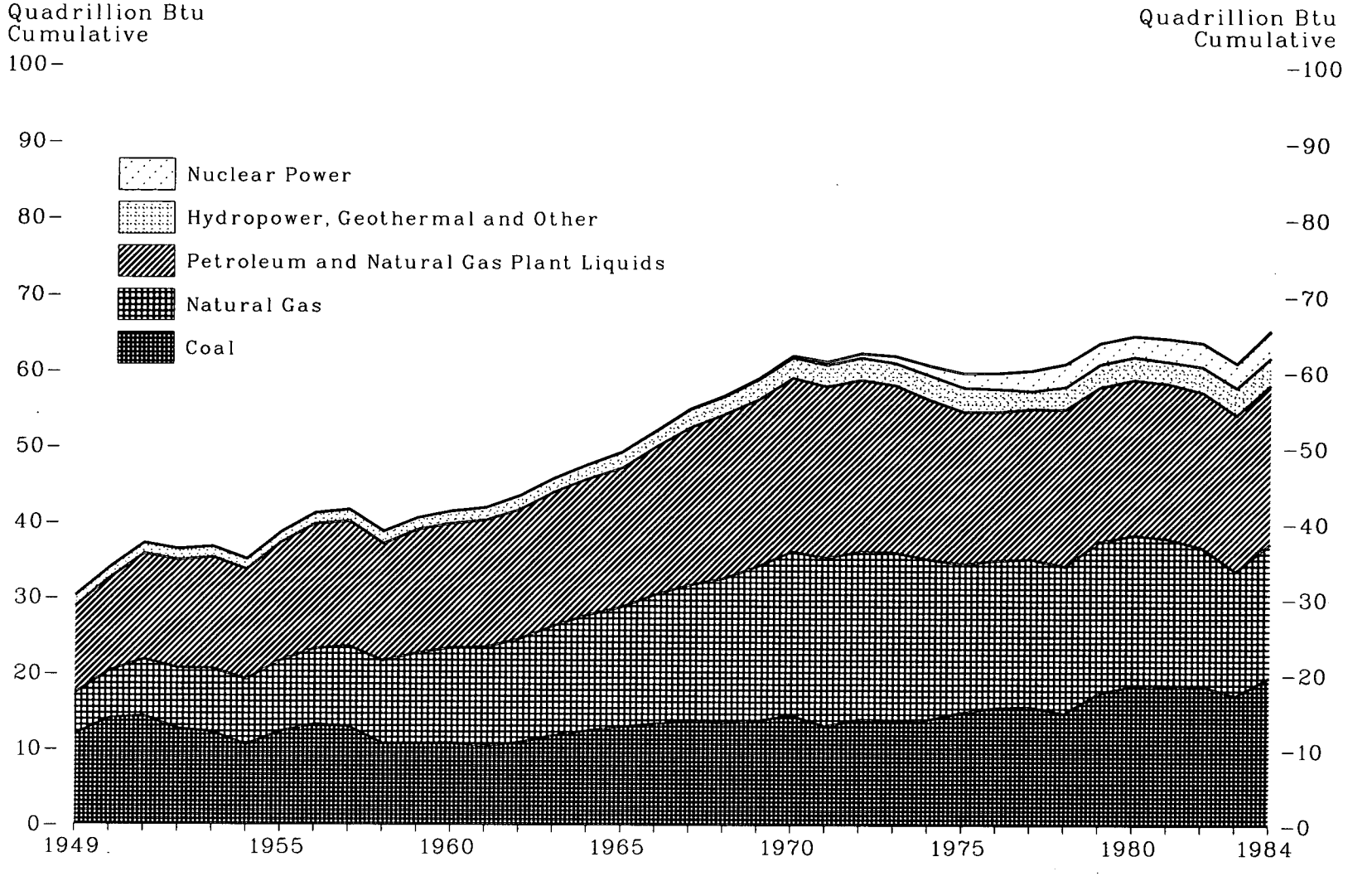


Table 2. Production of Energy by Source, 1949-1984

(Quadrillion Btu, Except as Noted)

Year	Coal	Natural Gas [1]	Petroleum [2]	Natural Gas Plant Liquids	Hydroelectric Power [3]	Nuclear Power [4]	Geothermal [4]	Other [5]	Total Energy Production	Percent Change [6]
1949	11.99	5.38	10.68	0.71	1.42	0	0	(7)	30.19	—
1950	14.07	6.23	11.45	0.82	1.42	0	0	(7)	33.99	12.6
1951	14.43	7.42	13.04	0.92	1.42	0	0	(7)	37.23	9.5
1952	12.74	7.96	13.28	1.00	1.47	0	0	(7)	36.46	-2.1
1953	12.29	8.34	13.67	1.06	1.41	0	0	(7)	36.78	0.9
1954	10.55	8.68	13.43	1.11	1.36	0	0	(7)	35.14	-4.5
1955	12.38	9.34	14.41	1.24	1.36	0	0	(7)	38.74	10.2
1956	13.32	10.00	15.18	1.28	1.43	0	0	(7)	41.22	6.4
1957	13.07	10.61	15.18	1.29	1.52	0	0	(7)	41.66	1.1
1958	10.79	10.94	14.20	1.29	1.59	(7)	0	(7)	38.82	-6.8
1959	10.79	11.95	14.93	1.38	1.55	(7)	0	(7)	40.61	4.6
1960	10.83	12.66	14.93	1.46	1.61	0.01	0	(7)	41.50	2.2
1961	10.46	13.10	15.21	1.55	1.66	0.02	(7)	(7)	42.00	1.2
1962	10.91	13.72	15.52	1.59	1.82	0.03	(7)	(7)	43.59	3.8
1963	11.86	14.51	15.97	1.71	1.77	0.04	(7)	(7)	45.86	5.2
1964	12.53	15.30	16.16	1.80	1.89	0.04	(7)	(7)	47.73	4.1
1965	13.07	15.78	16.52	1.88	2.06	0.04	(7)	(7)	49.35	3.4
1966	13.48	17.01	17.56	2.00	2.06	0.06	(7)	(7)	52.18	5.7
1967	13.84	17.94	18.65	2.18	2.35	0.09	0.01	(7)	55.05	5.5
1968	13.62	19.07	19.31	2.32	2.35	0.14	0.01	(7)	56.82	3.2
1969	13.87	20.45	19.56	2.42	2.65	0.15	0.01	(7)	59.11	4.0
1970	14.61	21.67	20.40	2.51	2.63	0.24	0.01	(7)	62.08	5.0
1971	13.20	22.28	20.03	2.54	2.82	0.41	0.01	(7)	61.31	-1.2
1972	14.09	22.21	20.04	2.60	2.86	0.58	0.03	(7)	62.42	1.8
1973	14.00	22.19	19.49	2.57	2.86	0.91	0.04	(7)	62.07	-0.6
1974	14.08	21.21	18.57	2.47	3.18	1.27	0.05	(7)	60.84	-2.0
1975	15.00	19.64	17.73	2.37	3.15	1.90	0.07	(7)	59.87	-1.6
1976	15.66	19.48	17.26	2.33	2.98	2.11	0.08	(7)	59.90	0.1
1977	15.76	19.57	17.45	2.33	2.33	2.70	0.08	0.01	60.22	0.5
1978	14.91	19.49	18.43	2.25	2.94	3.02	0.06	(7)	61.11	1.5
1979	17.55	20.08	18.10	2.29	2.93	2.78	0.08	0.01	63.81	4.4
1980	18.60	19.91	18.25	2.25	2.90	2.74	0.11	(7)	64.76	1.5
1981	18.38	19.70	18.15	2.31	2.76	3.01	0.12	(7)	64.42	-0.5
1982	18.64	18.25	18.31	2.19	3.26	3.13	0.10	(7)	63.89	-0.8
1983	17.25	16.53	18.39	2.18	3.50	3.20	0.13	(7)	61.20	-4.2
1984[8]	19.70	17.75	18.59	2.37	3.39	3.55	0.16	0.01	65.51	7.0

[1] Dry natural gas.
[2] Crude oil and lease condensate.
[3] Electric utility and industrial generation of hydroelectric power, see Explanatory Note 1.
[4] Generated by electric utilities, see Explanatory Note 1.
[5] Includes electricity produced from wood, waste, wind, photovoltaic, and solar thermal sources connected to electric utility distribution systems. Converted to Btu by applying national average heat rates for fossil fuel steam electric plants. Data do not include the consumption of wood energy (other than that consumed by the electric utility industry) which amounted to an estimated 2.6 quadrillion Btu in 1983 (see Table 86). This table also does not include small quantities of energy forms for which consistent historical data are not available, such as geothermal, waste, wind, photovoltaic, or solar thermal energy sources except that consumed by electric utilities.
[6] Percent change from previous year calculated from data prior to rounding.
[7] Less than 0.005 quadrillion Btu.
[8] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: See sources for Tables 39, 60, 66, 75, and EIA estimates for industrial hydroelectric power, and conversion factors in the Units of Measure and Conversion Factors section.

Figure 3. Consumption of Energy by Source, 1949-1984

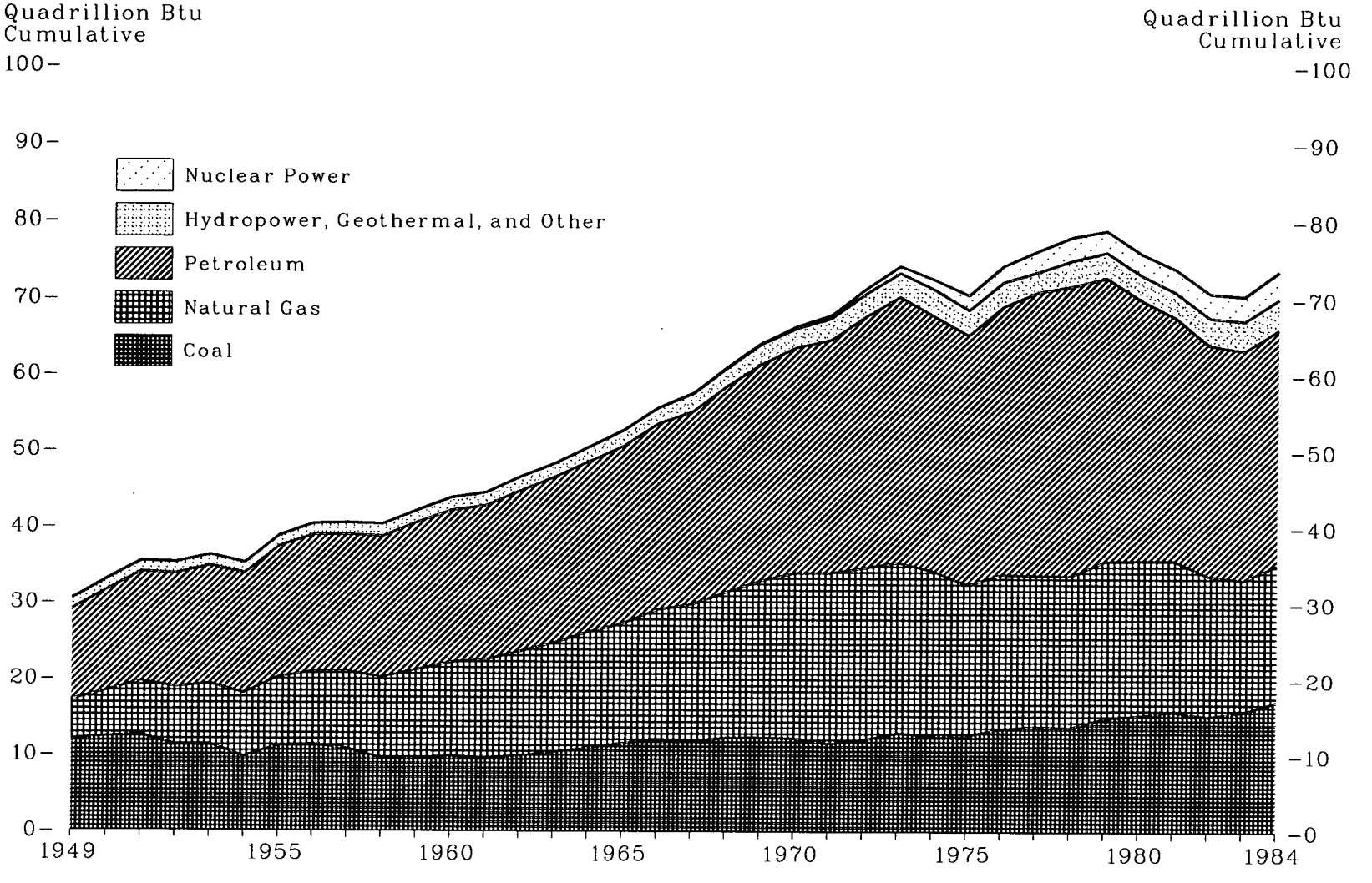


Table 3. Consumption of Energy by Source, 1949-1984

(Quadrillion Btu, Except as Noted)

Year	Coal	Natural Gas	Petroleum [1]	Hydroelectric Power [2]	Nuclear Power [3]	Geothermal [3]	Other [4]	Net Imports of Coal Coke	Total Energy Consumption	Percent Change [5]
1949	11.99	5.15	11.88	1.45	0	0	(6)	-0.01	30.47	—
1950	12.36	5.97	13.32	1.44	0	0	(6)	(6)	33.09	8.6
1951	12.56	7.05	14.43	1.45	0	0	(6)	-0.02	35.48	7.2
1952	11.32	7.55	14.96	1.50	0	0	(6)	-0.01	35.31	-0.5
1953	11.38	7.91	15.56	1.44	0	0	(6)	-0.01	36.28	2.7
1954	9.73	8.33	15.84	1.39	0	0	(6)	-0.01	35.28	-2.8
1955	11.18	9.00	17.25	1.41	0	0	(6)	-0.01	38.83	10.1
1956	11.36	9.61	17.94	1.49	0	0	(6)	-0.01	40.39	4.0
1957	10.83	10.19	17.93	1.56	0	0	(6)	-0.02	40.50	0.3
1958	9.54	10.66	18.53	1.63	(6)	0	(6)	-0.01	40.36	-0.3
1959	9.53	11.72	19.32	1.59	(6)	0	(6)	-0.01	42.15	4.4
1960	9.85	12.39	19.92	1.66	0.01	(6)	(6)	-0.01	43.81	3.9
1961	9.63	12.93	20.22	1.68	0.02	(6)	(6)	-0.01	44.47	1.5
1962	9.92	13.73	21.05	1.82	0.03	(6)	(6)	-0.01	46.54	4.7
1963	10.42	14.40	21.70	1.77	0.04	(6)	(6)	-0.01	48.34	3.9
1964	10.98	15.29	22.30	1.91	0.04	(6)	(6)	-0.01	50.51	4.5
1965	11.59	15.77	23.25	2.06	0.04	(6)	(6)	-0.02	52.69	4.3
1966	12.15	17.00	24.40	2.07	0.06	(6)	(6)	-0.02	55.67	5.6
1967	11.92	17.94	25.28	2.34	0.09	0.01	(6)	-0.02	57.58	3.4
1968	12.34	19.21	26.98	2.34	0.14	0.01	(6)	-0.02	61.01	6.0
1969	12.39	20.68	28.34	2.66	0.15	0.01	(6)	-0.04	64.20	5.2
1970	12.27	21.79	29.52	2.65	0.24	0.01	(6)	-0.06	66.44	3.5
1971	11.61	22.47	30.56	2.86	0.41	0.01	(6)	-0.03	67.90	2.2
1972	12.08	22.70	32.95	2.94	0.58	0.03	(6)	-0.03	71.27	5.0
1973	12.98	22.51	34.84	3.01	0.91	0.04	(6)	-0.01	74.29	4.2
1974	12.67	21.73	33.45	3.31	1.27	0.05	(6)	0.06	72.55	-2.3
1975	12.67	19.95	32.73	3.22	1.90	0.07	(6)	0.01	70.55	-2.8
1976	13.59	20.35	35.17	3.07	2.11	0.08	(6)	(6)	74.37	5.4
1977	13.92	19.93	37.12	2.51	2.70	0.08	0.01	0.01	76.29	2.6
1978	13.77	20.00	37.97	3.14	3.02	0.06	(6)	0.12	78.09	2.4
1979	15.04	20.67	37.12	3.14	2.78	0.08	0.01	0.06	78.90	1.0
1980	15.43	20.39	34.20	3.12	2.74	0.11	(6)	-0.04	75.96	-3.7
1981	15.91	19.93	31.93	3.11	3.01	0.12	(6)	-0.02	73.99	-2.6
1982	15.32	18.51	30.23	3.56	3.13	0.10	(6)	-0.02	70.84	-4.3
1983	15.90	17.36	30.05	3.87	3.20	0.13	(6)	-0.02	70.50	-0.5
1984[7]	17.20	18.03	31.00	3.78	3.55	0.16	0.01	-0.01	73.73	4.6

[1] Petroleum products supplied including natural gas plant liquids and crude oil burned as fuel.
[2] Electric utility and industrial generation of hydroelectric power and net electricity imports.
[3] Generated by electric utilities.
[4] Includes electricity produced from wood, waste, wind, photovoltaic, and solar thermal sources connected to electric utility distribution systems. Converted to Btu by applying national average heat rates for fossil fuel steam electric plants. Data do not include the consumption of wood energy (other than that consumed by the electric utility industry) which amounted to an estimated 2.6 quadrillion Btu in 1983 (see Table 86). This table also does not include small quantities of energy forms for which consistent historical data are not available, such as geothermal, waste, wind, photovoltaic, or solar thermal energy sources except that consumed by electric utilities.
[5] Percent change from previous year calculated from data prior to rounding.
[6] Less than 0.005 quadrillion Btu.
[7] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: See sources for Tables 39, 60, 65, 70, 73, 75, and EIA estimates for industrial hydroelectric power, and conversion factors in the Units of Measure and Conversion Factors section.

Figure 4. Consumption of Energy by End-Use Sector, 1949-1984

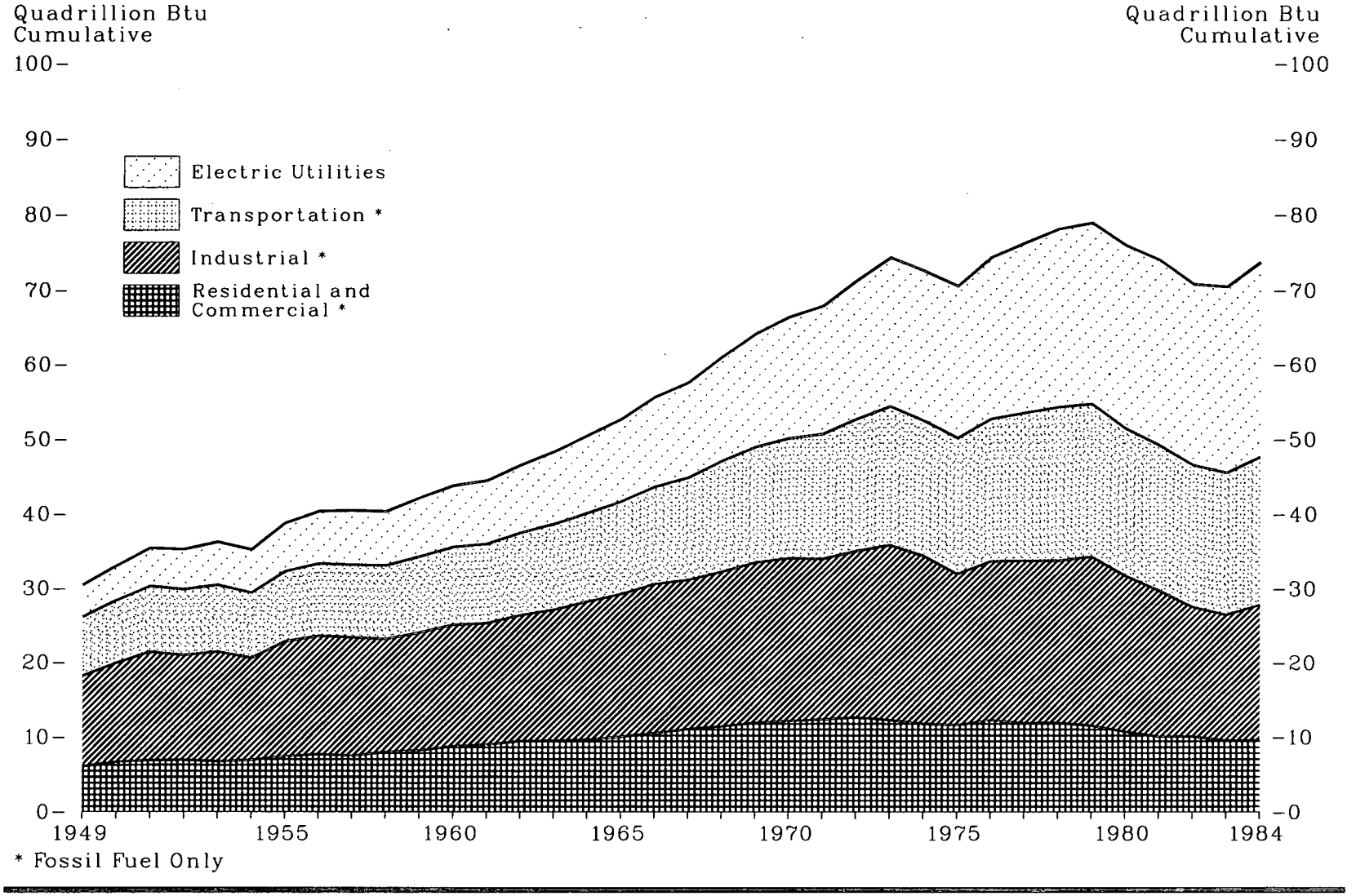


Table 4. Consumption of Energy by End-Use Sector,[1] 1949-1984

(Quadrillion Btu)

Year	Residential and Commercial		Industrial		Transportation		Electric Utilities	Total Energy Consumption
	Fossil Fuels[2]	Total[3]	Fossil Fuels[2]	Total[3]	Fossil Fuels[2]	Total[3]		
1949	6.05	8.21	12.08	14.27	7.88	7.99	4.38	30.47
1950	6.62	8.86	13.28	15.72	8.38	8.49	4.72	33.09
1951	6.87	9.31	14.50	17.14	8.93	9.04	5.12	35.48
1952	6.91	9.54	14.04	16.77	8.91	9.00	5.39	35.31
1953	6.72	9.50	14.70	17.66	9.03	9.12	5.77	36.28
1954	6.91	9.79	13.67	16.59	8.82	8.90	5.82	35.28
1955	7.38	10.41	15.42	18.87	9.48	9.55	6.52	38.83
1956	7.70	10.97	15.86	19.56	9.79	9.86	7.00	40.39
1957	7.48	10.98	15.86	19.61	9.84	9.90	7.28	40.50
1958	7.99	11.65	15.14	18.71	9.95	10.00	7.24	40.36
1959	8.19	12.16	15.79	19.64	10.30	10.35	7.84	42.15
1960	8.75	13.05	16.26	20.17	10.56	10.60	8.21	43.81
1961	8.96	13.44	16.26	20.26	10.73	10.77	8.49	44.47
1962	9.45	14.27	16.83	21.05	11.18	11.22	9.05	46.54
1963	9.48	14.72	17.56	21.96	11.62	11.65	9.64	48.34
1964	9.60	15.23	18.57	23.28	11.96	11.99	10.34	50.51
1965	10.00	16.04	19.24	24.23	12.39	12.42	11.03	52.69
1966	10.47	17.06	20.11	25.52	13.05	13.09	12.01	55.67
1967	11.04	18.11	20.10	25.74	13.70	13.73	12.71	57.58
1968	11.39	19.24	20.87	26.93	14.81	14.84	13.89	61.01
1969	11.90	20.59	21.62	28.13	15.45	15.48	15.19	64.20
1970	12.14	21.72	21.94	28.65	16.04	16.07	16.28	66.44
1971	12.35	22.60	21.68	28.60	16.67	16.70	17.16	67.90
1972	12.64	23.69	22.40	29.88	17.67	17.70	18.53	71.27
1973	12.28	24.15	23.55	31.54	18.57	18.60	19.85	74.29
1974	11.77	23.73	22.63	30.70	18.08	18.11	20.02	72.55
1975	11.60	23.90	20.37	28.41	18.20	18.24	20.35	70.55
1976	12.25	25.02	21.44	30.25	19.06	19.09	21.57	74.37
1977	11.87	25.39	21.89	31.09	19.77	19.81	22.71	76.29
1978	11.91	26.09	21.87	31.41	20.56	20.59	23.72	78.09
1979	11.53	25.81	22.78	32.62	20.43	20.47	24.13	78.90
1980	10.72	25.65	21.04	30.61	19.66	19.69	24.50	75.96
1981	10.05	25.25	19.70	29.25	19.46	19.50	24.76	73.99
1982	10.07	25.63	17.45	26.14	19.03	19.07	24.26	70.84
1983	9.54	25.44	16.88	25.91	19.11	19.15	24.93	70.50
1984[4]	9.57	25.98	18.24	27.88	19.83	19.86	26.05	73.73

[1] Data do not include consumption of wood energy (other than that consumed by the electric utility industry) which amounted to an estimated 2.6 quadrillion Btu in 1983 (see Table 86). This table also does not include small quantities of other energy forms for which consistent historical data are not available, such as geothermal, waste, wind, photovoltaic, or solar thermal energy sources except that consumed by electric utilities.

[2] Includes only those fossil fuels consumed directly in the sector (see Diagram 1).

[3] Includes those fossil fuels consumed directly in the sector, utility electricity sales to the sector, and energy losses in the conversion and transmission of electricity. Conversion and transmission losses are allocated to sectors in proportion to electricity sales to sectors (see Diagram 1).

[4] Preliminary.

Note: Sum of components may not equal total due to independent rounding.

Sources: See sources for Tables 50, 61, 67, 70, 74, 78, and EIA estimates for industrial hydroelectric power, and conversion factors in the Units of Measure and Conversion Factors section.

Figure 5. A Comparison of Fuel and Nonfuel Use of Fossil Fuels, 1980–1984

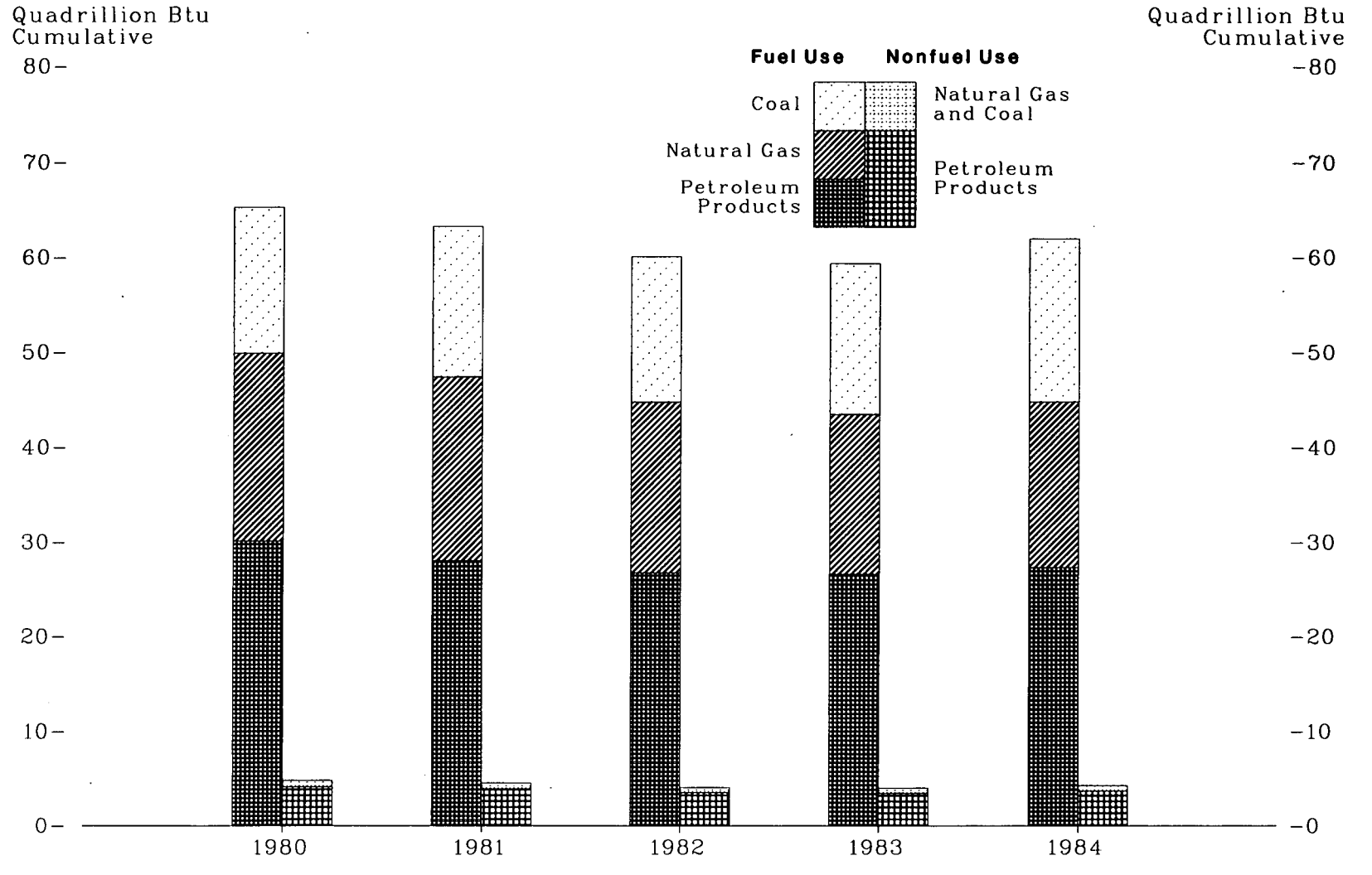


Table 5. A Comparison of Fuel and Nonfuel Use of Fossil Fuels, 1980-1984

Commodity	Physical Units					Quadrillion Btu				
	1980	1981	1982	1983	1984 [1]	1980	1981	1982	1983	1984 [1]
	Million Barrels									
Petroleum Products										
Fuel Use	5,455	5,109	4,889	4,871	5,014	30.08	28.02	26.73	26.60	27.31
Nonfuel Use										
Asphalt and Road Oil	145	125	125	136	148	0.96	0.83	0.83	0.90	0.98
Liquefied Petroleum Gases	231	230	259	267	289	0.82	0.81	0.90	0.93	1.00
Lubricants	58	56	51	53	56	0.35	0.34	0.31	0.32	0.34
Petrochemical Feedstock	253	236	169	153	152	1.43	1.33	0.95	0.86	0.86
Petroleum Coke	16	34	28	15	21	0.10	0.21	0.17	0.09	0.12
Special Naphtha	37	27	25	30	40	0.19	0.14	0.13	0.16	0.21
Wax	6	7	5	6	6	0.03	0.04	0.03	0.03	0.03
Miscellaneous	41	36	32	28	25	0.24	0.21	0.18	0.16	0.14
Total Nonfuel	788	752	694	688	735	4.13	3.91	3.50	3.45	3.69
Percent Nonfuel	12.6	12.8	12.4	12.4	12.8	12.1	12.2	11.6	11.5	11.9
	Billion Cubic Feet									
Natural Gas										
Fuel Use	19,288	18,858	17,510	16,353	16,959	19.79	19.37	18.01	16.86	17.48
Nonfuel Use										
Chemical Feedstock	589	546	491	482	530	0.60	0.56	0.50	0.50	0.55
Total Nonfuel	589	546	491	482	530	0.60	0.56	0.50	0.50	0.55
Percent Nonfuel	3.0	2.8	2.7	2.9	3.0	3.0	2.8	2.7	2.9	3.1
	Million Short Tons									
Coal										
Fuel Use	699.81	730.1	705.1	735.1	790.9	15.33	15.83	15.27	15.85	17.14
Nonfuel Use										
Crude Tar	2.3	2.1	1.4	1.2	1.5	0.08	0.08	0.05	0.04	0.05
Other	0.6	0.5	0.4	0.3	0.4	0.01	0.01	([2])	([2])	([2])
Total Nonfuel	2.9	2.5	1.8	1.5	1.9	0.10	0.08	0.05	0.05	0.06
Percent Nonfuel	0.4	0.3	0.3	0.2	0.2	0.6	0.5	0.3	0.3	0.3
Total Nonfuel Use of Fossil Fuels	—	—	—	—	—	4.82	4.55	4.05	4.00	4.30
Percent Nonfuel Use of Fossil Fuels	—	—	—	—	—	6.9	6.8	6.3	6.3	6.5

[1] Preliminary.
[2] Less than 0.01 quadrillion Btu.
— Indicates data not applicable.

Note: All nonfuel use of energy is consumed by the industrial sector except for quantities of lubricants which are consumed in the transportation sector as follows, in million barrels (and quadrillion Btu): 1980 - 32(0.19); 1981 - 28(0.16); 1982 - 25(0.15); 1983 - 26(0.16); and 1984 - 29(0.17).

Note: Sum of components may not equal total due to independent rounding.

Sources: **Petroleum Products:** • 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual* and *Sales of Liquefied Petroleum Gases and Ethane in 1980.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual* and unpublished data. • 1984—Energy Information Administration, *Petroleum Supply Monthly* and Energy Information Administration estimates. **Natural Gas:** • 1980— Bureau of the Census, 1980 Survey of Manufactures, *Hydrocarbon, Coal, and Coke Materials Consumed.* • 1981 through 1984—Department of Commerce estimates. **Coal:** • 1980—Energy Information Administration, *Coke and Coal Chemicals in 1980.* • 1981—Energy Information Administration, Energy Data Report, *Coke Plant Report,* quarterly. • 1982 through 1984—Energy Information Administration, *Quarterly Coal Report* and Energy Information Administration estimates.

Figure 6. Trade in Energy, 1953-1984

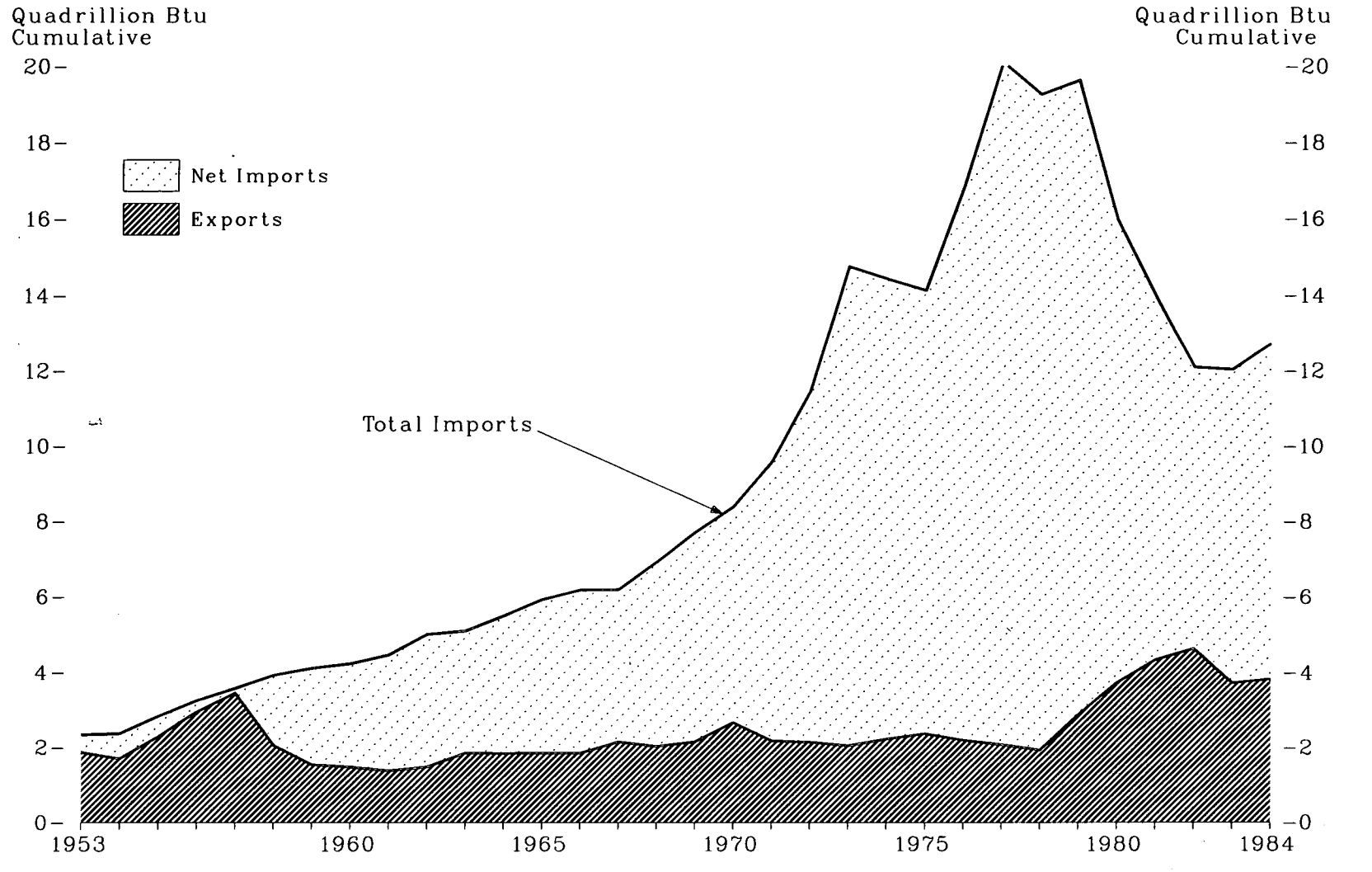


Table 6. Trade in Energy, 1949-1984

(Quadrillion Btu)

Year	Imports					Exports					Net Trade [1]				
	Coal	Petroleum [2]	Natural Gas (Dry)	Other [3]	Total	Coal	Petroleum	Natural Gas (Dry)	Other [3]	Total	Coal	Petroleum [2]	Natural Gas (Dry)	Other [3]	Total
1949	0.01	1.43	(4)	0.03	1.47	0.88	0.68	0.02	0.02	1.59	0.87	-0.75	0.02	-0.02	0.13
1950	0.01	1.89	(4)	0.04	1.93	0.79	0.64	0.03	0.01	1.47	0.78	-1.24	0.03	-0.03	-0.47
1951	0.01	1.87	(4)	0.04	1.92	1.68	0.89	0.03	0.03	2.62	1.67	-0.98	0.03	-0.01	0.71
1952	0.01	2.11	0.01	0.04	2.17	1.40	0.91	0.03	0.02	2.37	1.40	-1.20	0.02	-0.02	0.20
1953	0.01	2.28	0.01	0.04	2.34	0.98	0.84	0.03	0.02	1.87	0.97	-1.44	0.02	-0.02	-0.47
1954	0.01	2.32	0.01	0.04	2.37	0.91	0.75	0.03	0.01	1.70	0.91	-1.58	0.02	-0.02	-0.67
1955	0.01	2.75	0.01	0.06	2.83	1.46	0.77	0.03	0.02	2.29	1.46	-1.98	0.02	-0.04	-0.54
1956	0.01	3.17	0.01	0.06	3.25	1.98	0.91	0.04	0.02	2.95	1.98	-2.26	0.03	-0.04	-0.30
1957	0.01	3.46	0.04	0.06	3.57	2.17	1.20	0.04	0.03	3.45	2.16	-2.26	(4)	-0.02	-0.12
1958	0.01	3.72	0.14	0.05	3.92	1.42	0.58	0.04	0.02	2.06	1.41	-3.14	-0.10	-0.03	-1.86
1959	0.01	3.91	0.14	0.05	4.11	1.05	0.45	0.02	0.02	1.54	1.04	-3.46	-0.12	-0.03	-2.57
1960	0.01	4.00	0.16	0.06	4.23	1.02	0.43	0.01	0.02	1.48	1.02	-3.57	-0.15	-0.04	-2.74
1961	(4)	4.19	0.23	0.04	4.46	0.98	0.37	0.01	0.02	1.38	0.98	-3.82	-0.22	-0.02	-3.08
1962	0.01	4.56	0.42	0.03	5.01	1.08	0.36	0.02	0.03	1.48	1.08	-4.20	-0.40	- (4)	-3.53
1963	0.01	4.65	0.42	0.03	5.10	1.36	0.44	0.02	0.03	1.85	1.35	-4.21	-0.40	0.01	-3.25
1964	0.01	4.96	0.46	0.07	5.49	1.34	0.43	0.02	0.06	1.84	1.33	-4.53	-0.44	-0.01	-3.65
1965	0.00	5.40	0.47	0.04	5.92	1.38	0.39	0.03	0.06	1.85	1.37	-5.01	-0.44	0.02	-4.06
1966	(4)	5.63	0.50	0.05	6.18	1.35	0.41	0.03	0.06	1.85	1.35	-5.21	-0.47	0.01	-4.32
1967	0.01	5.56	0.58	0.04	6.19	1.35	0.65	0.08	0.06	2.15	1.35	-4.91	-0.50	0.02	-4.04
1968	0.01	6.21	0.67	0.04	6.93	1.38	0.49	0.10	0.06	2.03	1.37	-5.73	-0.58	0.02	-4.90
1969	(4)	6.90	0.75	0.06	7.71	1.53	0.49	0.05	0.08	2.15	1.53	-6.42	-0.70	0.02	-5.56
1970	(4)	7.47	0.85	0.07	8.39	1.94	0.55	0.07	0.11	2.66	1.93	-6.92	-0.77	0.04	-5.72
1971	(4)	8.54	0.96	0.08	9.58	1.55	0.47	0.08	0.07	2.18	1.54	-8.07	-0.88	- (4)	-7.41
1972	(4)	10.30	1.05	0.11	11.46	1.53	0.47	0.08	0.06	2.14	1.53	-9.83	-0.97	-0.05	-9.32
1973	(4)	13.47	1.06	0.20	14.73	1.43	0.49	0.08	0.06	2.05	1.42	-12.98	-0.98	-0.14	-12.68
1974	0.05	13.13	0.99	0.25	14.41	1.62	0.46	0.08	0.06	2.22	1.57	-12.66	-0.91	-0.19	-12.19
1975	0.02	12.95	0.98	0.16	14.11	1.76	0.44	0.07	0.08	2.36	1.74	-12.51	-0.90	-0.08	-11.75
1976	0.03	15.67	0.99	0.15	16.84	1.60	0.47	0.07	0.06	2.19	1.57	-15.20	-0.92	-0.09	-14.65
1977	0.04	18.76	1.04	0.26	20.09	1.44	0.51	0.06	0.06	2.07	1.40	-18.24	-0.98	-0.20	-18.02
1978	0.07	17.82	0.99	0.36	19.25	1.08	0.77	0.05	0.03	1.93	1.00	-17.06	-0.94	-0.33	-17.32
1979	0.05	17.93	1.30	0.33	19.62	1.75	1.00	0.06	0.06	2.87	1.70	-16.93	-1.24	-0.27	-16.75
1980	0.03	14.66	1.01	0.28	15.97	2.42	1.16	0.05	0.09	3.72	2.39	-13.50	-0.96	-0.18	-12.25
1981	0.03	12.64	0.92	0.39	13.97	2.94	1.26	0.06	0.06	4.33	2.92	-11.38	-0.86	-0.33	-9.65
1982	0.02	10.78	0.95	0.35	12.09	2.79	1.73	0.05	0.06	4.63	2.77	-9.05	-0.90	-0.28	-7.46
1983	0.03	10.65	0.94	0.40	12.03	2.04	1.57	0.06	0.05	3.72	2.01	-9.08	-0.89	-0.35	-8.31
1984[5]	0.03	11.35	0.88	0.45	12.71	2.15	1.55	0.06	0.06	3.82	2.12	-9.80	-0.83	-0.39	-8.89

[1] Net trade = exports minus imports.
[2] Includes imports into the Strategic Petroleum Reserve which began in 1977.
[3] Coal coke and small amounts of electricity transmitted across U.S. borders with Canada and Mexico.
[4] Less than 0.005 quadrillion Btu.
[5] Preliminary.
Note: Sum of components may not equal totals or net trade items due to independent rounding.
Note: Includes trade between the United States (50 States and the District of Columbia) and its territories and possessions.
Source: See sources for Tables 39, 43, 60, 65, 70, and 73 and conversion factors in the Units of Measure and Conversion Factors section.

Figure 7. Production of Fossil Fuels on Federally Administered Lands, 1949-1983

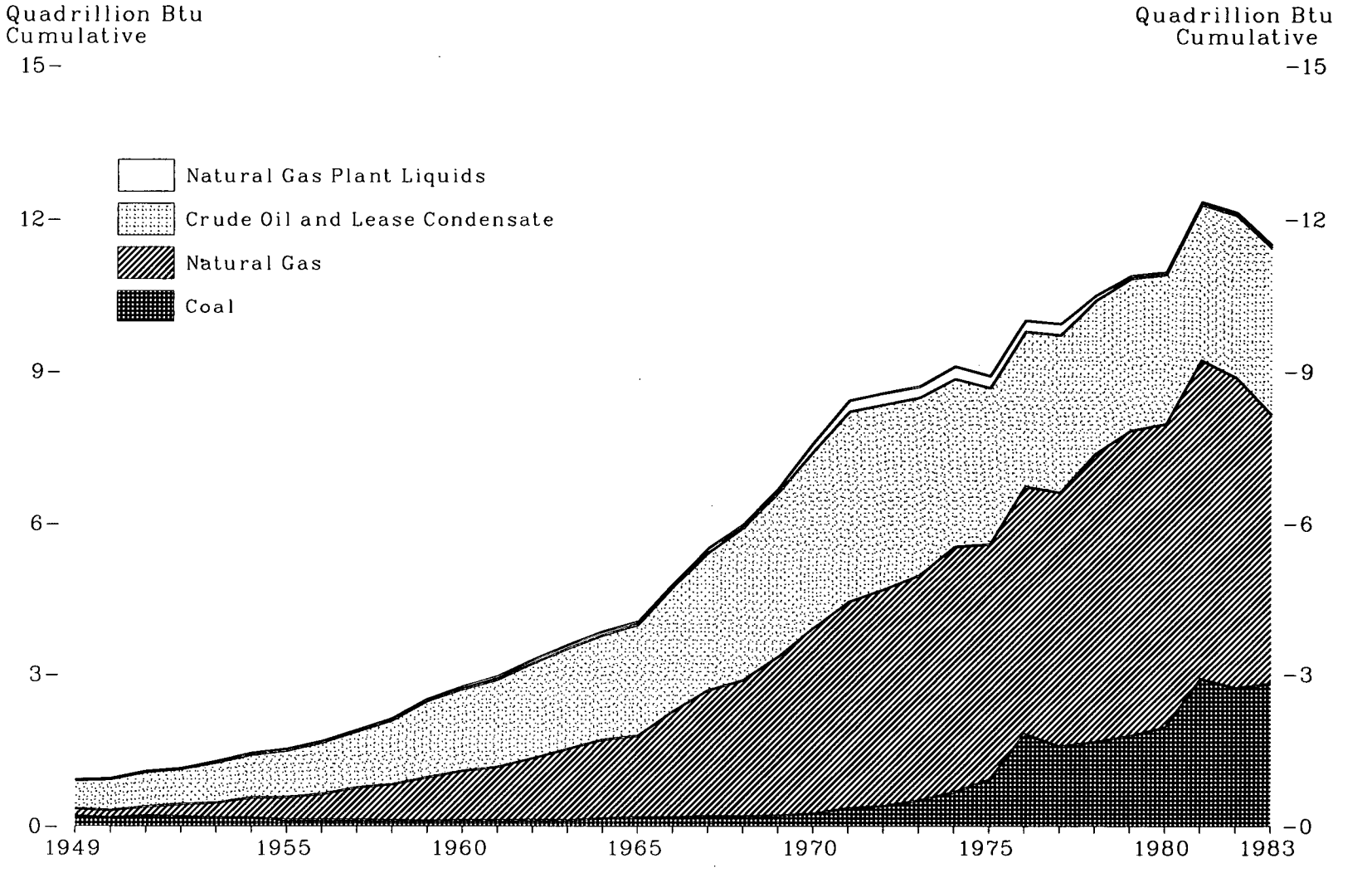


Table 7. Production of Fossil Fuels on Federally Administered Lands, 1949-1983

Year	Crude Oil and Lease Condensate [1]			Natural Gas Plant Liquids [2]			Natural Gas [3]			Coal [4]			Total	
	Million Barrels	Quadrillion Btu	Percent U.S. Total [5]	Million Barrels	Quadrillion Btu	Percent U.S. Total [5]	Trillion Cubic Feet	Quadrillion Btu	Percent U.S. Total [5]	Million Short Tons	Quadrillion Btu	Percent U.S. Total [5]	Quadrillion Btu	Percent U.S. Total
1949	95.2	0.55	5.2	4.4	0.02	2.8	0.15	0.15	2.8	9.5	0.20	2.0	0.92	3.2
1950	105.9	0.61	5.4	4.4	0.02	2.4	0.14	0.15	2.4	7.7	0.16	1.4	0.94	2.9
1951	117.3	0.68	5.2	5.3	0.02	2.6	0.17	0.18	2.4	9.3	0.20	1.6	1.08	3.0
1952	118.7	0.69	5.2	5.5	0.02	2.5	0.25	0.25	3.2	8.7	0.18	1.7	1.15	3.3
1953	136.9	0.79	5.8	5.7	0.03	2.4	0.29	0.30	3.6	7.5	0.16	1.5	1.28	3.6
1954	146.5	0.85	6.3	6.1	0.03	2.4	0.39	0.40	4.6	7.4	0.16	1.8	1.43	4.2
1955	159.5	0.92	6.4	6.0	0.03	2.1	0.43	0.45	4.8	5.9	0.12	1.2	1.53	4.1
1956	174.1	1.01	6.7	6.4	0.03	2.2	0.49	0.51	5.1	5.8	0.12	1.1	1.67	4.2
1957	189.4	1.10	7.2	6.6	0.03	2.2	0.62	0.64	6.1	5.7	0.12	1.1	1.89	4.7
1958	216.8	1.26	8.9	8.0	0.04	2.7	0.69	0.71	6.5	5.3	0.11	1.2	2.11	5.7
1959	258.2	1.50	10.0	9.5	0.04	3.0	0.83	0.86	7.2	4.9	0.10	1.1	2.50	6.4
1960	277.3	1.61	10.8	11.6	0.05	3.4	0.95	0.98	7.8	5.2	0.11	1.2	2.75	6.9
1961	297.3	1.72	11.3	13.5	0.06	3.7	1.03	1.06	8.1	5.2	0.11	1.2	2.95	7.3
1962	321.7	1.87	12.0	15.3	0.07	4.1	1.18	1.22	8.9	5.8	0.12	1.3	3.27	7.8
1963	342.8	1.99	12.5	16.0	0.07	4.0	1.37	1.41	9.7	5.4	0.11	1.1	3.58	8.1
1964	356.0	2.07	12.8	15.5	0.07	3.7	1.51	1.55	10.2	7.1	0.15	1.4	3.84	8.4
1965	378.6	2.20	13.3	14.3	0.06	3.2	1.56	1.61	10.2	8.2	0.17	1.6	4.04	8.5
1966	426.7	2.47	14.1	15.2	0.06	3.2	2.02	2.09	12.3	8.3	0.17	1.5	4.80	9.6
1967	472.6	2.74	14.7	20.1	0.09	3.9	2.41	2.48	13.8	9.5	0.20	1.7	5.51	10.5
1968	523.7	3.04	15.7	13.7	0.06	2.5	2.61	2.69	14.1	9.1	0.19	1.6	5.97	11.0
1969	563.8	3.27	16.7	19.9	0.08	3.4	3.05	3.14	15.4	10.1	0.21	1.8	6.70	11.9
1970	605.6	3.51	17.2	40.6	0.17	6.7	3.56	3.67	16.9	12.0	0.25	2.0	7.60	12.8
1971	648.9	3.76	18.8	54.0	0.22	8.7	3.95	4.08	18.3	17.3	0.36	3.1	8.42	14.5
1972	630.5	3.66	18.2	56.7	0.23	8.9	4.17	4.28	19.3	19.0	0.40	3.1	8.56	14.5
1973	604.3	3.51	18.0	54.9	0.22	8.7	4.37	4.46	20.1	24.2	0.51	4.1	8.70	14.9
1974	570.2	3.31	17.8	61.9	0.25	10.1	4.75	4.87	22.9	32.1	0.67	5.3	9.10	16.1
1975	531.5	3.08	17.4	59.7	0.24	10.0	4.57	4.67	23.8	43.6	0.92	6.7	8.90	16.3
1976	525.7	3.05	17.7	57.2	0.23	9.7	4.81	4.91	25.2	86.4	1.82	12.6	10.00	18.3
1977	535.0	3.10	17.8	57.4	0.23	9.7	4.94	5.04	25.8	74.8	1.57	10.7	9.94	18.0
1978	523.6	3.04	16.5	25.9	0.10	4.5	5.60	5.71	29.3	79.2	1.66	11.8	10.51	19.1
1979	519.8	3.01	16.7	11.9	0.05	2.1	5.93	6.05	30.1	84.9	1.78	10.9	10.89	18.8
1980	510.4	2.96	16.2	10.5	0.04	1.8	5.85	6.01	30.2	92.9	1.95	11.2	10.96	18.6
1981	529.3	3.07	16.9	12.3	0.05	2.1	6.15	6.31	32.1	138.8	2.91	16.8	12.35	21.1
1982	552.3	3.20	17.5	15.0	0.06	2.7	5.97	6.14	33.6	130.0	2.73	15.5	12.13	21.1
1983	568.8	3.30	17.9	14.0	0.05	2.5	5.17	5.33	32.3	133.9	2.81	17.1	11.50	21.2

[1] Production from Naval Petroleum Reserve No. 1 (NPR#1) for 1974 and earlier years is for fiscal years (July through June).

[2] Includes only those quantities for which the royalties were paid based on the value of the natural gas plant liquids produced. Additional quantities of natural gas plant liquids were produced; however, the royalties paid were based on the value of natural gas processed. These latter quantities are included with natural gas.

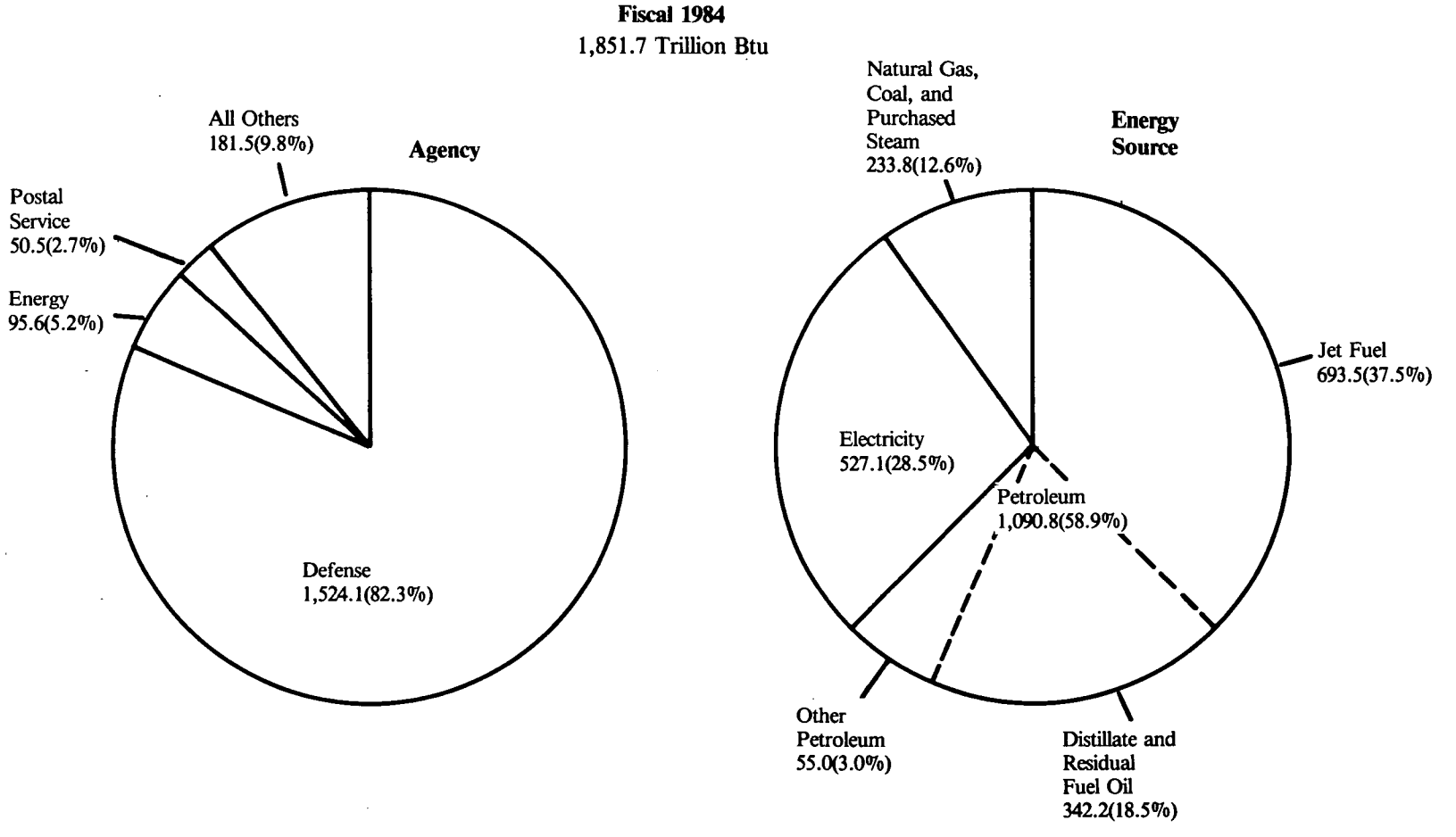
[3] Includes same quantities of natural gas processed into liquids at natural gas processing plants and fractionators.

[4] Converted to British thermal units (Btu) based on an estimated heat content of coal produced on federally administered lands of 21.0 million Btu per short ton.

[5] Based on physical units.

Sources: **Coal:** •1949 through 1980—U.S. Geological Survey, *Coal, Phosphate, Potash, Sodium, and Other Mineral Production, Royalty Income, and Related Statistics,* June 1981. •1981 through 1983—U.S. Minerals Management Service, *Royalties-A Report on Federal and Indian Mineral Revenues* and *Mineral Revenues - The 1983 Report on Receipts from Federal and Indian Leases.* **Other:** •1949 through 1980—U.S. Geological Survey, *Oil and Gas Production, Royalty Income, and Related Statistics,* June 1981; Department of Energy, Office of Petroleum and Oil Shale Reserves, unpublished data, and U.S. Geological Survey, National Petroleum Reserve in Alaska, unpublished data. •1981 through 1983—U.S. Minerals Management Service, *Royalties-A Report on Federal and Indian Mineral Revenues, Mineral Revenues - The 1983 Report on Receipts from Federal and Indian Leases,* and unpublished data; Department of Energy, Office of Petroleum and Oil Shale Reserves, unpublished data; and U.S. Geological Survey, National Petroleum Reserve in Alaska, unpublished data.

Figure 8. U.S. Government Energy Use, Fiscal Year 1984



Note: Sum of components may not equal total due to independent rounding.

Table 8. U.S. Government Energy Use, Fiscal Years 1975-1984
(Trillion Btu)

Activity	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984 [1]
Agency										
Defense	1,554.1	1,386.8	1,398.4	1,365.7	1,384.6	1,394.8	1,455.4	1,484.3	1,475.1	1,524.1
Energy	85.2	87.2	87.9	87.1	86.9	84.0	85.3	89.1	91.3	95.6
Postal Service	59.2	58.3	62.9	58.6	56.0	52.3	50.9	49.4	48.4	50.5
General Services Administration	43.0	41.1	41.1	41.2	40.5	38.9	39.1	38.9	37.8	38.0
Veterans Administration	39.2	36.5	37.9	39.4	38.5	38.2	37.4	38.0	38.7	40.0
Transportation	28.5	27.4	28.8	28.9	27.6	27.6	28.0	28.5	28.7	28.6
NASA	26.4	25.1	24.0	22.4	22.4	21.4	21.2	21.8	22.4	23.0
Agriculture	11.9	11.6	10.8	11.2	11.6	11.2	10.9	10.4	10.4	11.5
Interior	12.3	13.1	13.5	12.3	13.6	11.7	10.7	10.7	10.8	11.8
Health and Human Services	9.3	9.6	9.9	9.6	9.7	9.5	10.6	10.2	10.3	10.9
Labor	1.6	1.6	1.8	1.7	1.7	1.8	3.6	4.5	4.3	4.1
Other [2]	13.1	13.9	14.6	15.8	15.6	15.2	13.9	7.9	9.1	13.9
Total	1,883.8	1,712.3	1,731.6	1,694.1	1,708.7	1,706.6	1,766.9	1,793.6	1,787.5	1,851.7
Energy Source										
Petroleum										
Motor Gasoline	60.8	58.4	59.5	58.2	57.0	54.7	51.5	49.5	48.2	49.4
Aviation Gasoline	19.7	11.6	8.8	6.2	4.7	4.9	4.6	3.5	2.5	1.8
Jet Fuel	703.9	610.0	619.2	601.1	618.6	638.7	653.3	672.6	673.2	693.5
Distillate and Residual Fuel Oil	365.2	328.9	347.7	331.3	326.3	307.2	350.9	348.6	329.0	342.2
Liquefied Petroleum Gases	5.4	4.7	4.1	3.0	3.7	3.8	3.5	3.6	3.8	3.8
Subtotal	1,155.0	1,013.6	1,039.3	999.8	1,010.3	1,009.3	1,063.8	1,077.8	1,056.7	1,090.7
Electricity	479.4	471.5	477.4	477.2	477.6	479.7	489.0	495.5	510.9	527.1
Natural Gas	164.3	150.0	139.3	142.8	146.9	145.3	140.3	143.6	145.5	155.0
Coal	77.5	70.9	67.9	65.6	64.2	63.2	64.7	68.2	62.1	64.9
Purchased Steam	7.6	6.3	7.8	8.7	9.7	9.1	9.1	8.4	12.3	13.9
Total	1,883.8	1,712.3	1,731.6	1,694.1	1,708.7	1,706.6	1,766.9	1,793.6	1,787.5	1,851.7

[1] Preliminary.
[2] Includes Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, National Science Foundation, Department of Housing and Urban Development, Department of State, Department of Treasury, Office of Personnel Management, Interstate Commerce Commission, Small Business Administration, Federal Communications Commission, Civil Aeronautics Board, and Environmental Protection Agency. 1982 data do not include the Environmental Protection Agency and the Department of Treasury. 1983 data do not include the Department of Treasury.
Note: Sum of components may not equal total due to independent rounding.
Note: These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. However, other energy used by U.S. agencies that produce electricity or enrich uranium is included.
Source: Department of Energy Form DOE 6200.2, "Quarterly Federal Energy Usage Report."

Figure 9. U.S. Government Energy Use by Agency, by Source, Fiscal Year 1984

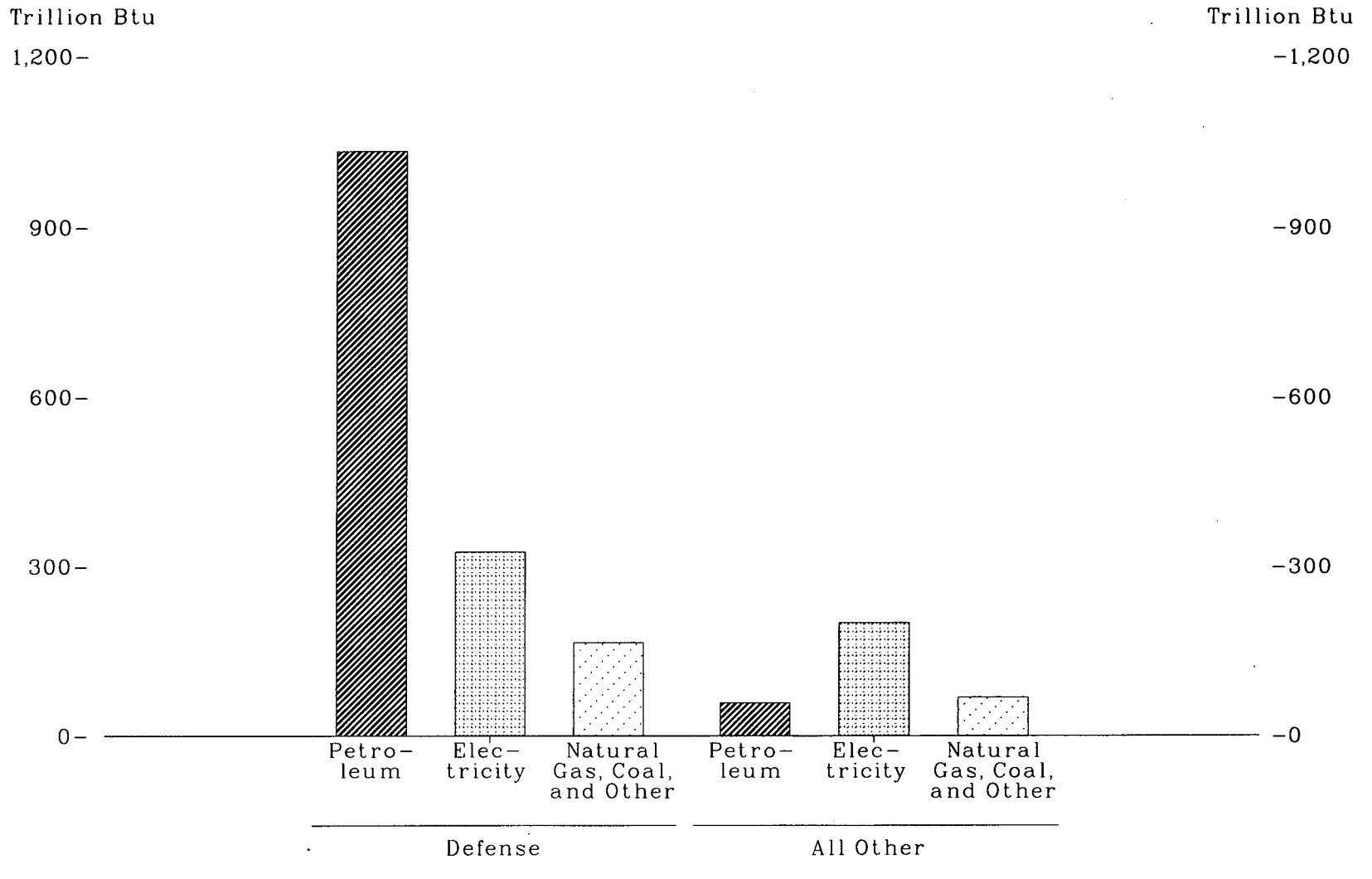


Table 9. U.S. Government Energy Use by Agency, by Source, Fiscal Years 1975 and 1984

(Trillion Btu)

	Petroleum							
	Motor Gasoline	Distillate and Residual Fuel Oils	Other [1]	Total	Electricity	Natural Gas	Coal and Other [2]	Total
1975								
Defense	34.3	327.7	720.6	1,082.6	296.3	120.1	55.1	1,554.1
Energy	1.3	5.2	0.3	6.8	49.2	9.8	19.4	85.2
Postal Service	10.3	4.6	0.7	15.6	40.5	2.5	0.6	59.2
General Services Administration	0.2	2.6	0	2.7	29.3	4.9	6.1	43.0
Veterans Administration	0.6	5.6	[3]	6.2	16.6	14.6	1.8	39.2
Transportation	1.5	7.8	4.7	14.0	12.9	1.3	0.3	28.5
NASA	0.4	1.8	1.2	3.4	17.9	3.9	1.2	26.4
Agriculture	4.6	1.4	0.5	6.6	3.4	2.0	[3]	11.9
Interior	2.6	2.9	0.7	6.1	4.1	2.0	0.1	12.3
Health and Human Services	0.7	2.8	0.1	3.7	3.9	1.6	0.1	9.3
Labor	0.2	0.2	0	0.4	0.4	0.8	0	1.6
Other [4]	3.9	2.8	0.2	6.9	4.9	0.8	0.4	13.1
Total	60.8	365.2	729.0	1,155.0	479.4	164.3	85.1	1,883.8
1984 [5]								
Defense	25.9	316.2	690.3	1,032.4	326.2	115.0	50.5	1,524.1
Energy	1.4	3.7	0.6	5.8	62.2	7.1	20.5	95.6
Postal Service	9.9	2.9	0.2	12.9	32.0	4.8	0.7	50.5
General Services Administration	0.1	1.1	0	1.2	29.4	3.3	4.2	38.0
Veterans Administration	0.5	2.5	[3]	3.1	21.3	14.3	1.3	40.0
Transportation	1.3	7.8	4.8	14.0	13.1	1.2	0.3	28.6
NASA	0.3	0.8	1.5	2.6	17.2	2.5	0.6	23.0
Agriculture	4.3	0.7	0.4	5.3	4.5	1.6	[3]	11.5
Interior	2.2	1.8	0.8	4.8	4.7	1.8	0.5	11.8
Health and Human Services	0.4	2.6	0.1	3.1	6.3	1.5	[3]	10.9
Labor	0.1	0.5	0.1	0.7	2.4	0.9	0.1	4.1
Other [4]	2.9	1.7	0.3	4.9	7.7	1.1	0.1	13.9
Total	49.4	342.2	699.1	1,090.8	527.1	155.0	78.9	1,851.7

[1] Includes aviation gasoline, jet fuel, and liquefied petroleum gases.
[2] Includes purchased steam.
[3] Less than 50 billion Btu.
[4] Includes Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, National Science Foundation, Department of Housing and Urban Development, Department of State, Department of Treasury, Office of Personnel Management, Interstate Commerce Commission, Small Business Administration, Federal Communications Commission, Civil Aeronautics Board, and Environmental Protection Agency.
[5] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Note: These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. However, other energy used by U.S. agencies that produce electricity or enrich uranium is included.
Source: Department of Energy Form DOE 6200.2, "Quarterly Federal Energy Usage Report."

Figure 10. Value of Fossil Fuel Production, 1949-1984

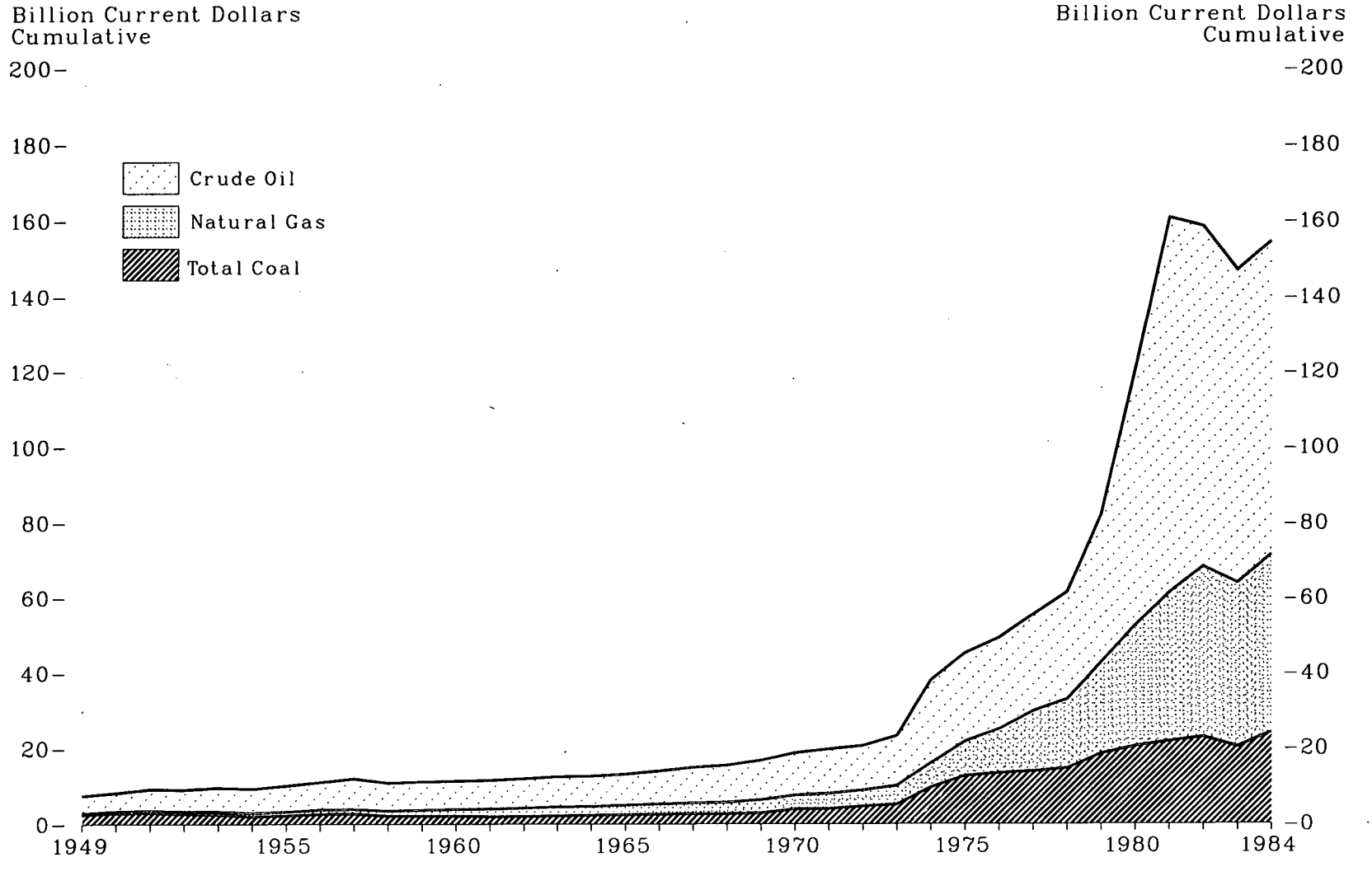


Table 10. Value of Fossil Fuel Production, 1949-1984

(Billion Dollars)

Year	Crude Oil [1]		Natural Gas (Marketed Production)		Bituminous Coal, Subbituminous Coal, and Lignite		Anthracite		Total	
	Current	Constant [2]	Current	Constant [2]	Current	Constant [2]	Current	Constant [2]	Current	Constant [2]
1949	4.68	8.92	0.33	0.63	2.14	4.08	0.38	0.72	7.53	14.35
1950	4.95	9.24	0.44	0.82	2.50	4.67	0.41	0.77	8.30	15.50
1951	5.69	9.97	0.52	0.91	2.63	4.61	0.42	0.74	9.26	16.23
1952	5.79	10.00	0.64	1.10	2.29	3.95	0.39	0.67	9.11	15.72
1953	6.32	10.74	0.76	1.29	2.25	3.83	0.31	0.53	9.64	16.39
1954	6.44	10.81	0.87	1.46	1.77	2.97	0.25	0.42	9.33	15.66
1955	6.88	11.31	0.94	1.55	2.09	3.44	0.21	0.35	10.12	16.65
1956	7.30	11.63	1.11	1.77	2.41	3.84	0.24	0.38	11.06	17.62
1957	8.09	12.46	1.17	1.80	2.50	3.85	0.23	0.35	11.99	18.46
1958	7.37	11.16	1.32	2.00	1.99	3.01	0.19	0.29	10.87	16.46
1959	7.47	11.05	1.57	2.32	1.97	2.91	0.18	0.27	11.19	16.55
1960	7.42	10.80	1.79	2.61	1.95	2.84	0.15	0.22	11.31	16.47
1961	7.58	10.93	1.99	2.87	1.85	2.67	0.14	0.20	11.56	16.67
1962	7.76	10.99	2.22	3.14	1.89	2.68	0.13	0.18	12.00	16.99
1963	7.96	11.11	2.36	3.29	2.01	2.80	0.16	0.22	12.49	17.42
1964	8.03	11.03	2.33	3.20	2.17	2.98	0.15	0.21	12.68	17.42
1965	8.15	10.96	2.57	3.46	2.27	3.05	0.13	0.17	13.12	17.64
1966	8.72	11.36	2.75	3.58	2.42	3.15	0.10	0.13	13.99	18.22
1967	9.39	11.88	2.91	3.68	2.55	3.23	0.10	0.13	14.95	18.92
1968	9.79	11.86	3.09	3.74	2.55	3.09	0.10	0.12	15.53	18.81
1969	10.42	12.01	3.52	4.06	2.80	3.23	0.10	0.12	16.84	19.42
1970	11.19	12.24	3.73	4.08	3.77	4.12	0.11	0.12	18.80	20.56
1971	11.71	12.20	4.05	4.22	3.90	4.06	0.11	0.11	19.77	20.59
1972	11.71	11.71	4.28	4.28	4.56	4.56	0.09	0.09	20.64	20.64
1973	13.07	12.36	4.98	4.71	5.05	4.78	0.09	0.09	23.19	21.94
1974	22.00	19.12	6.48	5.63	9.50	8.26	0.15	0.13	38.13	33.14
1975	23.45	18.64	9.05	7.19	12.47	9.91	0.20	0.16	45.17	35.90
1976	24.37	18.41	11.57	8.74	13.19	9.97	0.21	0.16	49.34	37.28
1977	25.79	18.41	15.82	11.30	13.70	9.78	0.20	0.14	55.51	39.63
1978	28.60	19.01	18.18	12.09	14.49	9.63	0.18	0.12	61.45	40.85
1979	39.45	24.14	24.16	14.78	18.36	11.23	0.20	0.12	82.17	50.27
1980	67.93	38.07	32.09	17.99	20.20	11.32	0.26	0.15	120.48	67.53
1981	99.40	50.82	39.51	20.20	21.51	11.00	0.24	0.12	160.66	82.14
1982	90.03	43.41	45.56	21.97	22.62	10.91	0.23	0.11	158.44	76.40
1983	83.05	38.57	43.57	20.23	20.11	9.34	0.21	0.10	146.94	68.24
1984[3]	82.92	37.11	47.51	21.26	23.93	10.71	0.22	0.10	154.58	69.18

[1] Includes lease condensate.
[2] Constant 1972 dollars calculated using GNP implicit price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section.
[3] Preliminary.
Note: Value is based on fuel prices taken as close as possible to the point of production.
Sources: See Tables 40, 54, 60, 63, 66, and 72.

Figure 11. Fossil Fuel Prices, 1949-1984

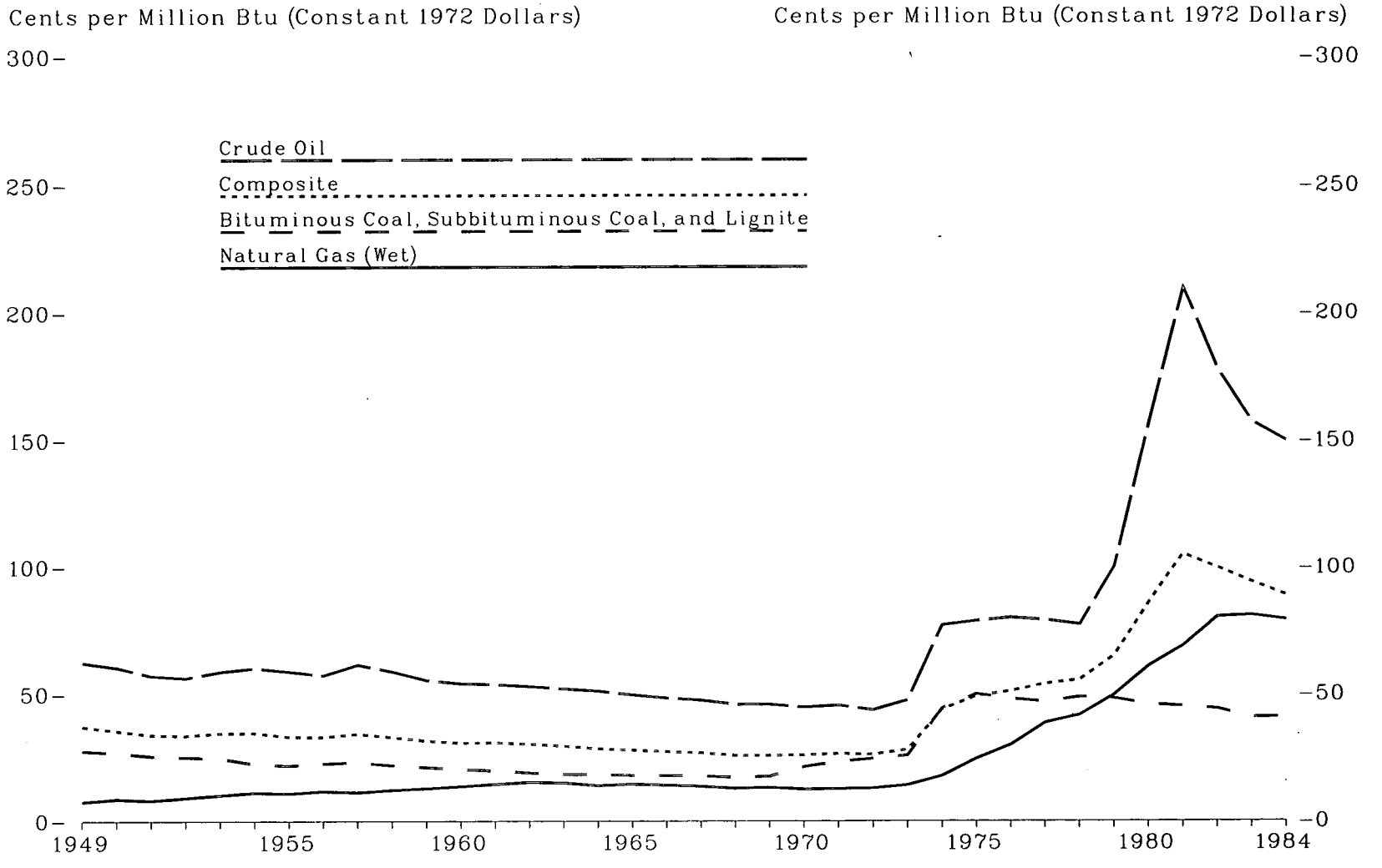


Table 11. Fossil Fuel Prices, 1949-1984

(Cents per Million Btu)

Year	Crude Oil [1]		Natural Gas [2]		Bituminous Coal, Subbituminous Coal, and Lignite		Anthracite		Composite [3]	
	Current	Constant [4]	Current	Constant [4]	Current	Constant [4]	Current	Constant [4]	Current	Constant [4]
1949	43.8	83.4	5.4	10.3	19.5	37.1	36.0	68.6	26.2	49.9
1950	43.3	80.8	6.3	11.8	19.3	36.0	37.5	70.0	25.5	47.6
1951	43.6	76.4	6.3	11.0	19.6	34.3	40.2	70.4	25.9	45.4
1952	43.6	75.3	7.2	12.4	19.5	33.7	38.9	67.2	26.1	45.1
1953	46.2	78.5	8.1	13.8	19.5	33.2	40.2	68.3	27.3	46.4
1954	47.9	80.4	9.0	15.1	18.0	30.2	35.6	59.8	27.7	46.5
1955	47.8	78.6	8.9	14.6	17.8	29.3	32.6	53.6	27.1	44.5
1956	48.1	76.6	9.9	15.8	19.1	30.4	34.2	54.5	27.8	44.3
1957	53.3	82.1	9.9	15.2	20.1	31.0	37.6	57.9	29.9	46.0
1958	51.9	78.6	10.8	16.4	19.4	29.4	37.3	56.5	29.2	44.2
1959	50.0	74.0	11.7	17.3	19.1	28.3	35.1	51.9	28.6	42.3
1960	49.7	72.3	12.6	18.3	18.8	27.4	33.0	48.0	28.3	41.2
1961	49.8	71.8	13.5	19.5	18.4	26.5	33.8	48.8	28.6	41.3
1962	50.0	70.8	14.5	20.5	18.0	25.5	32.8	46.5	28.7	40.6
1963	49.8	69.5	14.5	20.2	17.6	24.6	35.7	49.8	28.3	39.5
1964	49.7	68.3	13.6	18.7	17.9	24.6	37.0	50.8	27.7	38.1
1965	49.3	66.3	14.5	19.5	17.9	24.1	35.3	47.5	27.7	37.3
1966	49.7	64.7	14.5	18.9	18.4	24.0	33.7	43.9	28.0	36.5
1967	50.3	63.6	14.5	18.3	18.8	23.8	34.7	43.9	28.4	35.9
1968	50.7	61.4	14.3	17.3	19.1	23.1	37.6	45.6	28.5	34.5
1969	53.3	61.4	15.4	17.7	20.5	23.6	42.3	48.7	29.9	34.5
1970	54.8	59.9	15.4	16.8	26.2	28.6	47.1	51.5	31.7	34.7
1971	58.4	60.8	16.3	17.0	30.0	31.2	51.4	53.5	34.0	35.4
1972	58.4	58.4	17.3	17.3	32.8	32.8	52.9	52.9	35.0	35.0
1973	67.1	63.5	20.1	19.0	36.5	34.5	58.9	55.7	39.8	37.6
1974	118.4	102.9	27.3	23.7	68.2	59.3	98.4	85.5	67.6	58.7
1975	132.2	105.1	41.1	32.7	83.9	66.7	144.1	114.6	82.5	65.6
1976	141.2	106.7	53.1	40.1	85.0	64.2	149.0	112.6	90.2	68.2
1977	147.8	105.5	72.3	51.6	87.7	62.6	150.4	107.4	100.8	72.0
1978	155.2	103.2	83.6	55.6	97.9	65.1	149.9	99.7	111.5	74.1
1979	217.9	133.3	108.1	66.1	105.3	64.4	174.1	106.5	141.7	86.7
1980	372.2	208.6	144.8	81.2	109.4	61.3	182.1	102.1	204.1	114.4
1981	547.8	280.1	179.5	91.8	117.9	60.3	186.9	95.6	274.5	140.3
1982	491.7	237.1	222.2	107.1	122.1	58.9	210.4	101.5	275.8	133.0
1983	451.6	209.7	232.3	107.9	117.2	54.4	225.0	104.5	270.1	125.4
1984[5]	446.0	199.6	235.9	105.6	122.1	54.6	236.7	105.9	264.6	118.4

[1] Includes lease condensate.
[2] Wet natural gas, prior to extraction of natural gas plant liquids.
[3] Derived by multiplying the price per Btu of each fossil fuel by the total Btu content of the production of each fossil fuel and dividing this accumulated value of total fossil fuel production by the accumulated Btu content of total fossil fuel production.
[4] Constant 1972 prices calculated using GNP implicit price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section.
[5] Preliminary.
Note: All fuel prices taken as close as possible to the point of production.
Sources: See sources for Tables 54, 63, and 72 and the GNP implicit price deflators in the Energy Equivalents and Price Deflators section.

Figure 12. Expenditures for Fuels and Electricity, 1970-1982

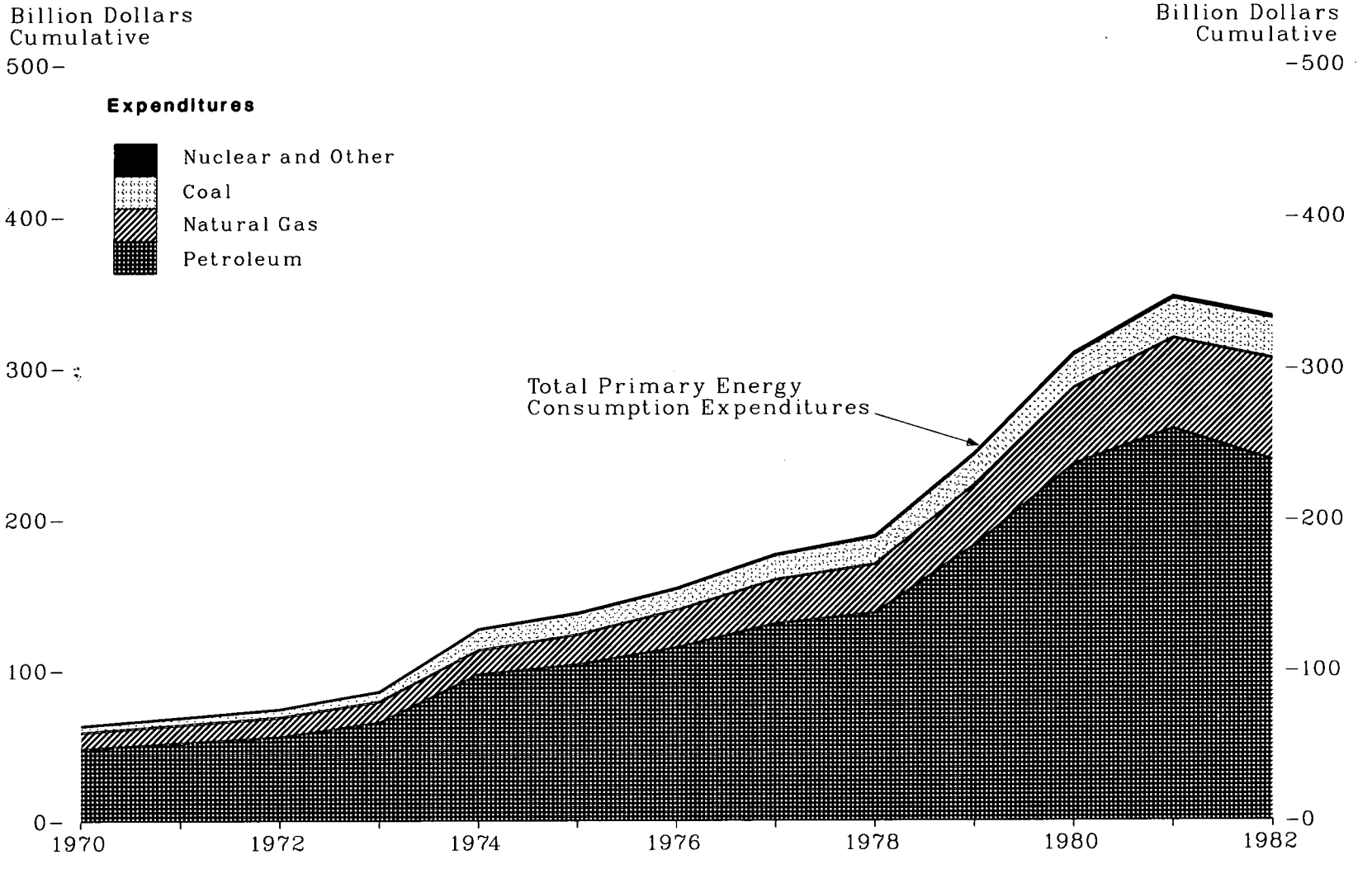


Table 12. Expenditures for Fuels and Electricity, 1970-1982

(Billion Dollars)

Energy Source	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Coal													
Coking Coal	1.2	1.2	1.4	1.7	3.3	3.7	3.7	3.6	3.7	3.9	3.7	3.8	2.7
Steam Coal	3.2	3.6	3.9	4.8	10.4	10.3	10.2	12.2	14.5	16.0	18.3	22.1	23.5
Total	4.4	4.7	5.3	6.5	13.6	13.9	13.9	15.8	18.2	19.9	22.0	25.9	26.2
Natural Gas	10.9	12.1	13.2	13.8	16.2	19.8	24.8	29.1	32.0	40.2	50.6	60.0	67.7
Petroleum Products													
Asphalt and Road Oil	0.7	0.9	0.9	1.1	1.9	1.9	1.9	2.1	2.5	3.0	3.5	4.2	3.5
Aviation Gasoline	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.7	0.9	0.9	0.8
Distillate Fuel Oil	6.1	6.8	7.4	9.4	15.2	15.7	18.4	22.0	23.6	32.5	40.8	48.2	44.0
Jet Fuel	1.5	1.7	1.8	2.1	3.4	4.5	4.9	5.9	6.6	9.2	14.8	15.6	15.0
Kerosene	0.7	0.6	0.6	0.6	0.9	0.9	1.0	1.2	1.3	2.0	2.3	2.3	2.3
Liquefied Petroleum Gases	2.5	2.5	2.9	4.0	5.3	5.3	6.1	6.9	6.6	9.4	11.0	11.9	12.9
Lubricants	1.6	1.7	1.9	2.1	2.9	2.8	3.1	3.5	3.8	5.0	5.9	6.6	6.1
Motor Gasoline	31.6	33.5	35.3	39.7	54.1	59.4	64.5	70.0	74.4	95.2	123.3	137.1	129.9
Residual Fuel Oil	2.0	2.9	3.5	4.8	10.5	10.3	11.6	14.3	13.5	17.6	21.6	22.4	17.0
Other Petroleum Products [1]	0.7	0.8	0.9	1.1	2.6	2.7	3.3	4.6	5.0	8.0	12.0	10.5	7.1
Total	47.8	51.7	55.6	65.3	97.2	103.8	115.1	130.8	137.9	182.4	236.1	259.7	238.6
Nuclear Power, Wood, and Waste Electricity Generation	[2]	0.1	0.1	0.2	0.3	0.5	0.5	0.7	0.9	0.9	1.2	1.4	1.7
Net Imports of Coal Coke [3]	-0.1	[2]	[2]	[2]	0.1	0.1	[2]	[2]	0.4	0.2	-0.1	-0.1	-0.1
Total Primary Energy	63.1	68.5	74.1	85.8	127.5	138.1	154.3	176.5	189.4	243.7	309.8	346.9	334.0
Electric Utility Fuel [4]	4.3	5.5	6.5	8.2	17.1	17.6	19.1	23.9	26.5	31.0	37.1	43.2	41.3
Electricity Purchased by End Users (Sales) [5]	23.5	26.4	29.8	33.9	42.7	50.9	57.3	66.6	74.9	81.7	98.5	116.6	127.0
Total Energy [6]	82.2	89.4	97.5	111.4	153.1	171.4	192.5	219.2	237.8	294.4	371.2	420.3	419.7

[1] Includes isopentane, natural gasoline, unfractionated stream (including plant condensate), petrochemical feedstocks, special naphthas, petroleum coke, still gas, wax, and miscellaneous products.
[2] Less than $0.05 billion.
[3] Negative entries indicate that export values exceeded import values.
[4] In determining total energy expenditures, this is a negative quantity.
[5] In determining total energy expenditures, this is a positive quantity.
[6] There are no purchased fuels for energy sources such as hydroelectric, solar, wind, and geothermal power. Wood and waste fuels are not included except those consumed by the electric utility sector.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, "State Energy Price and Expenditure Data System, 1970-1982."

Figure 13. Prices of Fuels and Electricity by End-Use Sector, 1970-1982

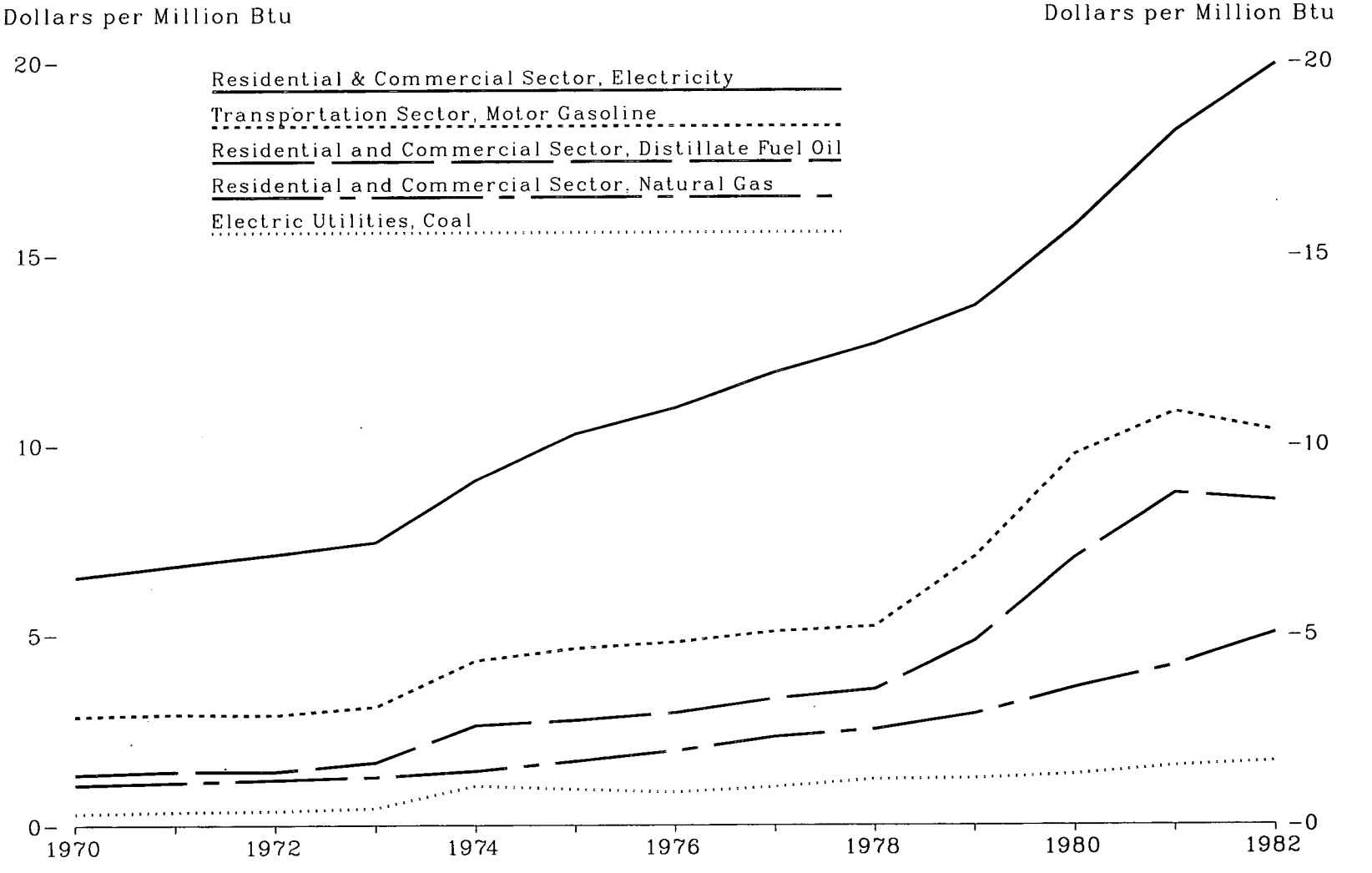


Table 13. Prices of Fuels and Electricity by End-Use Sector, 1970-1982

(Dollars per Million Btu)

End-Use Sector (Including Electric Utilities)	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Residential and Commercial Sector [1]													
Primary Energy	1.20	1.27	1.33	1.55	1.93	2.13	2.40	2.79	2.95	3.56	4.55	5.30	5.89
Coal	0.35	0.97	1.05	1.17	2.16	2.39	2.31	2.49	2.56	2.47	2.72	3.33	3.33
Natural Gas	1.06	1.12	1.19	1.26	1.42	1.67	1.94	2.31	2.50	2.91	3.60	4.19	5.05
Petroleum Products [2]	1.51	1.56	1.59	2.08	2.87	3.04	3.26	3.67	3.82	5.16	7.26	8.74	8.80
Distillate Fuel Oil	1.33	1.41	1.41	1.64	2.61	2.74	2.94	3.32	3.56	4.83	7.04	8.72	8.53
Liquefied Petroleum Gases	2.09	2.05	2.16	3.62	3.73	4.02	4.39	4.91	4.76	6.55	7.90	8.32	9.26
Motor Gasoline	2.86	2.91	2.90	3.11	4.33	4.66	4.81	5.12	5.28	7.09	9.68	10.88	10.41
Residual Fuel Oil	0.50	0.67	0.71	0.86	1.92	2.03	1.98	2.27	2.20	3.10	4.44	5.48	4.87
Electricity	6.53	6.82	7.11	7.45	9.08	10.30	10.97	11.90	12.65	13.63	15.73	18.18	19.93
Average	2.10	2.24	2.38	2.73	3.40	3.84	4.17	4.82	5.19	6.01	7.55	8.93	9.88
Industrial Sector													
Primary Energy	0.58	0.64	0.68	0.77	1.37	1.63	1.79	2.06	2.17	2.76	3.62	4.18	4.47
Coal	0.44	0.48	0.54	0.61	1.19	1.47	1.46	1.52	1.70	1.67	1.81	1.98	2.03
Coking Coal	0.46	0.54	0.60	0.70	1.40	1.70	1.70	1.77	2.00	1.95	2.16	2.41	2.50
Natural Gas	0.37	0.40	0.44	0.49	0.64	0.90	1.15	1.41	1.49	1.87	2.43	2.98	3.62
Petroleum Products [3]	0.94	1.01	1.02	1.17	2.25	2.43	2.51	2.79	2.89	3.86	5.38	6.39	6.21
Asphalt and Road Oil	0.68	0.79	0.82	0.84	1.60	1.89	1.86	1.95	2.13	2.58	3.68	5.02	4.24
Distillate Fuel Oil	0.73	0.76	0.76	0.94	2.04	2.24	2.39	2.69	2.84	3.91	5.63	6.64	6.41
Liquefied Petroleum Gases	1.12	1.18	1.20	1.33	2.46	2.55	2.75	3.20	3.12	4.07	5.25	5.76	6.17
Lubricants	5.36	5.56	5.88	5.91	8.46	9.29	9.30	9.81	10.01	12.59	16.55	19.37	19.68
Residual Fuel Oil	0.46	0.61	0.66	0.80	1.83	1.92	1.90	2.15	2.12	2.77	3.71	4.50	4.36
Electricity	3.00	3.24	3.41	3.67	4.96	6.06	6.47	7.35	8.20	8.97	10.81	12.46	14.42
Average	0.81	0.90	0.97	1.08	1.77	2.18	2.39	2.75	2.98	3.58	4.59	5.35	5.93
Transportation Sector													
Primary Energy	2.32	2.39	2.39	2.59	3.72	4.05	4.21	4.48	4.62	6.20	8.61	9.78	9.40
Coal	0.38	0.40	0.44	0.43	0.83	1.11	1.06	1.14	(4)	(4)	(4)	(4)	(4)
Petroleum Products [5]	2.32	2.39	2.39	2.59	3.72	4.05	4.21	4.48	4.62	6.20	8.61	9.78	9.40
Distillate Fuel Oil	1.29	1.37	1.37	1.65	2.61	2.77	2.94	3.28	3.39	5.00	7.12	8.46	8.14
Jet Fuel	0.78	0.82	0.82	0.97	1.67	2.18	2.39	2.75	3.05	4.16	6.78	7.58	7.23
Motor Gasoline	2.85	2.90	2.88	3.10	4.32	4.64	4.80	5.09	5.23	7.06	9.75	10.86	10.36
Residual Fuel Oil	0.36	0.49	0.53	0.64	1.41	1.45	1.52	1.68	1.51	2.38	3.18	4.11	3.85
Electricity	3.74	4.13	4.37	4.51	6.45	7.16	7.73	7.92	9.54	10.15	12.12	13.32	15.28
Average	2.32	2.39	2.39	2.59	3.72	4.05	4.21	4.49	4.62	6.21	8.61	9.78	9.40
Electric Utilities													
Coal	0.31	0.36	0.38	0.45	1.03	0.94	0.86	1.00	1.20	1.22	1.32	1.53	1.65
Natural Gas	0.28	0.31	0.33	0.35	0.49	0.75	1.03	1.28	1.42	1.74	2.19	2.79	3.36
Petroleum Products [6]	0.42	0.58	0.66	0.81	1.89	2.00	1.98	2.23	2.18	3.06	4.34	5.42	4.96
Residual Fuel Oil	0.40	0.56	0.63	0.78	1.87	1.99	1.95	2.19	2.14	2.99	4.25	5.32	4.85
Nuclear Power	0.18	0.18	0.18	0.21	0.21	0.25	0.26	0.28	0.30	0.34	0.43	0.48	0.54
Wood and Waste	0.68	0.72	0.75	0.79	0.86	0.94	0.99	1.04	1.12	1.56	1.80	1.24	1.43
Average	0.32	0.38	0.42	0.49	1.03	1.03	1.03	1.19	1.29	1.48	1.74	2.00	2.01

[1] All entries in this sector, including average, are for the residential sector, except motor gasoline and residual fuel oil, which are for the commercial sector.
[2] In addition to listed products, includes kerosene.
[3] In addition to listed products, includes jet fuel, kerosene, motor gasoline, road oil, still gas, special naphthas, petrochemical feedstocks, petroleum coke, miscellaneous products, wax, natural gasoline, and plant condensate.
[4] Not applicable.
[5] In addition to listed products, includes aviation gasoline, liquefied petroleum gases, and lubricants.
[6] In addition to listed products, includes distillate fuel oil, jet fuel, and petroleum coke.
Source: Energy Information Administration, "State Energy Price and Expenditure Data System, 1970-1982 .

Figure 14. Value of Fossil Fuel Imports, 1949-1984

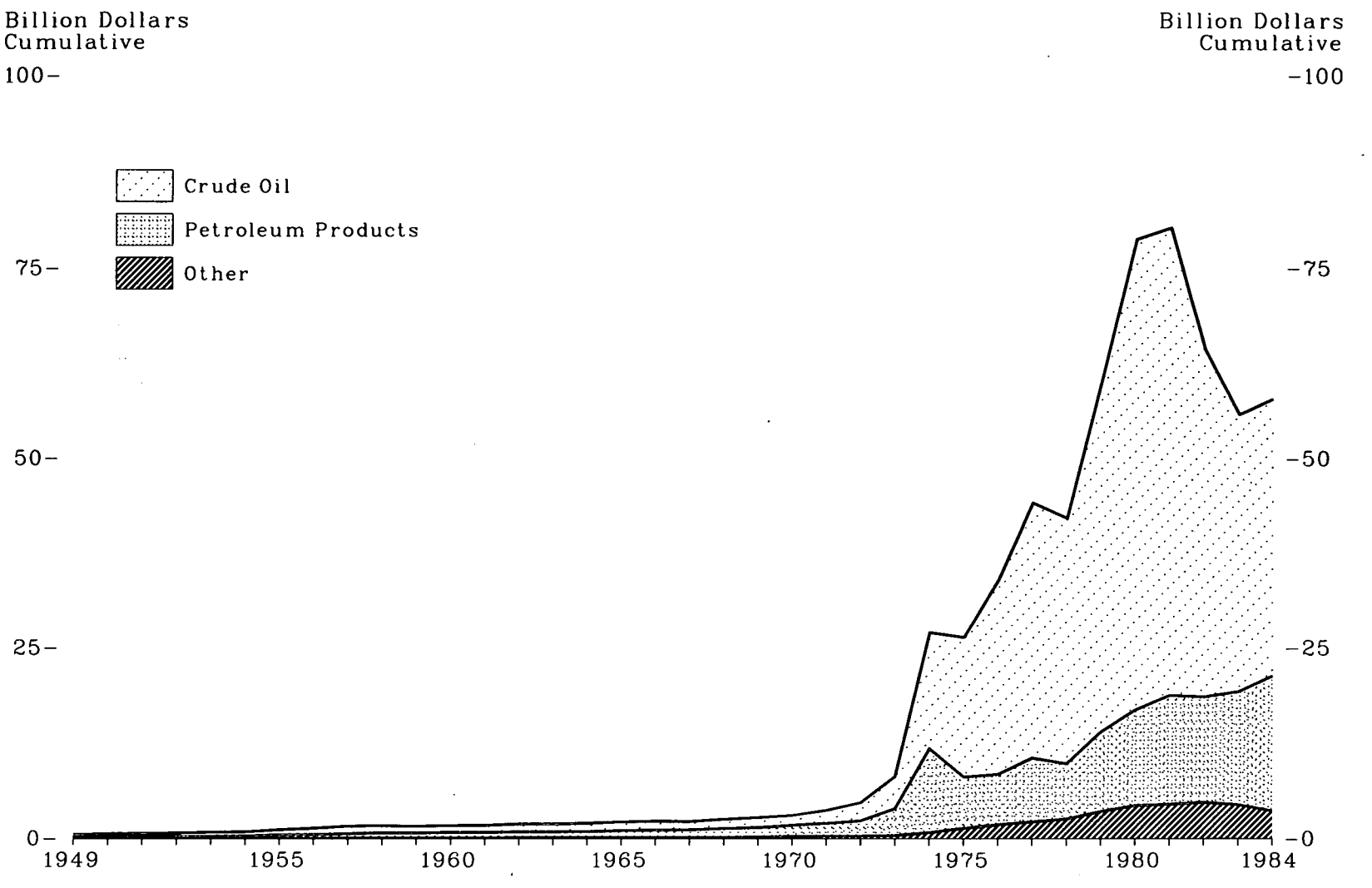


Table 14. Value of Fossil Fuel Imports, 1949-1984

(Billion Dollars)

Year	Coal	Coal Coke	Natural Gas	Crude Oil [1]	Petroleum Products	Total
1949	[2]	[2]	[2]	0.30	0.14	0.45
1950	[2]	0.01	[2]	0.37	0.21	0.59
1951	[2]	[2]	[2]	0.37	0.23	0.61
1952	[2]	[2]	[2]	0.42	0.25	0.68
1953	[2]	[2]	[2]	0.51	0.25	0.77
1954	[2]	[2]	[2]	0.54	0.28	0.83
1955	[2]	[2]	[2]	0.65	0.44	1.10
1956	[2]	[2]	[2]	0.84	0.45	1.29
1957	[2]	[2]	[2]	0.98	0.57	1.56
1958	[2]	[2]	0.02	0.94	0.68	1.65
1959	[2]	[2]	0.03	0.87	0.66	1.57
1960	[2]	[2]	0.03	0.90	0.73	1.66
1961	[2]	[2]	0.04	0.93	0.71	1.69
1962	[2]	[2]	0.09	1.01	0.75	1.86
1963	[2]	[2]	0.10	1.03	0.74	1.87
1964	[2]	[2]	0.10	1.08	0.78	1.97
1965	[2]	[2]	0.11	1.12	0.92	2.15
1966	[2]	[2]	0.11	1.12	0.99	2.21
1967	[2]	[2]	0.13	1.06	1.02	2.21
1968	[2]	[2]	0.15	1.18	1.16	2.50
1969	[2]	[2]	0.20	1.30	1.24	2.74
1970	[2]	[2]	0.26	1.26	1.48	3.00
1971	[2]	0.01	0.31	1.69	1.66	3.66
1972	[2]	[2]	0.31	2.37	1.99	4.68
1973	[2]	0.04	0.36	4.24	3.50	8.14
1974	0.06	0.19	0.53	15.25	11.01	27.05
1975	0.02	0.16	1.15	18.29	6.77	26.39
1976	0.02	0.11	1.66	25.46	6.65	33.90
1977	0.04	0.13	2.00	33.59	8.42	44.18
1978	0.07	0.41	2.06	32.30	7.30	42.15
1979	0.05	0.34	3.13	46.06	10.45	60.03
1980	0.03	0.05	4.21	61.90	12.54	78.74
1981	0.03	0.04	4.41	61.46	14.30	80.24
1982	0.02	0.01	4.69	45.72	13.86	64.31
1983	0.04	[2]	4.39	36.49	14.84	55.77
1984[3]	0.04	0.05	3.53	36.44	17.71	57.78

[1] Includes imports into the Strategic Petroleum Reserve, which began in 1977.
[2] Less than $5 million.
[3] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Note: Includes value of imports into Puerto Rico from foreign countries; excludes receipts into the 50 States and the District of Columbia from the Virgin Islands and Puerto Rico.
Sources: **Natural Gas:** • 1949 through 1962—Bureau of the Census, *U.S. Imports of Merchandise for Consumption*, FT110. •1963—Bureau of the Census, *U.S. Imports of Merchandise for Consumption*, FT125. •1964 through 1971—Bureau of the Census, *U.S. Imports for Consumption and General Imports*, FT246. • 1972 and 1973—Federal Power Commission, *Pipeline Imports and Exports of Natural Gas - Imports and Exports of LNG*. • 1974 through 1977—Federal Power Commission, *United States Imports and Exports of Natural Gas*, annual. • 1978 through 1981—Energy Information Administration, *U.S. Imports and Exports of Natural Gas*, annual. • 1982 and 1983—Energy Information Administration, *Natural Gas Monthly*. • 1984—EIA estimates. **Others:** • 1949 through 1962—Bureau of the Census, *U.S. Imports of Merchandise for Consumption*, FT110. •1963—Bureau of the Census *U.S. Imports of Merchandise for Consumption*, FT125. • 1964 through 1983—Bureau of the Census, *U.S. Imports for Consumption*, FT246. • 1984—Bureau of the Census, *U.S. Imports for Consumption and General Imports*, IM145.

Figure 15. Value of Fossil Fuel Exports, 1949-1984

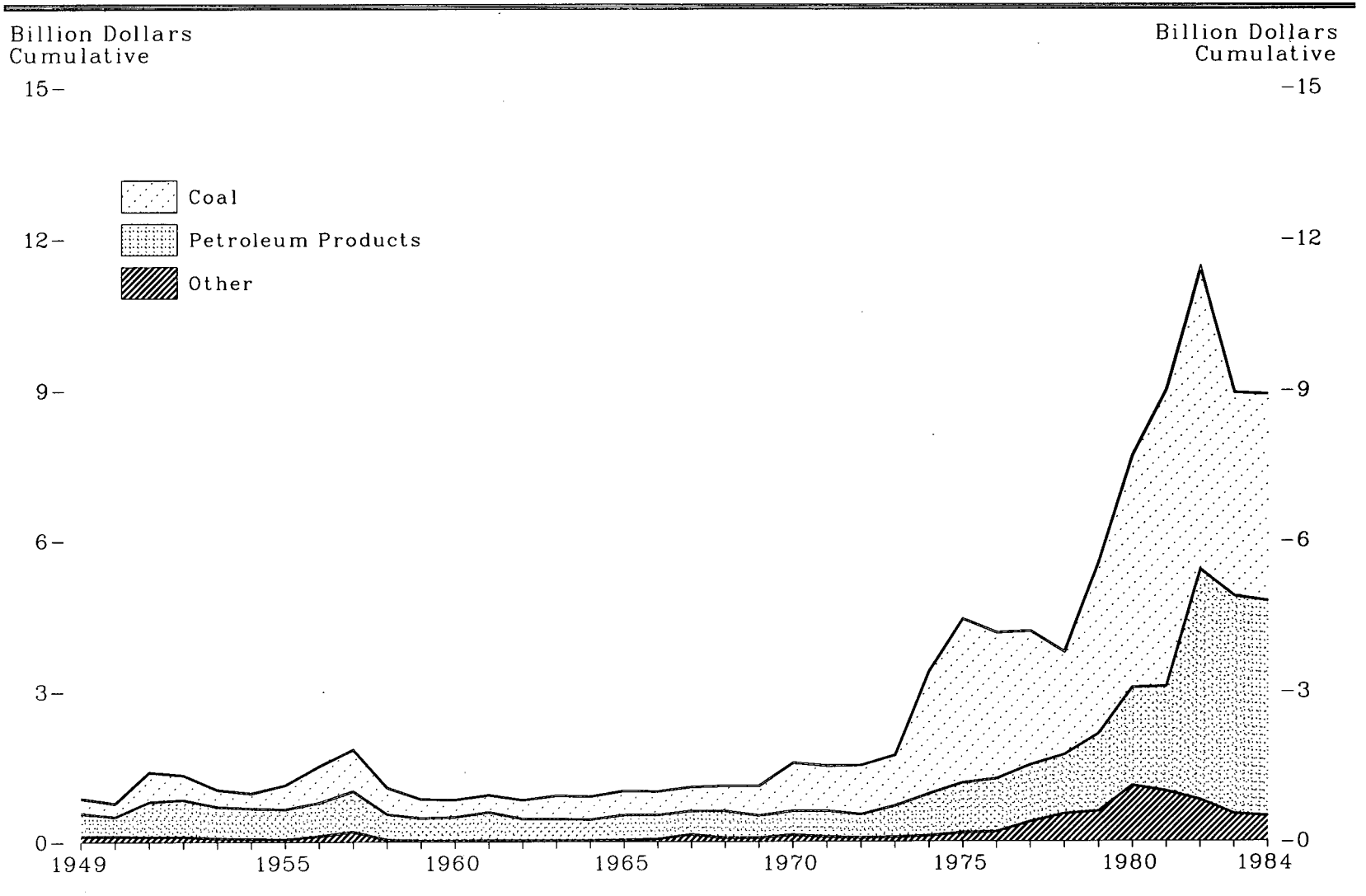


Table 15. Value of Fossil Fuel Exports, 1949-1984

(Billion Dollars)

Year	Coal	Coal Coke	Natural Gas	Crude Oil	Petroleum Products	Total
1949	0.30	0.01	(1)	0.10	0.46	0.87
1950	0.27	0.01	(1)	0.10	0.39	0.78
1951	0.59	0.02	(1)	0.08	0.70	1.39
1952	0.49	0.01	(1)	0.08	0.74	1.33
1953	0.34	0.01	(1)	0.06	0.63	1.04
1954	0.30	0.01	(1)	0.05	0.61	0.97
1955	0.48	0.01	0.01	0.04	0.60	1.14
1956	0.73	0.01	0.01	0.09	0.67	1.51
1957	0.83	0.01	0.01	0.17	0.81	1.84
1958	0.53	0.01	0.01	0.01	0.51	1.07
1959	0.38	0.01	0.01	0.01	0.45	0.85
1960	0.35	0.01	(1)	0.01	0.47	0.84
1961	0.34	0.01	(1)	0.01	0.57	0.93
1962	0.38	0.01	(1)	0.01	0.43	0.83
1963	0.47	0.01	(1)	(1)	0.43	0.92
1964	0.46	0.01	(1)	(1)	0.42	0.90
1965	0.48	0.02	0.01	(1)	0.50	1.00
1966	0.47	0.02	0.02	0.01	0.48	1.00
1967	0.48	0.02	0.03	0.09	0.47	1.09
1968	0.50	0.02	0.04	0.01	0.54	1.11
1969	0.59	0.04	0.03	0.01	0.45	1.12
1970	0.96	0.08	0.03	0.02	0.48	1.57
1971	0.90	0.04	0.04	0.01	0.52	1.51
1972	0.98	0.03	0.04	(1)	0.47	1.53
1973	1.01	0.03	0.04	(1)	0.63	1.72
1974	2.44	0.04	0.05	0.01	0.84	3.39
1975	3.26	0.07	0.09	(1)	1.00	4.43
1976	2.91	0.07	0.10	0.03	1.06	4.16
1977	2.66	0.07	0.11	0.21	1.14	4.18
1978	2.05	0.05	0.11	0.39	1.18	3.78
1979	3.40	0.08	0.13	0.39	1.55	5.55
1980	4.63	0.13	0.23	0.75	1.96	7.70
1981	5.92	0.07	0.35	0.58	2.09	9.00
1982	5.99	0.06	0.30	0.47	4.59	11.41
1983	4.06	0.05	0.28	0.22	4.33	8.94
1984[2]	4.13	0.07	0.25	0.19	4.28	8.92

[1] Less than $5 million.
[2] Preliminary.
Note: Includes value of exports from Puerto Rico to foreign countries; excludes shipments from the 50 States and the District of Columbia to the Virgin Islands and Puerto Rico.
Note: Sum of components may not equal total due to independent rounding.
Sources: **Natural Gas:** •1949 through 1971—Bureau of the Census, *U.S. Exports,* FT410. •1972 and 1973—Federal Power Commission, *Pipeline Imports and Exports of Natural Gas - Imports and Exports of LNG.* • 1974 through 1977—Federal Power Commission, *United States Imports and Exports of Natural Gas,* annual. • 1978 through 1981—Energy Information Administration, *U.S. Imports and Exports of Natural Gas,* annual. • 1982 and 1983—Energy Information Administration, *Natural Gas Monthly.* • 1984—EIA estimates. **Others:** • 1949 through 1983—Bureau of the Census, *U.S. Exports,* FT410. •1984—Bureau of the Census, *U.S. Exports by Schedule B Commodities,* EM522.

Figure 16. Value of Net Trade in Fossil Fuels, 1958–1984

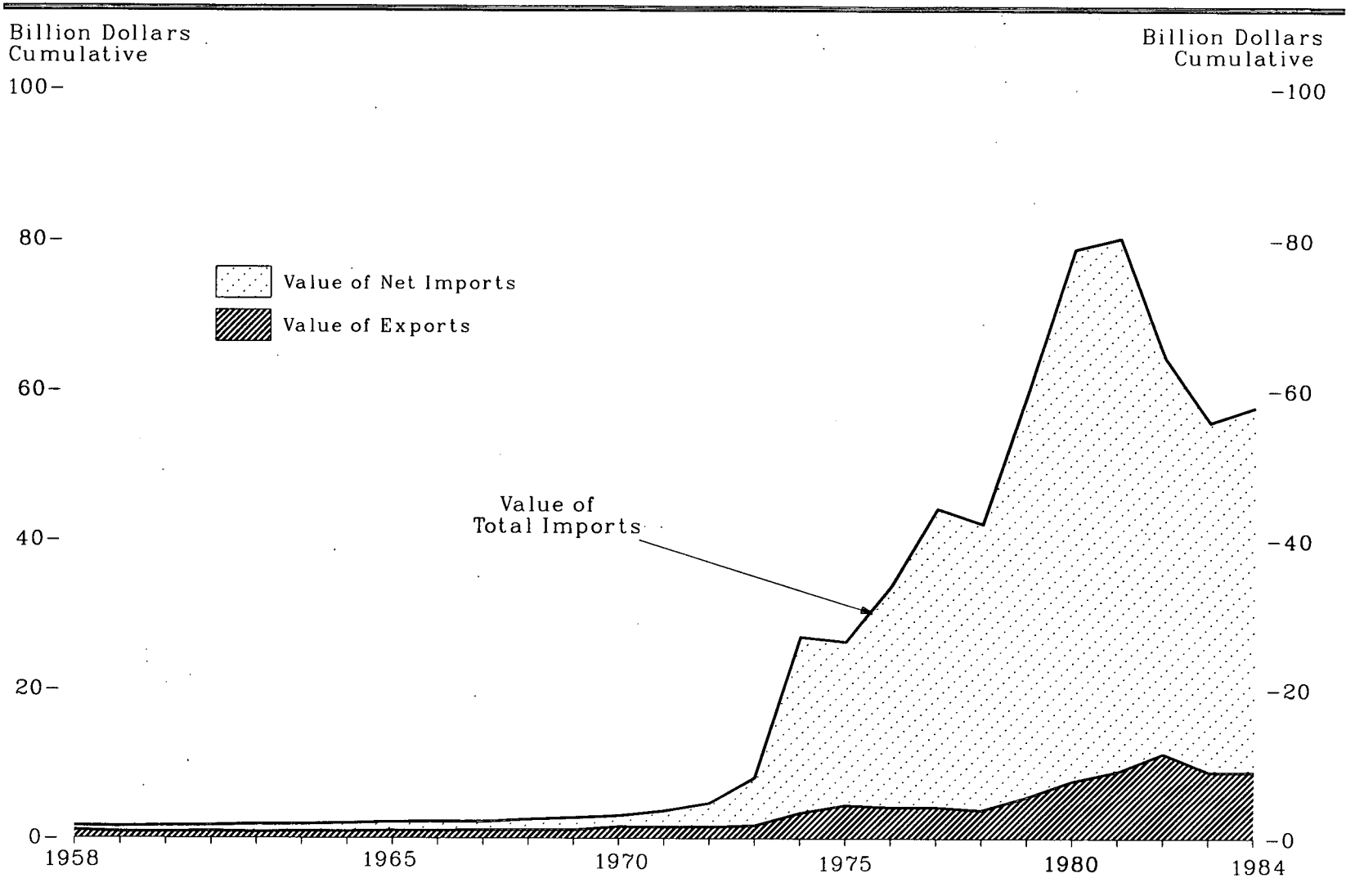


Table 16. Value of Net Trade[1] in Fossil Fuels, 1949-1984

(Billion Dollars)

Year	Coal	Coal Coke	Natural Gas	Crude Oil	Petroleum Products	Total
1949	0.29	(2)	(2)	-0.21	0.32	0.42
1950	0.27	(2)	(2)	-0.27	0.18	0.18
1951	0.58	0.02	(2)	-0.29	0.47	0.78
1952	0.49	0.01	(2)	-0.34	0.49	0.65
1953	0.33	0.01	(2)	-0.45	0.38	0.27
1954	0.30	(2)	(2)	-0.50	0.32	0.14
1955	0.48	0.01	0.01	-0.62	0.16	0.04
1956	0.73	0.01	0.01	-0.75	0.22	0.22
1957	0.83	0.01	0.01	-0.81	0.24	0.28
1958	0.52	0.01	-0.01	-0.92	-0.17	-0.58
1959	0.38	0.01	-0.02	-0.87	-0.21	-0.71
1960	0.35	0.01	-0.02	-0.89	-0.26	-0.82
1961	0.34	0.01	-0.04	-0.92	-0.14	-0.76
1962	0.38	0.01	-0.08	-1.01	-0.32	-1.03
1963	0.47	0.01	-0.09	-1.02	-0.31	-0.95
1964	0.46	0.01	-0.10	-1.08	-0.36	-1.06
1965	0.48	0.01	-0.10	-1.11	-0.43	-1.15
1966	0.47	0.02	-0.09	-1.11	-0.51	-1.21
1967	0.48	0.01	-0.10	-0.97	-0.55	-1.12
1968	0.50	0.02	-0.11	-1.17	-0.63	-1.39
1969	0.59	0.04	-0.17	-1.29	-0.78	-1.62
1970	0.96	0.08	-0.23	-1.24	-1.00	-1.43
1971	0.90	0.04	-0.27	-1.68	-1.13	-2.15
1972	0.98	0.03	-0.28	-2.37	-1.51	-3.15
1973	1.01	-0.01	-0.32	-4.24	-2.87	-6.42
1974	2.38	-0.15	-0.48	-15.24	-10.17	-23.66
1975	3.24	-0.08	-1.06	-18.29	-5.77	-21.96
1976	2.89	-0.04	-1.56	-25.43	-5.59	-29.73
1977	2.62	-0.06	-1.89	-33.38	-7.28	-40.00
1978	1.98	-0.36	-1.95	-31.91	-6.13	-38.37
1979	3.35	-0.26	-3.00	-45.66	-8.90	-54.47
1980	4.60	0.08	-3.98	-61.15	-10.58	-71.04
1981	5.89	0.03	-4.06	-60.88	-12.21	-71.24
1982	5.97	0.05	-4.39	-45.25	-9.27	-52.90
1983	4.01	0.04	-4.11	-36.27	-10.51	-46.83
1984[3]	4.09	0.02	-3.28	-36.26	-13.43	-48.86

[1] Net trade = exports minus imports.
[2] Less than $5 million.
[3] Preliminary.
Note: Sum of components may not equal total due to independent rounding. Data on this table may not equal data on Table 15 minus data on Table 14 due to independent rounding.
Sources: Compiled from Tables 14 and 15.

Section 2. Energy Supply and Disposition—Indicators

Consumption Trends. Energy consumption trends in the United States are illustrated by relating them to changes in real gross national product (GNP) and population. Real GNP is a global measure of economic activity deflated to negate the effect of inflation. Consumption per dollar of real GNP fell in recent years, moving from a 1970 high of 61.2 thousand Btu per dollar of real GNP to 45.0 thousand Btu per dollar of real GNP in 1984. Energy consumption per capita in 1984 rose to 312 million Btu, reversing a downtrend since 1978, when per capita consumption reached an all-time high of 352 million Btu.

Residential Energy Consumption Survey Data. Based on the EIA *Residential Energy Consumption Survey* (RECS), 8.62 quadrillion Btu of energy were consumed by households in 1982, down from 9.51 quadrillion Btu during 1981. Approximately 55 percent of the residential energy consumed was natural gas, 28 percent was electricity, 13 percent was distillate fuel oil and kerosene, and 3 percent was liquefied petroleum gas (Table 22).

According to the RECS, natural gas was the main source for household heating. In 1982, 47.5 million households used natural gas as the main heating source, up from 41.8 million in 1978. Other sources were electricity, which was the main heating source for 13.3 million households, up from the 12.1 million in 1978, and fuel oil, which was the main heating source for 12.0 million households in 1982, down from 16.9 million in 1978 (Table 23).

Of the 83.8 million households reported in the RECS for 1982, almost all owned at least one refrigerator and kitchen range. Saturation levels for other major appliances were as follows: color television, 85 percent; clothes washer (automatic), 69 percent; and clothes dryer (electric), 45 percent. The number and percentage of households with central air conditioners increased significantly during the 4-year period 1978 through 1982. In 1982, 23.3 million households (28 percent of the total) had central air conditioners, compared to 17.6 million (23 percent) in 1978 (Table 25).

Annual U.S. Government energy use in recent years fluctuated between 1.7 and 1.9 quadrillion Btu. During fiscal year 1984, petroleum was the source of 59 percent of this energy, followed by electricity, 28 percent, and natural gas, 8 percent. The U.S. Department of Defense consumed 82 percent of the total energy used by the U.S. Government during fiscal year 1984 (Table 8).

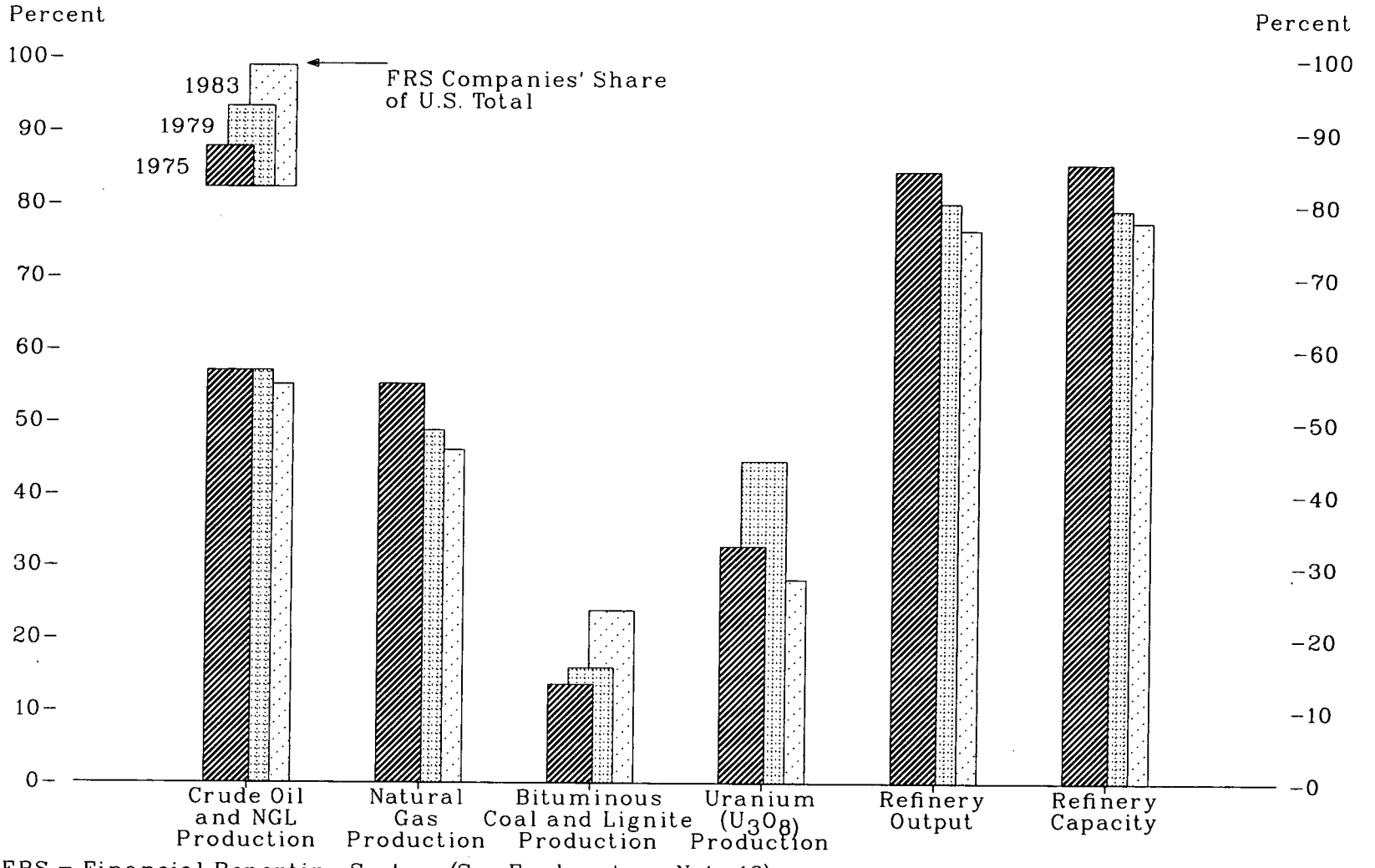
Energy Profitability and Investment. Prior to 1982, the 26 energy-producing companies reporting to the Financial Reporting System (FRS) had been among the most rapidly growing in terms of revenue and assets of large U.S. industrial corporations. The companies also had been among the most profitable large corporations. The companies' growth and profitability deteriorated in 1982 with the deepening economic recession, and continued to erode into 1983 as oil prices remained weak and demand for petroleum products declined (see Energy Information Administration's report *Performance Profiles of Major Energy Producers 1983).*

Declines in crude oil prices, evident after mid-1981, together with a decline in petroleum consumption in 1982 and 1983, had an adverse effect on earnings. Profitability of FRS companies, as measured by the ratio of net income to stockholders' equity, declined from 21.1 percent in 1980 to 11.4 percent in 1983 (Table 17).

Despite the decline in real crude oil prices, FRS companies continued to emphasize investment in petroleum and natural gas operations. Over 80 percent of their additions to property were directed toward petroleum and natural gas operations in 1983, compared to 72 percent in 1982. FRS companies made substantial investments for upgrading their domestic refineries to accept a wider variety of crude oils and to produce a larger relative yield of higher-octane products. Capital outlays for FRS companies' domestic refining and marketing operations amounted to 18 percent of total additions to property during 1981 through 1983 (Table 19).

In 1983, FRS companies accounted for 55 percent of U.S. crude oil and natural gas liquids production, 46 percent of natural gas production, and 78 percent of refinery output. The FRS companies' share of U.S. bituminous coal and lignite production increased from 14 percent in 1975 to 24 percent in 1983. During this period, FRS companies' share of U.S. uranium production rose from 33 percent in 1975 to 54 percent in 1977 and then fell to 28 percent by 1983 (Table 17).

Figure 17. Selected Statistics for FRS* Companies' Operations, 1975, 1979, and 1983



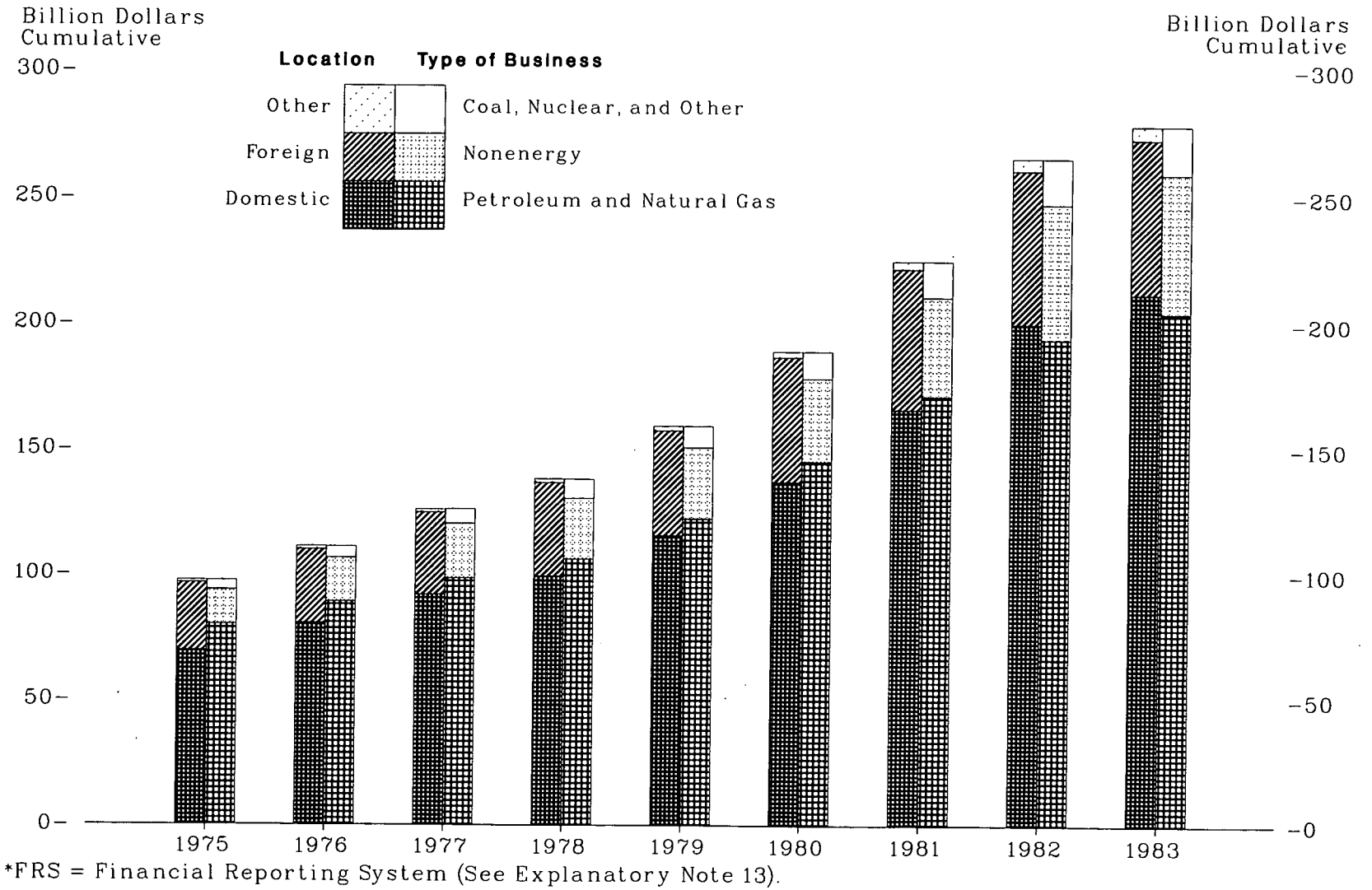
*FRS = Financial Reporting System (See Explanatory Note 13).

Table 17. Selected Statistics for FRS [1] Companies' Operations, 1975-1983

Activity	1975	1976	1977	1978	1979	1980	1981	1982	1983
Production									
Crude Oil and NGL [2] (million barrels)	2,080.9	2,002.0	2,008.4	2,160.6	2,110.9	2,068.7	2,072.4	2,079.1	2,059.3
(Percent of U.S. Total)	57.0	56.2	55.8	57.6	57.0	55.6	55.8	55.1	55.1
Dry Natural Gas (trillion cubic feet)	11.1	10.6	10.3	10.0	10.0	9.0	9.2	8.3	7.4
(Percent of U.S. Total)	55.2	53.0	51.5	50.0	48.8	44.1	45.5	46.8	46.1
Bituminous Coal [3] and Lignite (million short tons)	88.1	88.5	89.1	85.5	123.3	142.3	154.8	195.2	185.2
(Percent of U.S. Total)	13.6	13.0	12.9	12.9	15.9	17.3	18.9	23.4	23.8
Uranium (million pounds of U_3O_8)	7.6	6.5	16.0	17.3	16.7	19.0	14.5	9.2	6.6
(Percent of U.S. Total)	32.8	25.5	53.5	46.8	44.6	43.5	36.6	34.3	28.1
Refining									
Capacity [4] (million barrels per day)	13.4	14.2	14.6	14.8	14.8	15.1	14.6	13.6	13.0
(Percent of U.S. Total)	85.5	84.0	81.9	81.4	79.2	77.8	77.7	77.4	77.6
Output (million barrels per day)	12.2	12.8	13.7	13.6	13.3	12.2	11.3	10.6	10.4
(Percent of U.S. Total)	84.5	82.6	81.5	80.7	80.1	78.7	77.4	75.9	76.4
Financial Indicators (Percent)									
Net Income to Stockholders' Equity	12.3	13.1	12.6	12.8	18.8	21.1	18.1	11.9	11.4
Net Income Plus Interest to Total Invested Capital	11.3	11.7	11.6	12.3	16.9	18.7	16.8	11.9	11.5
Long-Term Debt to Stockholders' Equity	35.6	38.7	38.9	35.6	33.7	31.5	32.2	37.1	34.8
Addition to PP&E to Net PP&E [5]	21.5	20.7	19.0	18.2	23.4	25.3	26.1	26.9	17.0

[1] FRS = Financial Reporting System (See Explanatory Note 13).
[2] NGL = Natural Gas Liquids.
[3] Includes subbituminous coal.
[4] Operable capacity as of January 1 of the following year.
[5] PP&E = Property Plant and Equipment.
Note: FRS Crude Oil and NGL and Natural Gas (Dry Marketed) production are on a net ownership interest basis (see Glossary).
Sources: **FRS Companies:** • 1975 through 1979— Energy Information Administration, *Energy Company Development Patterns in the Postembargo Era*, Vol. 2. • 1980 through 1983—Energy Information Administration, *Performance Profiles of Major Energy Producers*. **U.S. Total, Production: Crude Oil and NGL:** • 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*. • 1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual*. • 1981 through 1983—Energy Information Administration, *Petroleum Supply Annual*. **U.S. Total, Production: Dry Natural Gas:** • 1975—Bureau of Mines, *Minerals Yearbook*, "Natural Gas" chapter. • 1976 through 1978— Energy Information Administration, Energy Data Reports, *Natural Gas, Annual*. • 1979—Energy Information Administration, *Natural Gas Production and Consumption*. • 1980 through 1983—Energy Information Administration, *Natural Gas Annual*. **U.S. Total, Production: Bituminous Coal and Lignite:** • 1975—Bureau of Mines, *Minerals Yearbook*, "Coal — Bituminous and Lignite" chapter. • 1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976*. • 1977 and 1978— Energy Information Administration, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations*. • 1980—Energy Information Administration, Energy Data Report, *Weekly Coal Report*. • 1981 through 1983—Energy Information Administration, *Weekly Coal Production*. **U.S. Total, Production: Uranium.** • 1975 through 1981—U.S. Department of Energy, Grand Junction Office, Colorado, *Statistical Data of the Uranium Industry*, Report No. GJO-100, annual. •1982 and 1983—Energy Information Administration, *Survey of United States Uranium Marketing Activity*. **U.S. Total, Refining:** • 1975 through 1980—Energy Information Administration, *Energy Company Development Patterns in the Postembargo Era*, Vol. 1. • 1981 through 1983— Energy Information Administration, *Petroleum Supply Annual*.

Figure 18. Net Property Investment by FRS* Companies, 1975-1983



*FRS = Financial Reporting System (See Explanatory Note 13).

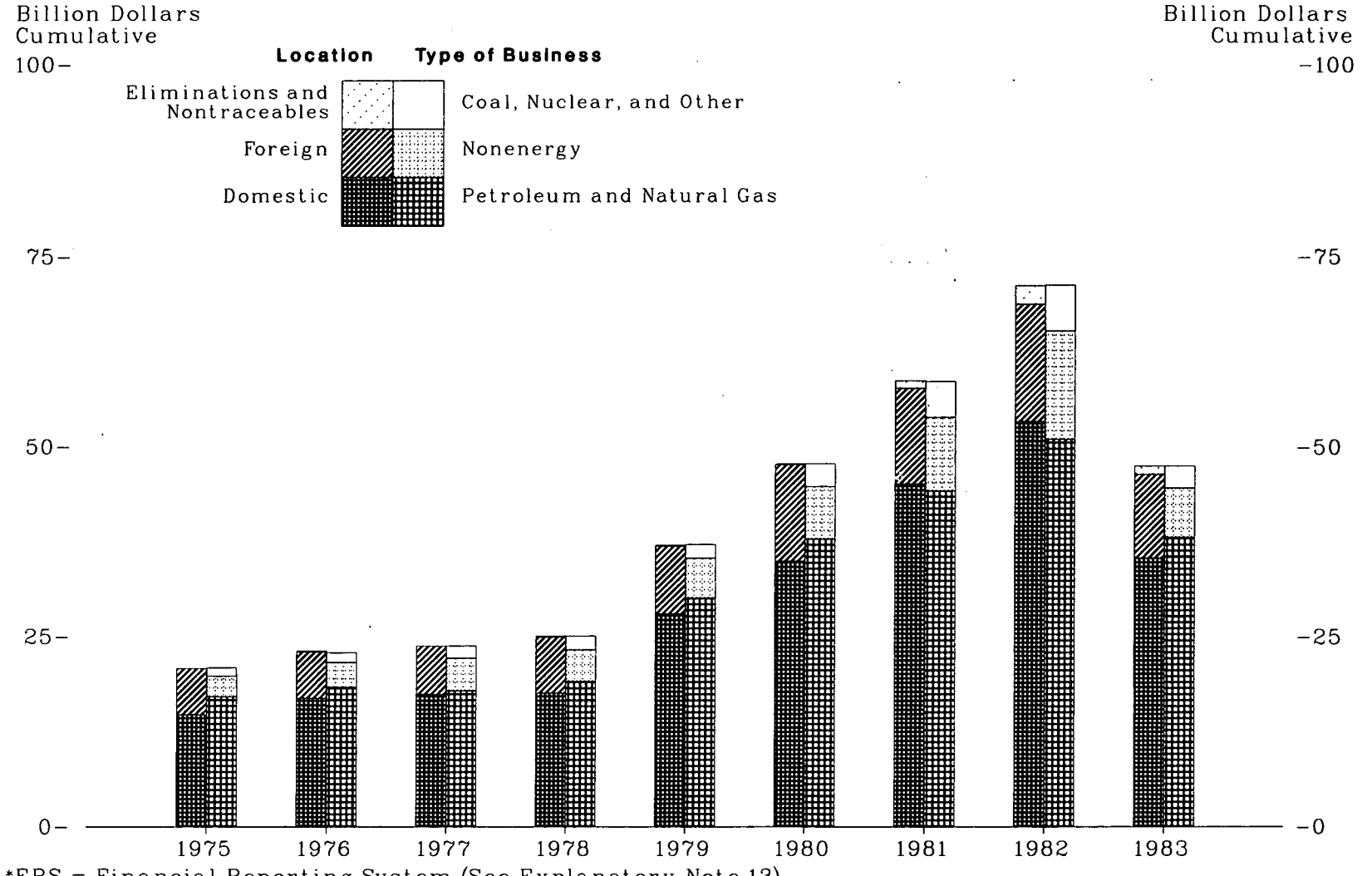
Table 18. Net Property [1] Investment by FRS [2] Companies, 1975-1983

(Billion Dollars)

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983
Location									
Domestic	69.4	80.3	91.7	99.3	115.7	137.0	165.9	200.2	212.1
Foreign	26.8	29.6	33.0	37.3	41.8	49.7	56.0	60.5	61.0
Eliminations and Nontraceables	1.0	1.2	1.2	1.5	1.8	2.2	3.0	4.8	5.3
Total	97.3	111.1	125.9	138.1	159.3	188.9	224.9	265.5	278.4
Type of Business									
Petroleum and Natural Gas	79.8	88.9	98.4	106.2	122.4	145.3	171.3	193.9	204.6
Coal	1.6	2.0	2.7	3.1	3.7	4.6	6.8	8.4	9.0
Nuclear	0.3	0.4	0.7	0.9	1.1	1.2	1.3	1.2	1.1
Other Energy	0.8	1.0	1.2	2.2	2.1	2.7	3.0	3.7	3.6
Nonenergy	13.7	17.6	21.8	24.2	28.4	33.0	39.5	53.5	54.8
Eliminations and Nontraceables	1.0	1.1	1.2	1.4	1.6	2.1	3.0	4.8	5.3
Total	97.3	111.1	125.9	138.1	159.3	188.9	224.9	265.5	278.4
Domestic Petroleum and Natural Gas									
Production	27.8	31.4	36.4	40.4	51.7	65.7	83.1	100.4	108.1
Refining/Marketing	20.0	20.7	20.8	21.6	23.0	25.1	28.5	31.4	32.9
Transportation	7.0	9.5	11.0	11.0	10.8	10.9	10.9	10.5	11.7
Eliminations and Nontraceables	[3]	[3]	[3]	[3]	0.1	[3]	0.0	0.0	0.0
Total	54.8	61.7	68.1	73.1	85.5	101.7	122.5	142.3	152.7
Foreign Petroleum and Natural Gas									
Production	9.4	11.4	14.0	16.6	20.0	25.9	30.4	34.1	35.9
Refining/Marketing	10.3	10.3	10.5	11.1	11.3	12.4	13.6	13.3	12.4
Transportation	5.2	5.4	5.6	5.4	5.3	5.3	4.8	4.1	3.5
Eliminations and Nontraceables	[3]	[3]	[3]	0.1	0.1	0.1	0.0	0.0	0.0
Total	24.9	27.1	30.2	33.1	36.6	43.6	48.8	51.5	51.9

[1] Property, plant, and equipment.
[2] FRS = Financial Reporting System (See Explanatory Note 13).
[3] Less than $50 million.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1975 through 1980 — Energy Information Administration, *Energy Company Development Patterns in the Postembargo Era*, Vol. 2. •1981 through 1983— Energy Information Administration, *Performance Profiles of Major Energy Producers.*

Figure 19. Additions to Property by FRS* Companies, 1975-1983



*FRS = Financial Reporting System (See Explanatory Note 13).

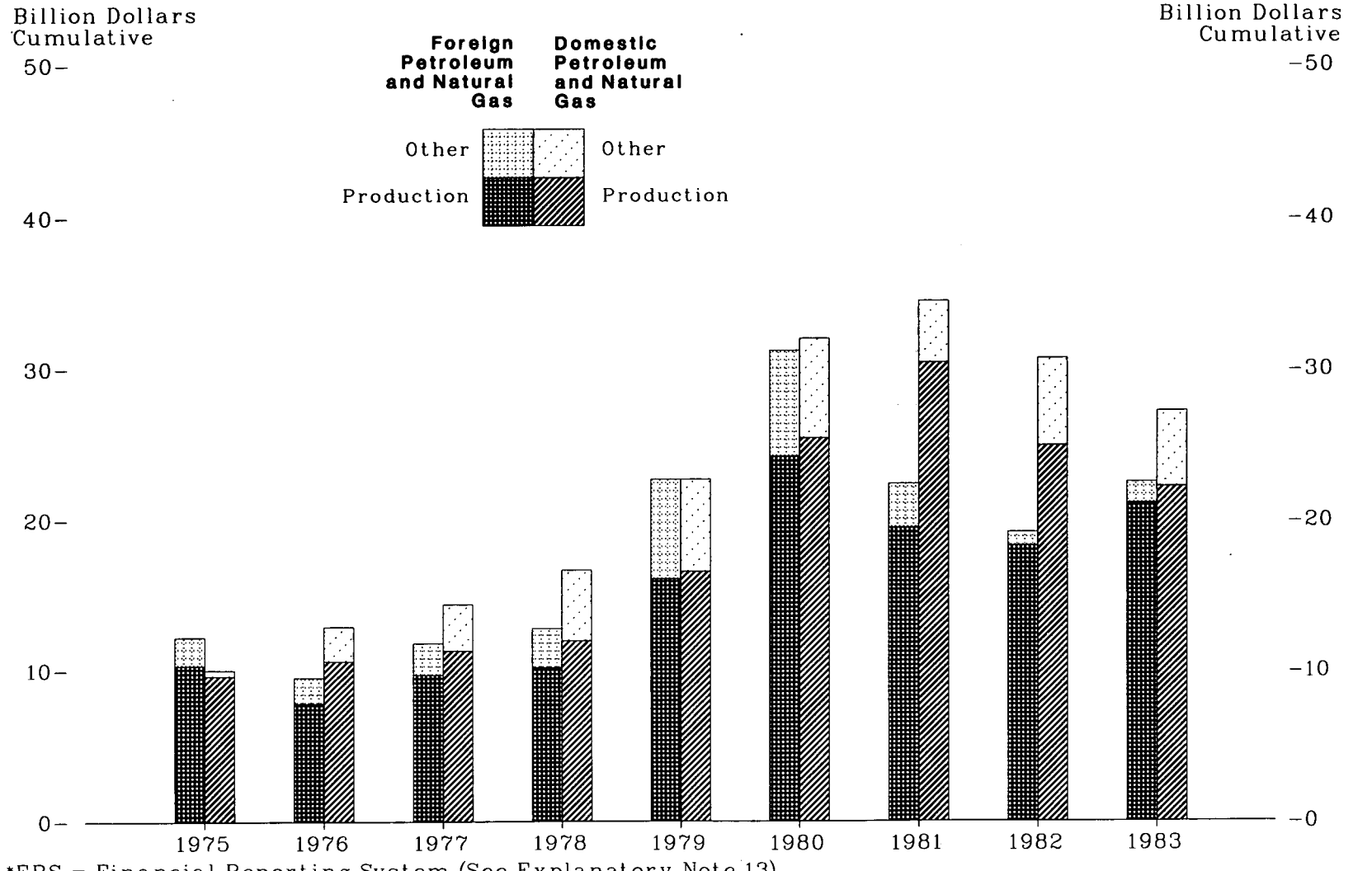
Table 19. Additions to Property [1] by FRS [2] Companies, 1975-1983

(Billion Dollars)

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983
Location									
Domestic	14.7	16.9	17.4	17.6	28.0	35.0	45.1	53.3	35.4
Foreign	6.1	6.1	6.4	7.4	9.0	12.7	12.6	15.5	11.0
Eliminations and Nontraceables	(3)	0.1	(3)	0.1	0.1	0.1	1.0	2.4	1.1
Total	20.9	23.0	23.9	25.1	37.2	47.8	58.7	71.3	47.4
Type of Business									
Petroleum and Natural Gas	17.1	18.3	17.9	19.1	30.1	37.9	44.2	51.0	38.1
Coal	0.5	0.5	0.8	0.7	0.7	1.2	2.8	2.0	1.1
Nuclear	0.1	0.1	0.3	0.3	0.3	0.3	0.2	0.1	(3)
Other Energy	0.3	0.5	0.3	0.5	0.4	0.8	0.7	1.5	0.7
Nonenergy	2.7	3.3	4.3	4.2	5.3	6.9	9.7	14.3	6.5
Eliminations and Nontraceables	0.2	0.2	0.2	0.3	0.4	0.7	1.0	2.4	1.1
Total	20.9	23.0	23.9	25.1	37.2	47.8	58.7	71.3	47.5
Domestic Petroleum and Natural Gas									
Production	6.0	7.4	8.4	9.3	18.1	21.7	26.7	30.6	21.7
Refining/Marketing	2.8	2.8	2.2	2.8	3.5	4.3	6.0	6.9	5.2
Transportation	2.8	2.8	1.4	0.6	0.6	1.0	0.8	0.8	2.0
Eliminations and Nontraceables	0.0	(3)	(3)	(3)	(3)	(3)	0.0	0.0	0.0
Total	11.6	13.1	12.0	12.7	22.2	26.9	33.5	38.4	29.0
Foreign Petroleum and Natural Gas									
Production	3.0	3.6	4.1	4.7	5.9	8.4	8.0	10.3	7.4
Refining/Marketing	1.4	1.0	1.1	1.5	1.5	2.1	2.4	2.1	1.7
Transportation	1.1	0.7	0.7	0.2	0.5	0.5	0.3	0.3	(3)
Eliminations and Nontraceables	(3)	(3)	(3)	(3)	(3)	(3)	0.0	0.0	0.0
Total	5.5	5.3	5.9	6.4	7.8	11.0	10.7	12.6	9.2

[1] Property, plant, and equipment.
[2] FRS = Financial Reporting System (See Explanatory Note 13).
[3] Less than $50 million.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1975 through 1980 — Energy Information Administration, *Energy Company Development Patterns in the Postembargo Era*, Vol. 1 and Vol. 2, October 1982. • 1981 through 1983—Energy Information Administration, *Performance Profiles of Major Energy Producers.*

Figure 20. Operating Income of FRS* Companies, 1975-1983



*FRS = Financial Reporting System (See Explanatory Note 13).

Table 20. Operating Income of FRS [1] Companies, 1975-1983
(Billion Dollars)

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983
Location									
Domestic	12.2	15.2	16.4	18.0	25.2	33.3	35.0	29.7	27.8
Foreign	12.6	9.9	12.2	13.4	23.8	32.6	22.9	18.8	23.7
Eliminations and Nontraceables	-0.5	-1.1	-1.3	-1.6	-2.2	-3.2	-3.0	-3.1	-3.4
Total	24.3	24.0	27.3	29.8	46.8	62.7	54.8	45.5	48.2
Type of Business									
Petroleum and Natural Gas	22.7	22.4	26.2	29.5	45.4	63.2	56.9	49.9	49.8
Coal	0.4	0.3	0.2	0.1	0.2	0.3	0.2	0.4	0.5
Nuclear	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	[2]
Other Energy	-0.2	-0.1	-0.1	-0.2	-0.2	[2]	-0.5	-0.5	-0.2
Nonenergy	2.6	2.9	2.4	2.1	3.7	2.4	1.4	-1.4	1.5
Eliminations and Nontraceables	-1.2	-1.4	-1.3	-1.6	-2.1	-3.1	-3.0	-2.7	-3.4
Total	24.3	24.0	27.3	29.8	46.8	62.7	54.8	45.5	48.2
Domestic Petroleum and Natural Gas									
Production	9.6	10.6	11.3	12.0	16.6	25.4	30.4	24.9	22.2
Refining/Marketing	-0.2	1.6	2.4	2.7	3.5	3.8	0.9	2.3	1.5
Transportation	0.6	0.8	0.9	2.1	2.7	3.0	3.1	3.5	3.5
Eliminations and Nontraceables	[2]	-0.1	-0.1	-0.1	-0.1	-0.1	[2]	-0.1	[2]
Total	10.0	12.9	14.4	16.7	22.7	32.0	34.5	30.7	27.2
Foreign Petroleum and Natural Gas									
Production	10.3	7.8	9.7	10.2	16.1	24.2	19.5	18.3	21.1
Refining/Marketing	1.8	2.1	1.7	2.4	6.4	7.0	3.0	1.1	1.8
Transportation	-0.1	0.2	0.1	[2]	0.2	0.1	-0.1	-0.3	-0.5
Eliminations and Nontraceables	0.2	-0.5	0.1	0.1	[2]	-0.1	[2]	[2]	0.1
Total	12.2	9.5	11.8	12.8	22.7	31.2	22.4	19.2	22.5

[1] FRS = Financial Reporting System (See Explanatory Note 13).
[2] Less than $50 million.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1975 through 1980 — Energy Information Administration, *Energy Company Development Patterns in the Postembargo Era*, Vol. 2, October 1982 and Form EIA-28. •1981 through 1983—Energy Information Administration, *Performance Profiles of Major Energy Producers.*

Figure 21. Energy Consumption per Capita and per Constant Dollar of Gross National Product, 1949–1984

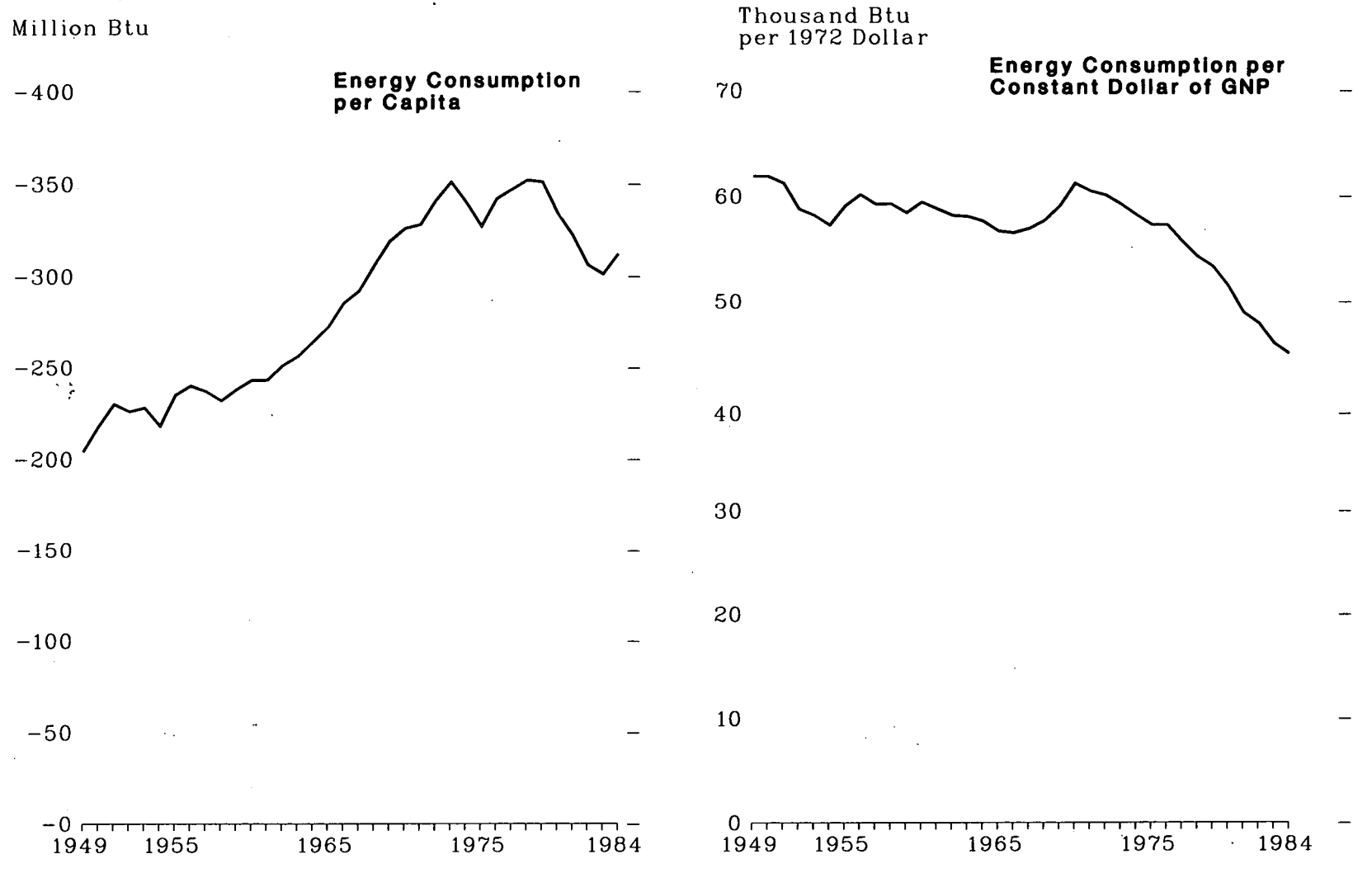
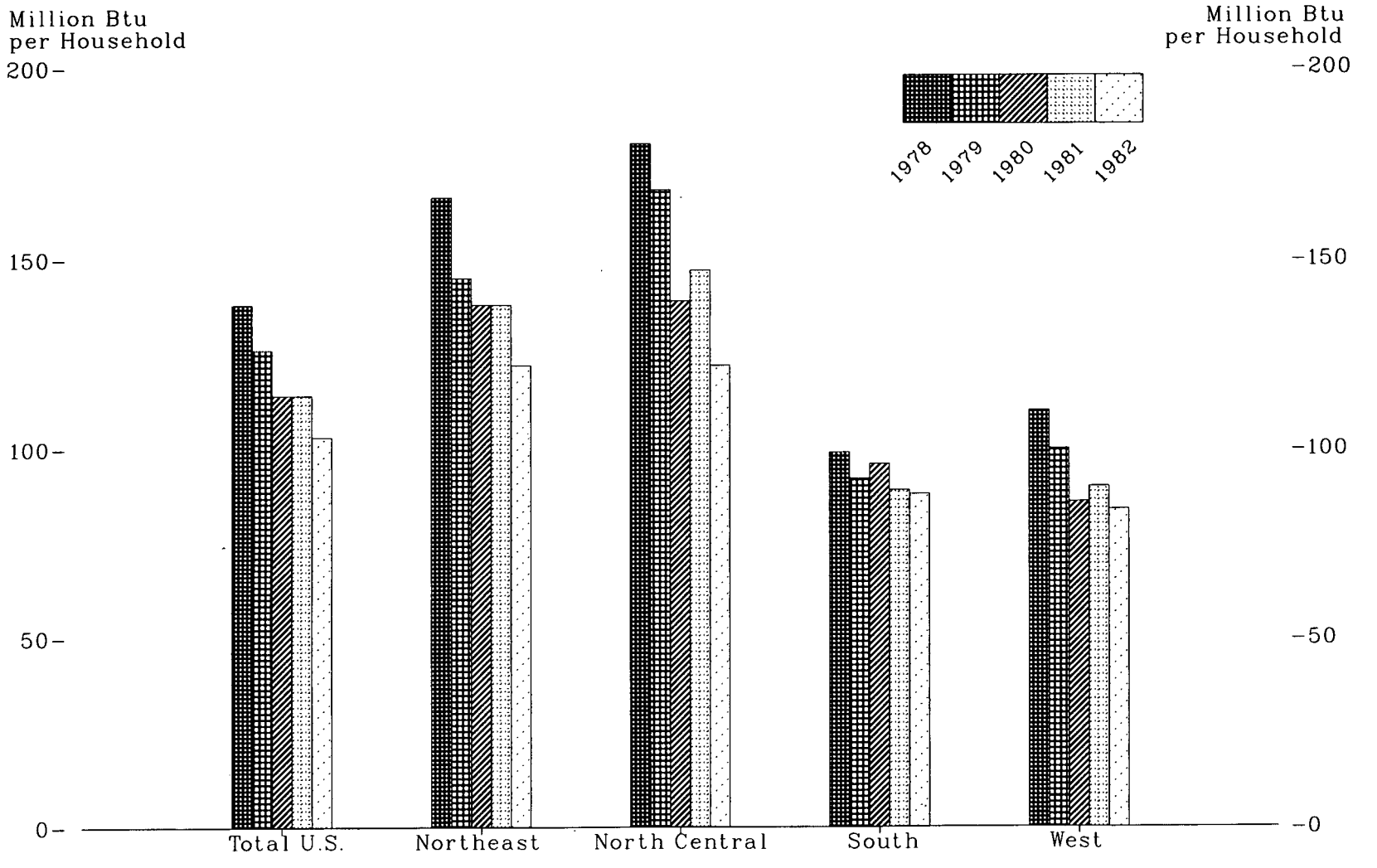


Table 21. Energy Consumption per Capita and per Constant Dollar of Gross National Product, 1949-1984

Year	Total Energy Consumption (quadrillion Btu)	Population (million) [2]	GNP [1] (billion 1972 dollars)	Consumption per Capita		Consumption per GNP [1]	
				Quantity (million Btu)	Change from Previous Year (percent) [3]	Quantity (thousand Btu) per 1972 dollars)	Change from Previous Year (percent) [3]
1949	30.47	149.3	492.2	204	—	61.91	—
1950	33.09	151.9	534.8	218	6.9	61.87	-0.1
1951	35.48	154.0	579.4	230	5.5	61.23	-1.0
1952	35.31	156.4	600.8	226	-1.7	58.78	-4.0
1953	36.28	159.0	623.6	228	0.9	58.18	-1.0
1954	35.28	161.9	616.1	218	-4.4	57.26	-1.6
1955	38.83	165.1	657.5	235	7.8	59.06	3.1
1956	40.39	168.1	671.6	240	2.1	60.14	1.8
1957	40.50	171.2	683.8	237	-1.3	59.22	-1.5
1958	40.36	174.1	680.9	232	-2.1	59.27	0.1
1959	42.15	177.1	721.7	238	2.6	58.41	-1.5
1960	43.81	180.0	737.2	243	2.1	59.43	1.7
1961	44.47	183.0	756.6	243	0.0	58.78	-1.1
1962	46.54	185.8	800.3	251	3.3	58.16	-1.1
1963	48.34	188.5	832.5	256	2.0	58.06	-0.2
1964	50.51	191.1	876.4	264	3.1	57.63	-0.7
1965	52.69	193.5	929.3	272	3.0	56.70	-1.6
1966	55.67	195.6	984.8	285	4.8	56.53	-0.3
1967	57.58	197.5	1,011.4	292	2.5	56.93	0.7
1968	61.01	199.4	1,058.1	306	4.8	57.66	1.3
1969	64.20	201.4	1,087.6	319	4.2	59.03	2.4
1970	66.44	204.0	1,085.6	326	2.2	61.20	3.7
1971	67.90	206.8	1,122.4	328	0.6	60.49	-1.2
1972	71.27	209.3	1,185.9	341	4.0	60.09	-0.7
1973	74.29	211.4	1,254.3	351	2.9	59.23	-1.4
1974	72.55	213.3	1,246.3	340	-3.1	58.21	-1.7
1975	70.55	215.5	1,231.6	327	-3.8	57.28	-1.6
1976	74.37	217.6	1,298.2	342	4.6	57.28	0.0
1977	76.29	219.8	1,369.7	347	1.5	55.70	-2.8
1978	78.09	222.1	1,438.6	352	1.4	54.28	-2.5
1979	78.90	224.6	1,479.4	351	-0.3	53.33	-1.8
1980	75.96	227.2	1,475.0	334	-4.8	51.50	-3.4
1981	73.99	229.5	1,512.2	322	-3.6	48.93	-5.0
1982	70.84	231.8	1,480.0	306	-5.0	47.86	-2.2
1983	70.50	234.0	1,534.7	301	-1.6	45.94	-4.0
1984[4]	73.73	236.2	1,639.9	312	3.7	44.96	-2.1

[1] GNP = Gross national product in constant 1972 dollars calculated using GNP price deflators, 1972 = 100.0. See Energy Equivalents and Price Deflators section.
[2] Resident population of the 50 States and the District of Columbia estimated for July 1 of each year.
[3] Percent change calculated from data prior to rounding.
[4] Preliminary.
Sources: **Total Energy Consumption:** See Table 3. **Population:** Bureau of the Census, *Current Population Reports*, "Population Estimates and Projections," Series P-25. **GNP:** •1949 through 1976—Department of Commerce, Bureau of Economic Analysis, *The National Income and Product Accounts of the United States, 1929-1976.* •1977 through 1984—Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, monthly.

Figure 22. Energy Consumed by Households, 1978-1982



Note: See Appendix 1 for Census Regions.

Table 22. Energy [1] Consumed by Households, 1978-1982 [2]

(Quadrillion Btu, Except as Noted)

Census Region [3]	1978	1979	1980	1981	1982
Northeast					
Natural Gas	1.14	1.05	0.92	1.06	0.99
Electricity	0.39	0.39	0.39	0.42	0.38
Distillate Fuel Oil and Kerosene	1.32	1.03	1.09	0.96	0.79
Liquefied Petroleum Gases	0.03	0.03	0.03	0.03	0.02
Total	2.89	2.50	2.43	2.47	2.18
Consumption per Household (million Btu)	166	145	138	138	122
North Central					
Natural Gas	2.53	2.48	2.02	2.24	1.76
Electricity	0.60	0.59	0.60	0.57	0.57
Distillate Fuel Oil and Kerosene	0.46	0.31	0.16	0.17	0.15
Liquefied Petroleum Gases	0.12	0.10	0.15	0.13	0.11
Total	3.70	3.48	2.92	3.12	2.60
Consumption per Household (million Btu)	180	168	139	147	122
South					
Natural Gas	0.96	0.91	1.11	1.16	1.13
Electricity	1.00	0.97	1.06	1.03	1.05
Distillate Fuel Oil and Kerosene	0.32	0.28	0.27	0.16	0.17
Liquefied Petroleum Gases	0.15	0.14	0.15	0.12	0.12
Total	2.43	2.30	2.59	2.46	2.46
Consumption per Household (million Btu)	99	92	96	89	88
West					
Natural Gas	0.95	0.88	0.89	0.93	0.89
Electricity	0.48	0.47	0.41	0.46	0.42
Distillate Fuel Oil and Kerosene	0.09	0.09	0.04	0.03	0.03
Liquefied Petroleum Gases	0.03	0.04	0.04	0.04	0.04
Total	1.54	1.47	1.38	1.47	1.38
Consumption per Household (million Btu)	110	100	86	90	84
United States					
Natural Gas	5.58	5.31	4.94	5.39	4.77
Electricity	2.47	2.42	2.46	2.48	2.42
Distillate Fuel Oil and Kerosene	2.19	1.71	1.55	1.33	1.14
Liquefied Petroleum Gases	0.33	0.31	0.36	0.31	0.29
Total	10.56	9.74	9.32	9.51	8.62
Consumption per Household (million Btu)	138	126	114	114	103

[1] Major energy items only, as shown.
[2] Data are for April of year shown through March of following year.
[3] See Appendix 1 for Census regions.
Source: •1978 and 1979—Energy Information Administration, Form EIA-84, "Residential Energy Consumption Survey." •1980 and forward—Energy Information Administration, Form EIA-457, "Residential Energy Consumption Survey."

Figure 23. Household Energy Consumption Indicators, 1978–1982

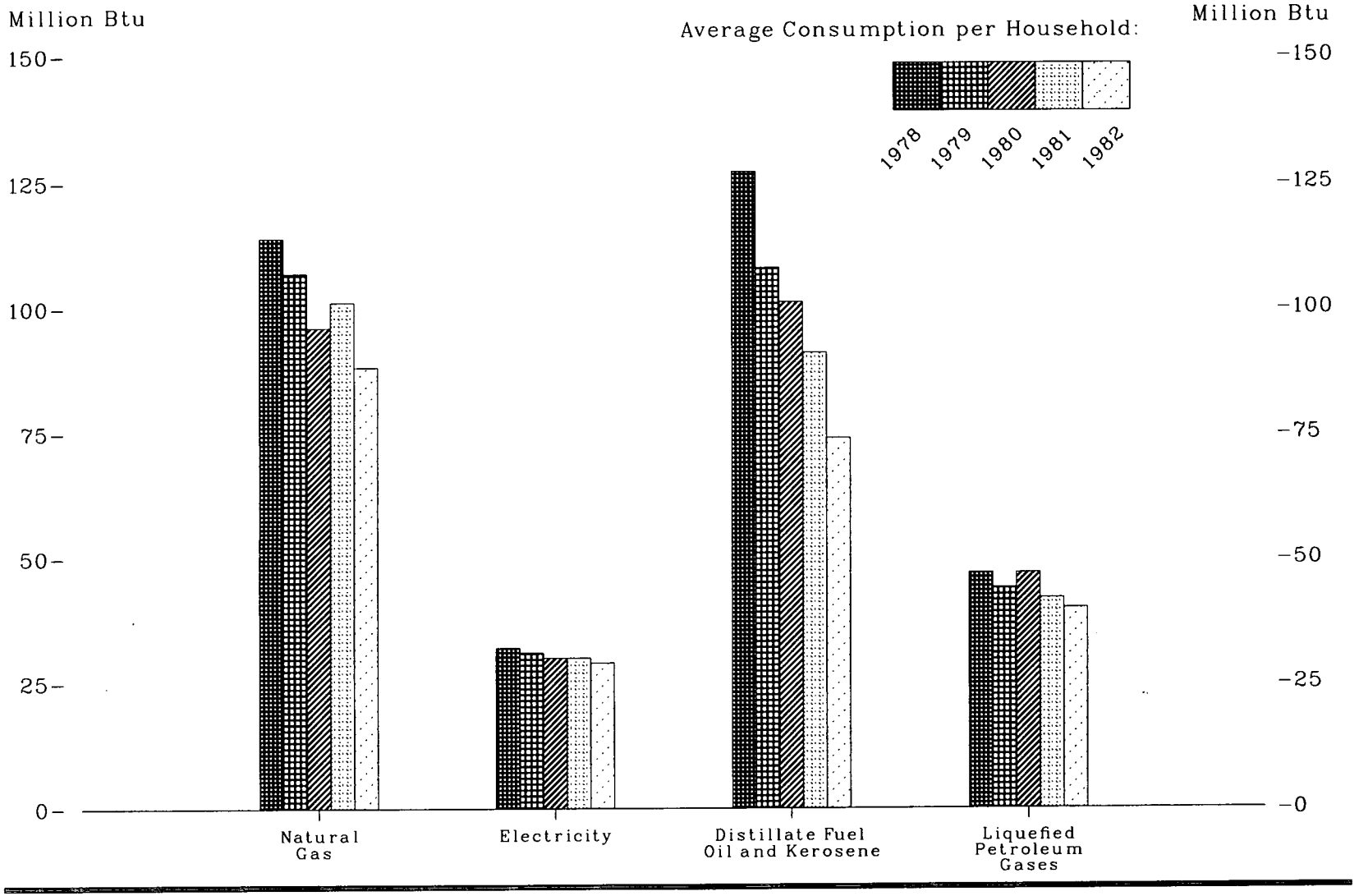


Table 23. Household Energy Consumption Indicators, 1978-1982 [1]

Source	Unit of Measure	1978	1979	1980	1981	1982
Natural Gas						
Households that use Natural Gas	Million	49.0	49.6	51.6	53.4	54.2
Average Consumption per Household	Million Btu	114	107	96	101	88
Households that use Natural Gas as Main Heating Source	Million	41.8	42.4	44.6	46.2	47.5
Average Consumption per Household	Million Btu	128	120	107	112	95
Heating Degree-Days	Degree-Days	5,207	5,136	4,847	4,988	4,596
Heated Floor Space	Square Feet	NA	NA	1,533	1,547	1,483
Electricity						
Households that use Electricity	Million	76.6	77.5	81.6	83.1	83.7
Average Consumption per Household	Million Btu	32	31	30	30	29
Households that use Electricity as Main Heating Source and for Air-Conditioning	Million	7.6	8.4	10.7	10.6	10.2
Average Consumption per Household	Million Btu	68	59	56	55	57
Heating Degree-Days	Degree-Days	3,271	3,196	3,543	3,431	3,293
Cooling Degree-Days	Degree-Days	1,999	1,714	1,849	1,779	1,647
Heated Floor Space	Square Feet	NA	NA	1,398	1,305	1,364
Households that use Electricity as Main Heating Source but not for Air-Conditioning	Million	4.5	4.4	3.6	3.7	3.1
Average Consumption per Household	Million Btu	72	63	55	50	48
Heating Degree-Days	Degree-Days	5,862	5,737	5,181	4,913	4,990
Heated Floor Space	Square Feet	NA	NA	1,270	1,135	1,068
Households that use Electricity for Air-Conditioning but not as Main Heating Source	Million	33.8	33.0	34.3	36.5	37.8
Average Consumption per Household	Million Btu	30	30	29	29	28
Cooling Degree-Days	Degree-Days	1,294	1,008	1,317	1,155	1,062
Distillate Fuel Oil and Kerosene (Oil)						
Households that use Oil	Million	17.2	15.9	15.4	14.6	15.5
Average Consumption per Household	Million Btu	127	107	101	91	74
Households that use Oil as Main Heating Source	Million	16.9	14.6	13.4	12.2	12.0
Average Consumption per Household	Million Btu	129	113	112	103	90
Heating Degree-Days	Degree-Days	5,548	5,362	5,827	5,973	5,379
Heated Floor Space	Square Feet	NA	NA	1,571	1,573	1,505
Liquefied Petroleum Gases (LPG) [2]						
Households that use LPG [2]	Million	6.9	7.0	7.7	7.3	7.3
Average Consumption per Household	Million Btu	47	44	47	42	40
Households that use LPG as Main Heating Source	Million	3.1	3.7	3.7	3.7	3.8
Average Consumption per Household	Million Btu	80	67	77	67	59
Heating Degree-Days	Degree-Days	3,998	3,760	4,386	4,024	3,928
Heated Floor Space	Square Feet	NA	NA	1,234	1,288	1,247

[1] Data are for April of year shown through March of following year except for household counts and floor space data which are for November of year shown.
[2] Excludes household use of liquefied petroleum gases for cooking grills or recreation vehicles.
NA = Not available.
Note: Average consumption per household for each energy source is total average consumption per household and is not limited to space heating and cooling only.
Sources: •1978 and 1979—Energy Information Administration, Form EIA-84, "Residential Energy Consumption Survey." •1980 and forward—Energy Information Administration, Form EIA-457, "Residential Energy Consumption Survey."

Figure 24. Type of Heating in Occupied Housing Units, 1950, 1960, 1970, and 1983

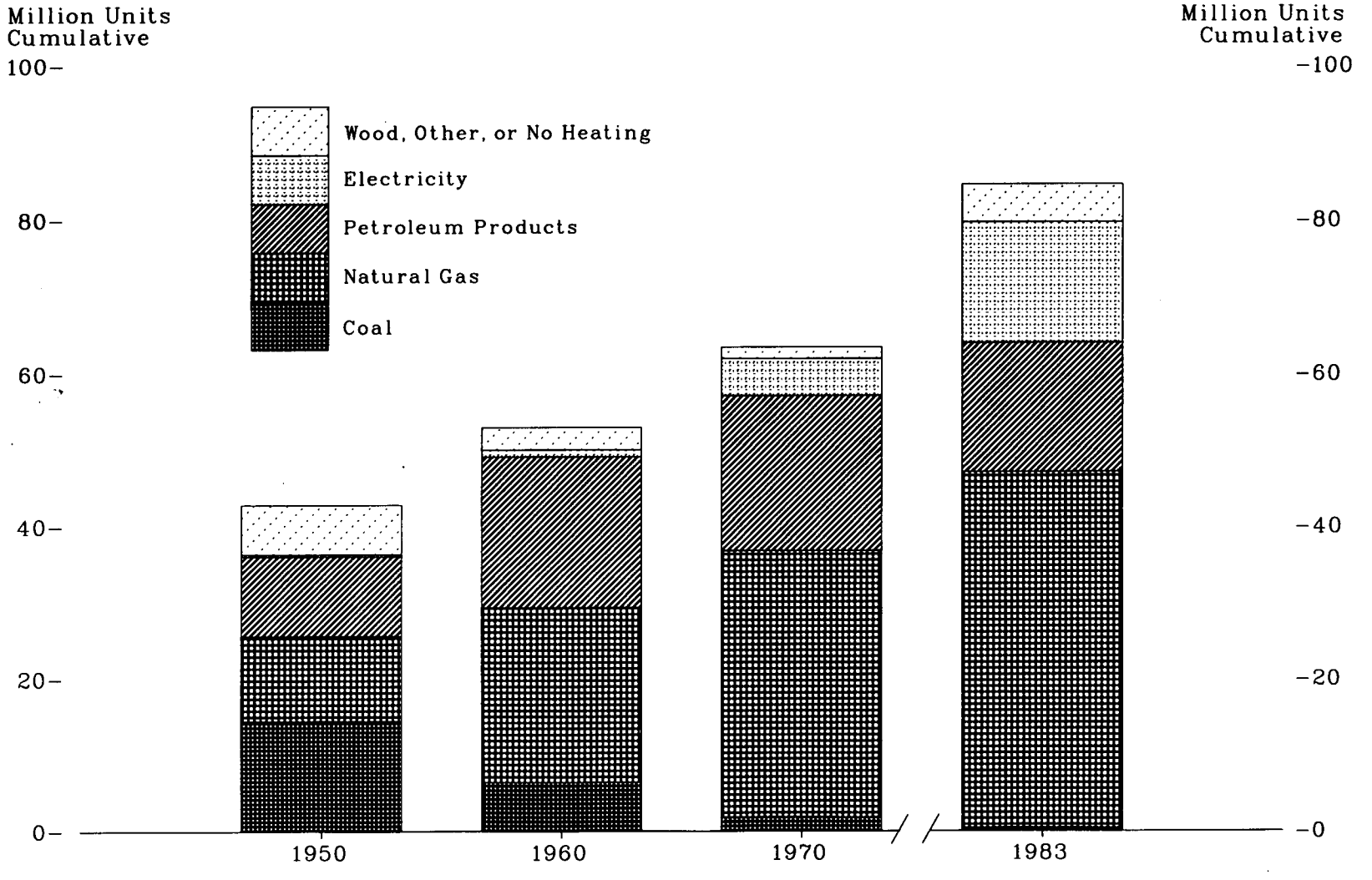


Table 24. Type of Heating in Occupied Housing[1] Units, 1950, 1960, 1970, 1973-1981, and 1983

Year	Coal[2]	Natural Gas	Liquefied Gas	Distillate Fuel Oil	Kerosene	Electricity	Wood	Other	None[3]	Total
	Million									
1950	14.48	11.12	0.98	9.46	(4)	0.28	4.17	0.77	1.57	42.83
1960	6.46	22.85	2.69	17.16	(4)	0.93	2.24	0.22	0.48	53.02
1970	1.82	35.01	3.81	16.47	(4)	4.88	0.79	0.27	0.40	63.45
1973	0.80	38.46	4.42	17.24	(4)	7.21	0.60	0.15	0.45	69.34
1974	0.74	39.47	4.14	16.84	(4)	8.41	0.66	0.09	0.48	70.83
1975	0.57	40.93	4.15	16.30	(4)	9.17	0.85	0.08	0.47	72.52
1976	0.48	41.22	4.24	16.45	(4)	10.15	0.91	0.09	0.46	74.01
1977	0.45	41.54	4.18	15.62	0.44	11.15	1.24	0.15	0.51	75.28
1978	0.40	42.52	4.13	15.65	0.42	12.26	1.07	0.12	0.60	77.17
1979	0.36	43.32	4.13	15.30	0.41	13.24	1.14	0.10	0.57	78.57
1980	0.33	44.40	4.17	14.50	0.37	14.21	1.38	0.11	0.61	80.07
1981	0.36	46.08	4.17	14.13	0.37	15.49	1.89	0.10	0.59	83.18
1983[5]	0.43	46.70	3.87	12.59	0.45	15.68	4.09	0.16	0.68	84.64
	Percent									
1950	33.8	26.0	2.3	22.1	(4)	0.6	9.7	1.8	3.7	100.0
1960	12.2	43.1	5.1	32.4	(4)	1.8	4.2	0.4	0.9	100.0
1970	2.9	55.2	6.0	26.0	(4)	7.7	1.3	0.4	0.6	100.0
1973	1.2	55.5	6.4	24.9	(4)	10.4	0.9	0.2	0.7	100.0
1974	1.0	55.7	5.8	23.8	(4)	11.9	0.9	0.1	0.7	100.0
1975	0.8	56.4	5.7	22.5	(4)	12.6	1.2	0.1	0.6	100.0
1976	0.7	55.7	5.7	22.2	(4)	13.7	1.2	0.1	0.6	100.0
1977	0.6	55.2	5.6	20.7	0.6	14.8	1.6	0.2	0.7	100.0
1978	0.5	55.1	5.4	20.3	0.5	15.9	1.4	0.2	0.8	100.0
1979	0.5	55.1	5.3	19.5	0.5	16.9	1.4	0.1	0.7	100.0
1980	0.4	55.4	5.2	18.1	0.5	17.7	1.7	0.1	0.8	100.0
1981	0.4	55.4	5.0	17.0	0.4	18.6	2.3	0.1	0.7	100.0
1983[5]	0.5	55.2	4.6	14.9	0.5	18.5	4.8	0.2	0.8	100.0

[1] Includes mobile homes and individual housing units in apartment buildings. Housing units with more than one type of heating system are classified according to the principal type of heating system.
[2] Includes coal coke.
[3] Includes nonreporting units in 1950 and 1960 which totaled 997 and 2,000 units, respectively.
[4] Included in distillate fuel oil.
[5] Data for 1982 are not available. Since 1981, the *Annual Housing Survey* has been a biennial survey.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1950, 1960, and 1970—Bureau of the Census, *Census of Population and Housing.* •1973 through 1981 and 1983—Bureau of the Census, *Annual Housing Survey.*

Figure 25. Household Appliance Data, 1980-1982

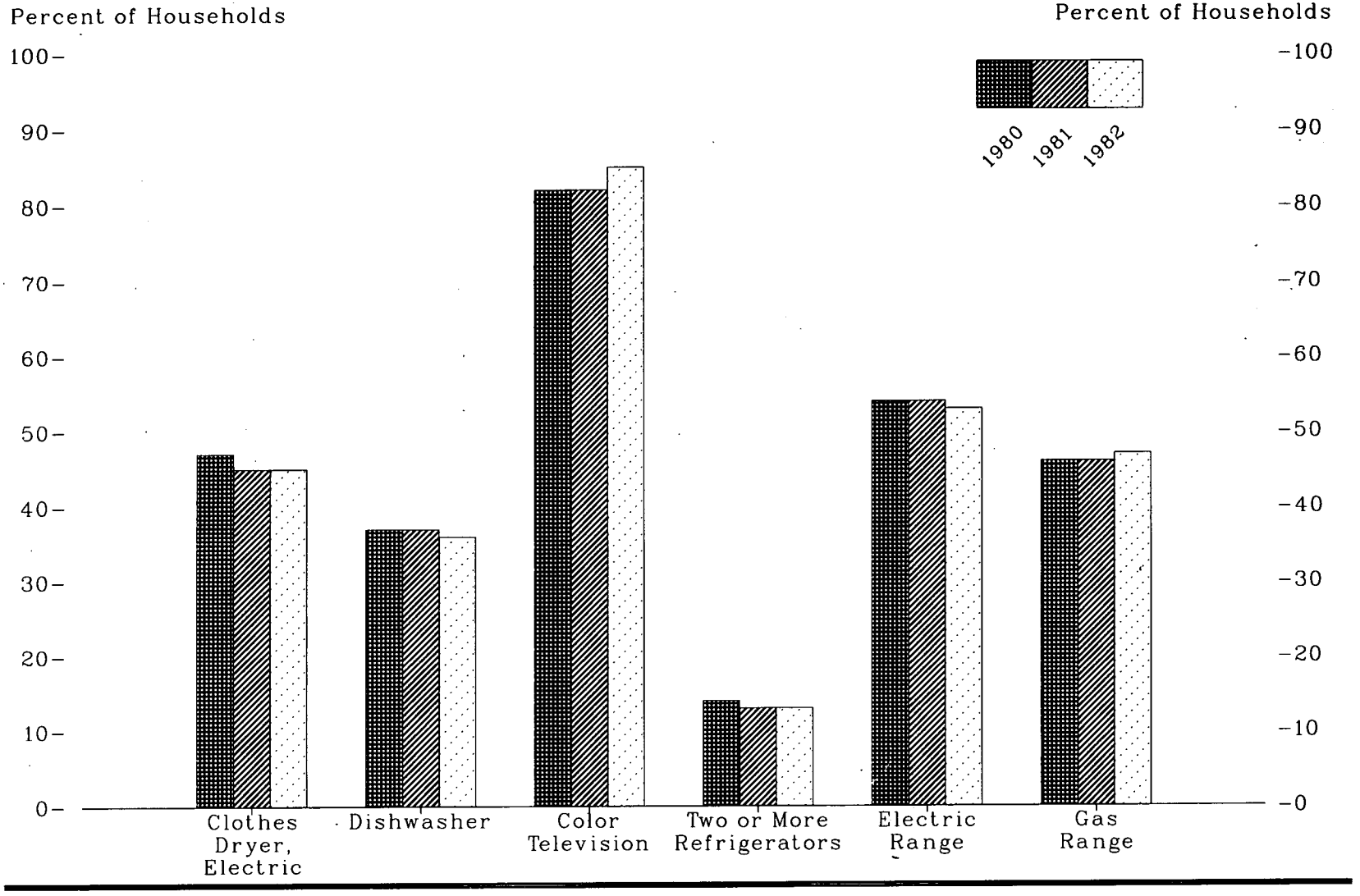
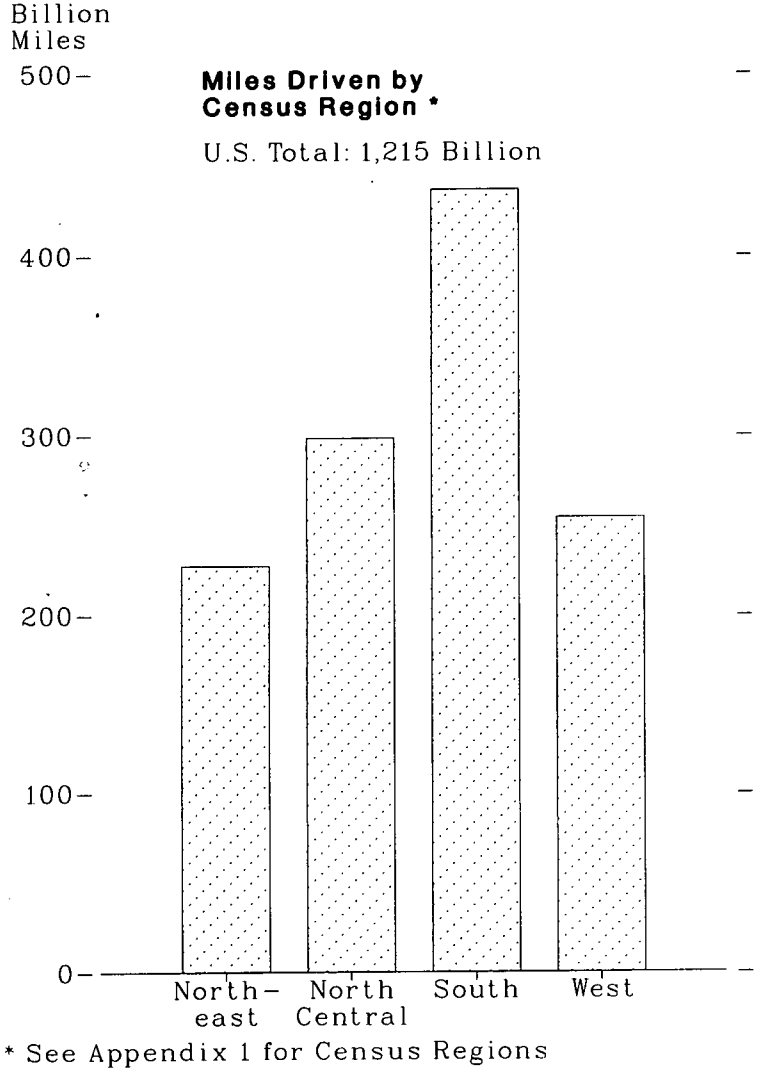


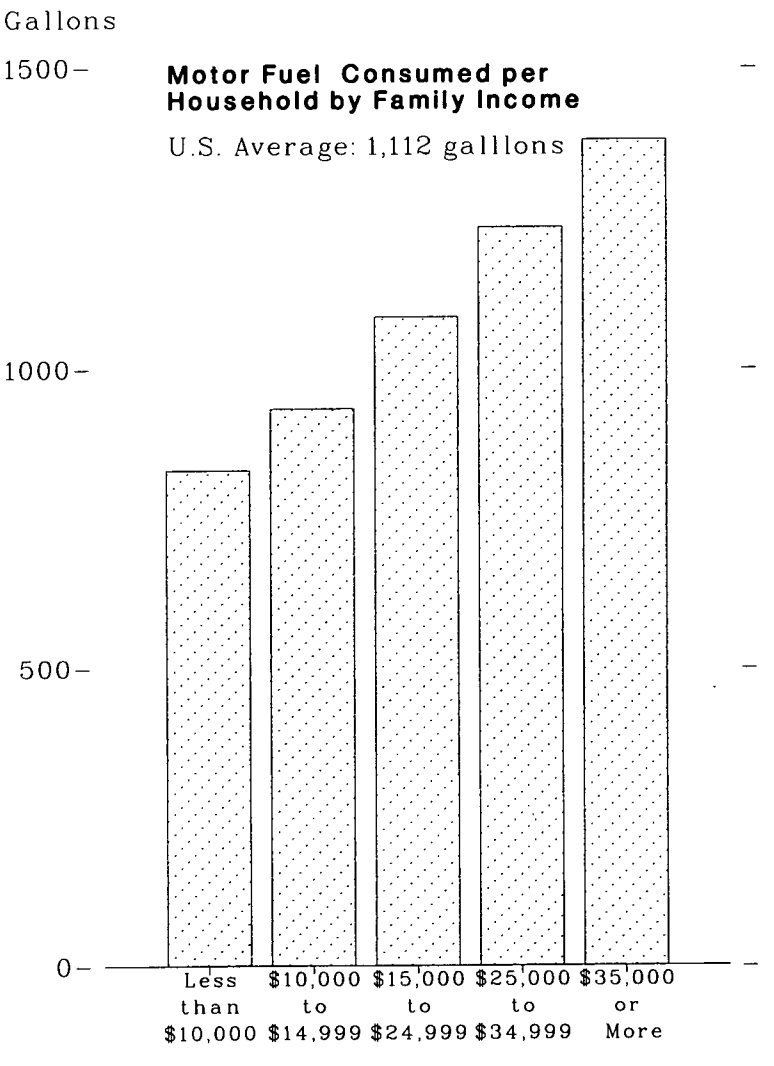
Table 25. Household Appliance Data, 1978-1982

Appliance	Million Households					Percentage of Households				
	1978	1979	1980	1981	1982	1978	1979	1980	1981	1982
Total Households	76.6	77.5	81.6	83.1	83.8	100	100	100	100	100
Type Appliances										
Electric Appliances										
Television Set (Color)	NA	NA	67.0	68.4	71.0	NA	NA	82	82	85
Television Set (B/W)	NA	NA	41.9	39.5	38.9	NA	NA	51	48	47
Clothes Washer (Automatic)	54.0	NA	58.4	58.4	57.9	71	NA	72	70	69
Clothes Washer (Wringer)	3.4	NA	2.9	2.8	2.5	4	NA	4	3	3
Range (Stove-Top or Burners)	40.7	NA	43.8	45.2	44.7	53	NA	54	54	53
Oven	41.5	NA	48.5	48.2	49.3	54	NA	59	58	59
Microwave	6.0	NA	11.6	14.0	17.3	8	NA	14	17	21
Clothes Dryer	34.5	NA	38.3	37.5	37.9	45	NA	47	45	45
Separate Freezer	27.0	NA	21.1	31.9	31.0	35	NA	38	38	37
Dishwasher	26.5	NA	30.4	30.5	30.3	35	NA	37	37	36
Humidifier	NA	NA	11.0	10.8	11.3	NA	NA	14	13	14
Dehumidifier	NA	NA	7.3	7.8	7.5	NA	NA	9	9	9
Window or Ceiling Fan	NA	NA	NA	NA	23.5	NA	NA	NA	NA	28
Whole House Cooling Fan	NA	NA	NA	NA	6.5	NA	NA	NA	NA	8
Evaporative Cooler	NA	NA	3.2	3.0	3.6	NA	NA	4	4	4
Gas Appliances										
Range (Stove-Top or Burners)	36.9	NA	37.5	38.2	39.0	48	NA	46	46	47
Oven	35.9	NA	34.2	33.0	35.0	47	NA	42	40	42
Clothes Dryer	11.0	NA	11.8	13.1	12.2	14	NA	14	16	15
Outdoor Gas Grill	NA	NA	7.1	7.4	9.4	NA	NA	9	9	11
Outdoor Gas Light	1.3	NA	1.6	1.4	1.4	2	NA	2	2	2
Swimming Pool Heater	NA	NA	0.4	0.4	0.3	NA	NA	(1)	(1)	(1)
Refrigerators										
One	66.0	NA	70.0	72.4	72.4	86	NA	86	87	86
Two or More	10.4	NA	11.5	10.5	11.1	14	NA	14	13	13
None	0.2	NA	0.2	0.2	0.2	(1)	NA	(1)	(1)	(1)
Air Conditioning (A/C)										
Central	17.6	18.7	22.2	22.4	23.3	23	24	27	27	28
Individual Room Units	25.1	23.8	24.5	26.0	25.3	33	31	30	31	30
None	33.8	35.0	34.9	34.7	35.1	44	45	43	42	42

[1] Less than 0.5 percent.
NA = Not available.
Source: •1978 and 1979—Energy Information Administration, Form EIA-84, "Residential Energy Consumption Survey." •1980 and forward—Energy Information Administration, Form EIA-457, "Residential Energy Consumption Survey."

Figure 26. Household Motor Vehicle Data, 1983





* See Appendix 1 for Census Regions

Table 26. Household Motor Vehicle Data, 1983

Activity	Census Region				Family Income					
	Northeast	North Central	South	West	Less than $10,000	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 or More	Total
Households with Vehicles (millions)	13.9	18.3	24.7	15.3	13.1	10.5	18.4	14.7	15.6	72.2
Vehicles (millions)	23.9	32.5	45.1	27.7	18.5	16.1	31.8	28.3	34.6	129.3
Miles Traveled (billions)	227	298	436	254	151	144	292	282	347	1,215
Fuel Consumed (billion gallons)										
Motor Gasoline, Leaded	5.1	8.1	11.5	7.4	5.4	4.7	9.0	6.4	6.7	32.2
Motor Gasoline, Unleaded	9.1	11.4	16.8	8.7	5.2	5.0	10.6	11.3	14.0	46.1
Diesel Oil, Other	0.3	0.6	0.7	0.3	0.2	0.1	0.4	0.4	0.8	1.9
Total	14.5	20.2	29.1	16.5	10.8	9.8	20.0	18.1	21.6	80.3
Averages per Household										
Vehicles	1.7	1.8	1.8	1.8	1.4	1.5	1.7	1.9	2.2	1.8
Miles Traveled	16,324	16,299	17,689	16,541	11,559	13,682	15,897	19,252	22,167	16,830
Fuel Consumed (gallons)	1,044	1,104	1,178	1,076	830	933	1,087	1,236	1,380	1,112
Fuel Expenditures (dollars)	1,254	1,314	1,385	1,269	979	1,104	1,282	1,461	1,650	1,317
Averages per Vehicle										
Miles Traveled	9,511	9,153	9,674	9,144	8,166	8,919	9,183	9,981	10,004	9,399
Fuel Consumed (gallons)	609	620	644	595	586	608	628	641	623	621
Fuel Expenditures (dollars)	731	738	758	701	691	719	740	757	745	736
Price (dollars per gallon)										
Motor Gasoline, Leaded	1.15	1.15	1.12	1.14	1.14	1.14	1.14	1.13	1.14	1.14
Motor Gasoline, Unleaded	1.23	1.22	1.21	1.22	1.22	1.22	1.22	1.21	1.23	1.22
Diesel Oil, Other	1.18	1.16	1.13	1.17	1.14	1.15	1.15	1.18	1.14	1.15
Average	1.20	1.19	1.18	1.18	1.18	1.18	1.18	1.18	1.20	1.18
Fuel Efficiency (miles per gallon)	15.6	14.8	15.0	15.4	13.9	14.7	14.6	15.6	16.1	15.1

Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, Form EIA-141 and Form EIA-429, "Residential Transportation Energy Consumption Survey, 1983."

Figure 27. Average Annual Motor Vehicle Mileage and Fuel Consumption, 1960-1983

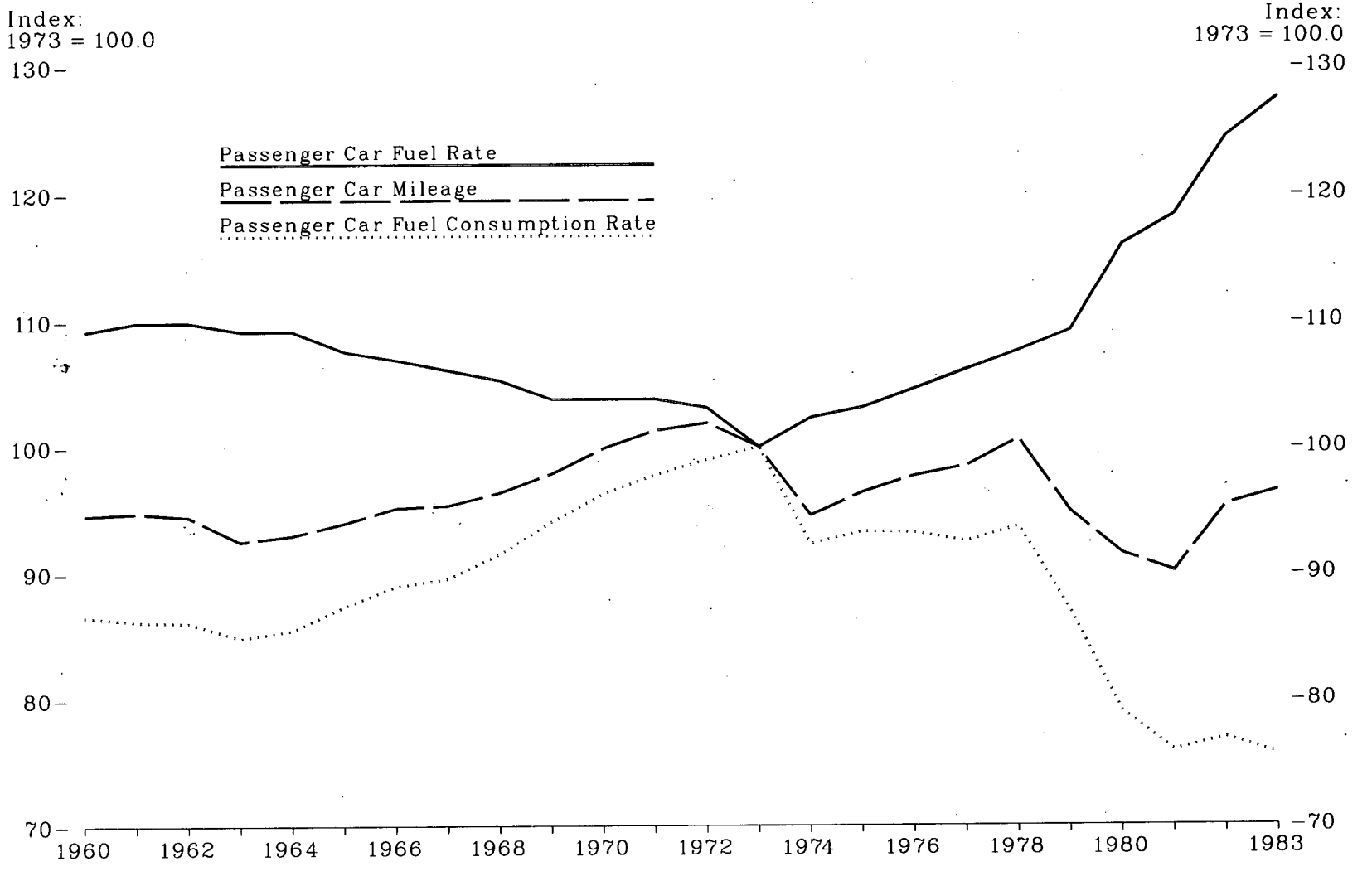


Table 27. Average [1] Annual Motor Vehicle Mileage and Fuel Consumption, 1960-1983

Year	Passenger Cars [2]						All Motor Vehicles [3]			
	Mileage		Fuel Consumption		Fuel Rate		Mileage		Fuel Consumption	
	Thousand Miles per Car	Index 1973 = 100.0	Gallons per Car	Index 1973 = 100.0	Miles per Gallon	Index 1973 = 100.0	Thousand Miles per Vehicle	Index 1973 = 100.0	Gallons per Vehicle	Index 1973 = 100.0
1960	9.45	94.6	661	86.6	14.3	109.2	9.65	95.7	777	91.3
1961	9.47	94.8	658	86.2	14.4	109.9	9.65	95.7	776	91.2
1962	9.44	94.5	657	86.1	14.4	109.9	9.62	95.4	774	91.0
1963	9.24	92.5	648	84.9	14.3	109.2	9.65	95.7	773	90.8
1964	9.29	93.0	652	85.5	14.3	109.2	9.70	96.2	778	91.4
1965	9.39	94.0	667	87.4	14.1	107.6	9.68	96.0	775	91.1
1966	9.51	95.2	679	89.0	14.0	106.9	9.70	96.2	778	91.4
1967	9.53	95.4	684	89.6	13.9	106.1	9.72	96.4	786	92.4
1968	9.63	96.4	698	91.5	13.8	105.3	9.85	97.7	804	94.5
1969	9.78	97.9	718	94.1	13.6	103.8	9.97	98.9	821	96.5
1970	9.98	99.9	735	96.3	13.6	103.8	10.08	100.0	830	97.5
1971	10.12	101.3	746	97.8	13.6	103.8	10.20	101.2	838	98.5
1972	10.18	101.9	755	99.0	13.5	103.1	10.37	102.9	859	100.9
1973	9.99	100.0	763	100.0	13.1	100.0	10.08	100.0	851	100.0
1974	9.45	94.6	704	92.3	13.4	102.3	9.53	94.5	788	92.6
1975	9.63	96.4	712	93.3	13.5	103.1	9.64	95.6	790	92.8
1976	9.76	97.7	711	93.2	13.7	104.6	9.84	97.6	807	94.8
1977	9.84	98.5	706	92.5	13.9	106.1	9.93	98.5	804	94.5
1978	10.05	100.6	715	93.7	14.1	107.6	10.06	99.8	813	95.5
1979	9.48	94.9	664	87.0	14.3	109.2	9.58	95.0	765	89.9
1980	9.14	91.5	603	79.0	15.2	116.0	9.41	93.4	711	83.5
1981	9.00	90.1	579	75.9	15.5	118.3	9.48	94.0	697	81.9
1982	9.53	95.4	587	76.9	16.3	124.4	9.64	95.6	686	80.6
1983[4]	9.64	96.5	577	75.6	16.7	127.5	9.73	96.5	681	80.0

[1] Arithmetic mean.
[2] Includes motorcycles, 1960-1964.
[3] Includes passenger cars, motorcycles, buses, and trucks.
[4] Preliminary.
Source: Federal Highway Administration, *Highway Statistics Annual*, Table VM-1.

Figure 28. Motor Vehicle Registration and Motor Fuel Consumption, 1960–1983

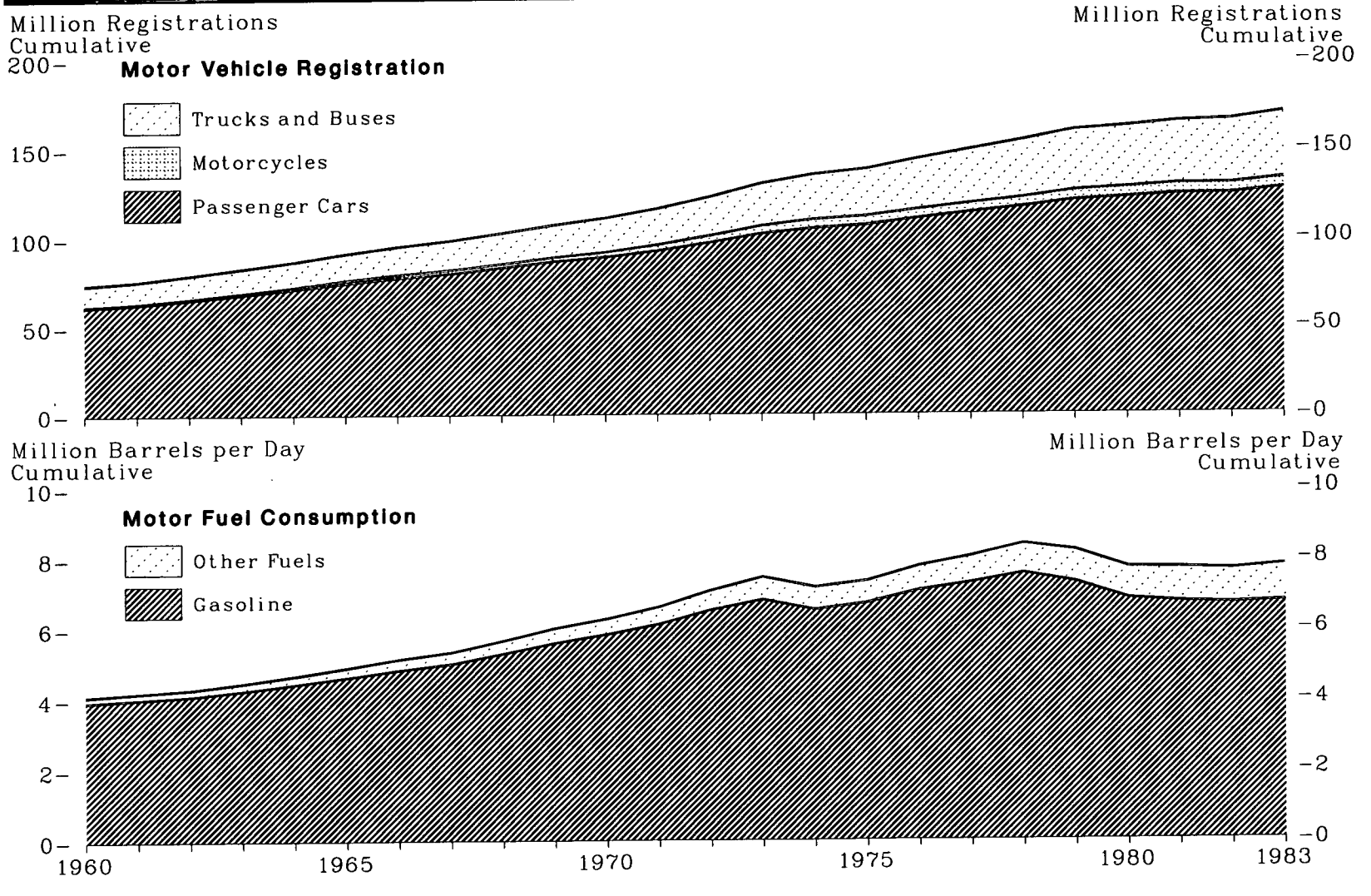


Table 28. Motor Vehicle Registration and Motor Fuel Consumption, 1960-1984

Year	Motor Vehicle Registration (millions)					Motor Fuel Consumption [1] (thousand barrels per day)		
	Passenger Cars	Motorcycles	Buses	Trucks	Total	Gasoline [2]	Other Fuels [3]	Total [4]
1960	61.7	0.6	0.3	11.9	74.4	3,953	159	4,112
1961	63.4	0.6	0.3	12.3	76.6	4,034	176	4,210
1962	66.1	0.7	0.3	12.8	79.8	4,120	192	4,312
1963	69.0	0.8	0.3	13.4	83.5	4,274	211	4,485
1964	72.0	1.0	0.3	14.0	87.3	4,454	236	4,690
1965	75.3	1.4	0.3	14.8	91.7	4,644	269	4,913
1966	78.1	1.8	0.3	15.5	95.7	4,846	306	5,152
1967	80.4	2.0	0.3	16.2	98.9	5,014	329	5,343
1968	83.6	2.1	0.4	16.9	103.0	5,300	370	5,670
1969	86.9	2.3	0.4	17.9	107.4	5,604	413	6,017
1970	89.2	2.8	0.4	18.8	111.2	5,845	439	6,284
1971	92.7	3.3	0.4	19.9	116.3	6,125	494	6,619
1972	97.1	3.8	0.4	21.3	122.6	6,529	554	7,083
1973	102.0	4.4	0.4	23.2	130.0	6,819	642	7,460
1974	104.9	5.0	0.4	24.6	134.9	6,531	639	7,170
1975	106.7	5.0	0.5	25.8	137.9	6,719	628	7,347
1976	110.4	5.0	0.5	27.7	143.5	7,075	697	7,772
1977	113.7	5.0	0.5	29.6	148.8	7,287	760	8,046
1978	116.6	5.1	0.5	31.7	153.9	7,555	837	8,392
1979	120.2	5.5	0.5	33.3	159.6	7,291	913	8,204
1980	121.7	5.7	0.5	33.6	161.6	6,820	896	7,716
1981	123.5	5.8	0.5	34.5	164.3	6,726	969	7,695
1982	123.7	5.7	0.6	35.3	165.3	6,679	972	7,651
1983	126.7	5.6	0.6	36.5	169.4	6,731	1,043	7,774
1984[5]	130.1	5.6	([6])	[7] 38.6	174.2	6,888	1,145	8,033

[1] Includes only motor fuel taxed at the prevailing tax rates in each State. Excludes motor fuel exempt from tax payment, subject to tax refund, or taxed at rates other than the prevailing tax rate. In 1981, the total motor fuel consumption quantity cited here equaled 99.4 percent of gross reported motor fuel consumption.
[2] Includes motor gasoline, aviation gasoline, and gasohol.
[3] Includes distillate fuel oil (diesel oil), liquefied gases, and kerosene when they are used to operate vehicles on highways. Excludes jet fuel beginning in 1962.
[4] Excludes losses allowed for evaporation, handling, etc.
[5] Estimated.
[6] Included in trucks.
[7] Includes buses.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1960 through 1975—Federal Highway Administration, *Highway Statistics Summary to 1975*, Tables MV-201 and MF-221. •1976 through 1983—Federal Highway Administration, *Highway Statistics Annual*, Tables MV-1, MF-21, and MF-25. •1984—Federal Highway Administration, *Selected Highway Statistics and Charts 1983*.

Figure 29. Industrial Sector Energy Consumption by Source, 1960, 1965, 1970, 1975, 1980, and 1984

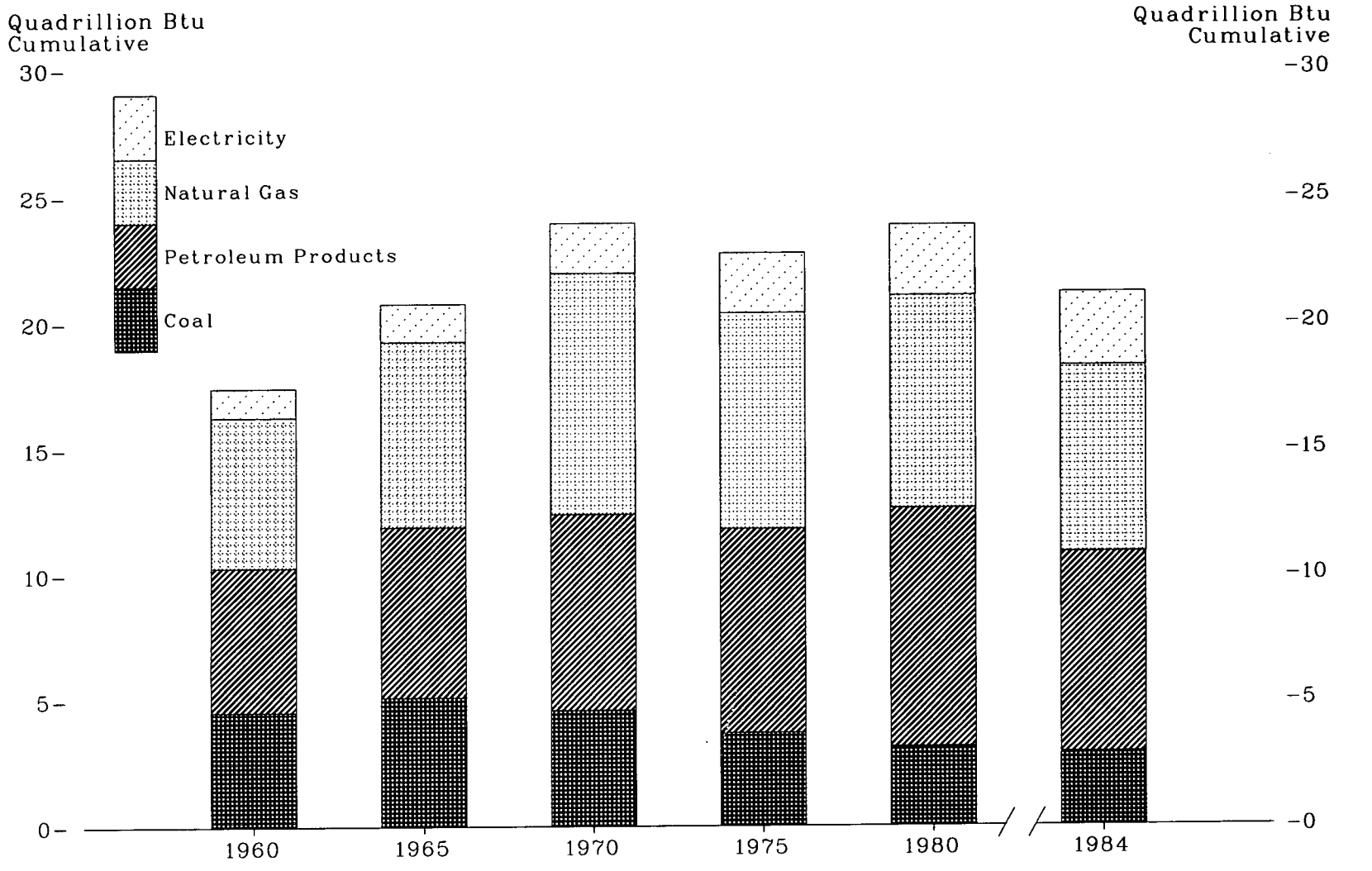


Table 29. Industrial Sector Energy Consumption by Source, 1960-1984

Year	Petroleum Products		Natural Gas		Coal [1]		Electricity [2]		Total [2]
	Quadrillion Btu	Percent	Quadrillion Btu	Percent	Quadrillion Btu	Percent	Quadrillion Btu	Percent	Quadrillion Btu
1960	5.75	33	5.97	34	4.54	26	1.15	7	17.41
1961	5.76	33	6.17	35	4.34	25	1.19	7	17.45
1962	6.00	33	6.45	36	4.39	24	1.26	7	18.10
1963	6.23	33	6.75	36	4.59	24	1.32	7	18.89
1964	6.55	33	7.11	36	4.91	25	1.42	7	19.99
1965	6.80	33	7.34	35	5.11	25	1.50	7	20.75
1966	7.12	33	7.80	36	5.20	24	1.61	7	21.73
1967	7.14	33	8.04	37	4.93	23	1.69	8	21.80
1968	7.41	33	8.63	38	4.85	21	1.81	8	22.70
1969	7.72	33	9.23	39	4.68	20	1.94	8	23.57
1970	7.81	33	9.54	40	4.60	19	1.98	8	23.93
1971	7.88	33	9.89	42	3.92	17	2.04	9	23.73
1972	8.55	35	9.88	40	3.97	16	2.22	9	24.62
1973	9.11	35	10.39	40	4.05	16	2.38	9	25.93
1974	8.70	35	10.00	40	3.93	16	2.37	9	25.00
1975	8.15	36	8.53	38	3.68	16	2.38	10	22.74
1976	9.02	38	8.76	36	3.66	15	2.61	11	24.05
1977	9.79	40	8.64	35	3.47	14	2.72	11	24.61
1978	9.89	40	8.54	35	3.44	14	2.79	11	24.66
1979	10.58	41	8.55	33	3.66	14	2.91	11	25.69
1980	9.52	40	8.39	35	3.12	13	2.81	12	23.85
1981	8.30	37	8.26	37	3.14	14	2.85	13	22.55
1982	7.80	39	7.12	36	2.53	13	2.58	13	20.02
1983	7.58	39	6.82	35	2.47	13	2.68	14	19.56
1984[3]	7.97	38	7.39	35	2.89	14	2.91	14	21.15

[1] Includes net imports of coal coke.
[2] Exludes energy losses from electricity generation, transmission, and distribution. Includes hydroelectric power generated by the industrial sector.
[3] Estimated.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1960 through 1972—Energy Information Administration, "State Energy Data System, 1960-1983." •1973 forward—Energy Information Administration, *Monthly Energy Review.*

Section 3. Energy Resources, Exploration and Development, and Reserves

Petroleum and Natural Gas Resources. The latest assessment of U.S. undiscovered recoverable crude oil and natural gas resources by the U.S. Geological Survey provides a mean estimate of domestic undiscovered recoverable crude oil resources of 82.6 billion barrels. About 66 percent of these resources are onshore. Major areas containing the resources are Alaska (including offshore areas), 23 percent, and the Gulf of Mexico area (including the onshore Gulf Coast), 16 percent (Table 30).

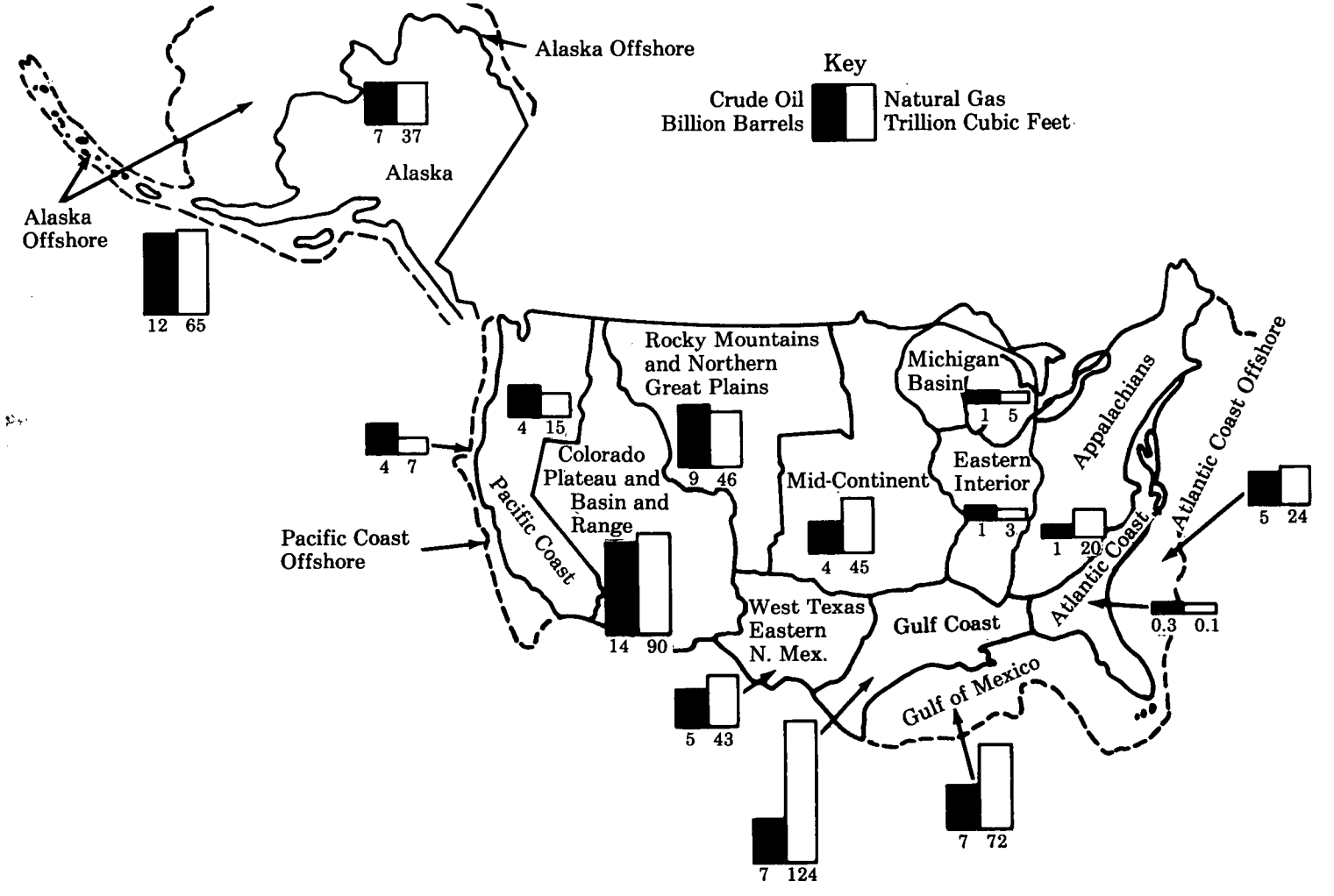
Petroleum and Natural Gas Exploration and Development. Preliminary 1984 data indicate that 15,018 exploratory wells were drilled, up from 13,051 in 1983 and more than twice the annual average for most of the 1970's. The 1984 rotary rig count average of 2,428 was up 9 percent from the 1983 level. Seismic testing is a key activity identifying new exploration drilling prospects. The line miles logged by seismic crews, which increased each year since 1977, declined in 1983 (the latest year for which data are available); however, the 658,000 miles logged was more than twice the 1978 level.

Petroleum and Natural Gas Domestic Reserves. Proved reserves of crude oil declined steadily after 1970 when Alaska's North Slope proved reserves were first included in the data. Although the decline rate eased somewhat in recent years, the 1983 figure fell again to 27.7 quadrillion barrels. Proved reserves of natural gas decreased 0.6 percent in 1983, while the reserves for natural gas liquids increased 9.4 percent. On a crude oil equivalent basis, natural gas reserves at the end of 1983 were 28 percent larger than crude oil reserves (Table 36).

Coal Resources. The most recent U.S. Geological Survey report on coal resources (Bulletin 1412) identified U.S. coal resources of more than 1,700 billion short tons at depths of less than 3,000 feet. The Survey also has estimated the existence of additional coal resources of more than 2,200 billion short tons to depths of 6,000 feet. The Energy Information Administration has estimated that approximately 490 billion short tons of coal were in the Demonstrated Reserve Base as of January 1, 1983. Although site-specific recovery rates range from 40 percent in some underground mines to more than 90 percent at some surface mines, it has been estimated that on a national basis at least half of the coal in the Demonstrated Reserve Base can be recovered (Table 37).

Uranium Resources. Uranium resources in the form of uranium oxide (U_3O_8) were estimated at 4.4 million short tons on December 31, 1983 (Table 38).

Figure 30. Estimated Undiscovered Recoverable Crude Oil and Natural Gas Resources, 1980



Note: Quantities are scaled according to the Btu content of the resources. 1 billion barrels of crude oil equals approximately 5.3 trillion cubic feet of wet natural gas.

Table 30. Estimated Undiscovered Recoverable Crude Oil and Natural Gas Resources, 1980

Region	Crude Oil (billion barrels)			Natural Gas (trillion cubic feet)		
		Estimated Range [1]			Estimated Range [1]	
	Mean [2]	Low	High	Mean [2]	Low	High
Onshore						
Alaska	6.9	2.5	14.6	36.6	19.8	62.3
Pacific Coast	4.4	2.1	7.9	14.7	8.2	24.9
Colorado Plateau and Basin and Range	14.2	6.9	25.9	90.1	53.5	142.4
Rocky Mountains and Northern Great Plains	9.4	6.0	14.0	45.7	29.6	69.0
West Texas and Eastern New Mexico	5.4	2.7	9.4	42.8	22.4	75.2
Gulf Coast	7.1	3.6	12.6	124.4	56.5	249.1
Mid-Continent	4.4	2.3	7.7	44.5	22.9	80.8
Michigan Basin	1.1	0.3	2.7	5.1	1.8	10.9
Eastern Interior	0.9	0.3	1.9	2.7	1.2	5.0
Appalachians	0.6	0.1	1.5	20.1	6.4	45.8
Atlantic Coast	0.3	0.1	0.8	0.1	[3]	0.4
Total Onshore	54.6	41.7	71.0	426.8	322.5	567.9
Offshore						
Alaska [4]	12.2	4.6	24.2	64.6	33.3	109.6
Pacific Coast	3.8	1.7	7.9	6.9	3.7	13.6
Gulf of Mexico	6.5	3.1	11.1	71.8	41.7	114.2
Atlantic Coast	5.4	1.1	12.9	23.7	9.2	42.8
Total Offshore	28.0	16.9	43.5	167.0	117.4	230.6
Total United States	82.6	64.3	105.1	593.8	474.6	739.3

[1] The low value of the range is the quantity associated with a 95 percent probability (19 in 20 chance) that there is at least this amount. The high value is the quantity with a 5 percent probability (1 in 20 chance) that there is at least this amount. Totals for the low and high values are not obtained by arithmetic summation; they are derived by statistical methods.
[2] The calculated mean from the probability curve using the Monte Carlo technique.
[3] Less than 0.1 trillion cubic feet.
[4] Includes quantities considered recoverable only if technology permits their exploitation beneath Arctic ice — a condition not yet met.
Source: U.S. Geological Survey, *Geological Estimates of Undiscovered Recoverable Conventional Resources of Oil and Gas in the United States, A Summary*, Circular 860, 1981.

Figure 31. Oil and Gas Exploration and Rotary Rigs in Use, 1949-1984

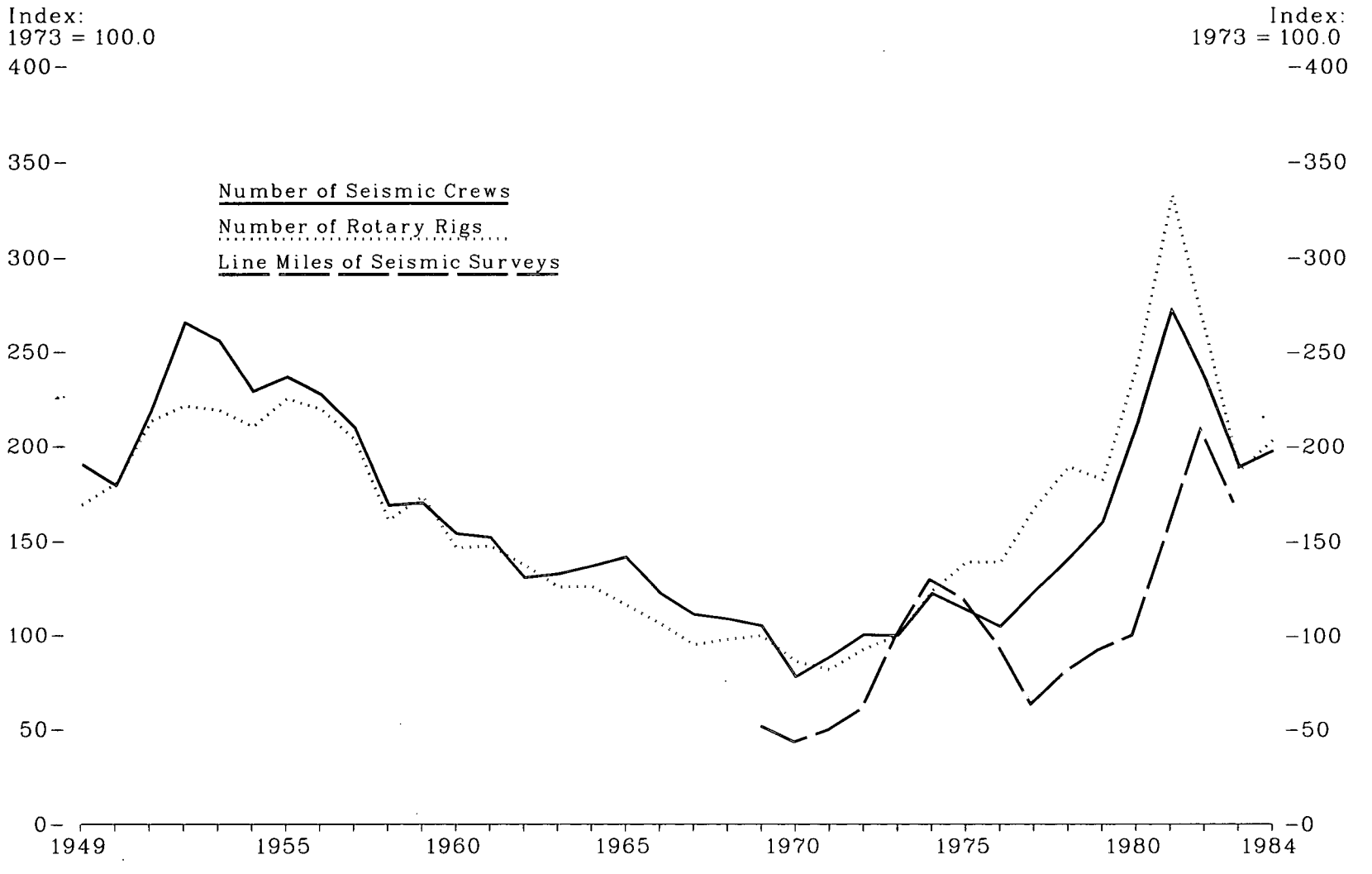


Table 31. Oil and Gas Exploration and Rotary Rigs in Use, 1949-1984

Year	Average Number of Seismic Crews				Line Miles of Seismic Surveys (thousand)				Average Number of Rotary Rigs in Use [1]	
	Offshore	Onshore	Total	Index [2]	Offshore	Onshore	Total	Index [2]	Total	Index [2]
1949	NA	NA	476	190.4	NA	NA	NA	NA	2,017	168.9
1950	NA	NA	448	179.2	NA	NA	NA	NA	2,154	180.4
1951	NA	NA	545	218.0	NA	NA	NA	NA	2,543	213.0
1952	NA	NA	663	265.2	NA	NA	NA	NA	2,641	221.2
1953	NA	NA	639	255.6	NA	NA	NA	NA	2,613	218.8
1954	NA	NA	572	228.8	NA	NA	NA	NA	2,508	210.1
1955	NA	NA	591	236.4	NA	NA	NA	NA	2,686	225.0
1956	NA	NA	568	227.2	NA	NA	NA	NA	2,620	219.4
1957	NA	NA	524	209.6	NA	NA	NA	NA	2,426	203.2
1958	NA	NA	422	168.8	NA	NA	NA	NA	1,922	161.0
1959	NA	NA	425	170.0	NA	NA	NA	NA	2,071	173.5
1960	NA	NA	385	154.0	NA	NA	NA	NA	1,748	146.4
1961	NA	NA	380	152.0	NA	NA	NA	NA	1,761	147.5
1962	NA	NA	326	130.4	NA	NA	NA	NA	1,641	137.4
1963	NA	NA	331	132.4	NA	NA	NA	NA	1,499	125.5
1964	NA	NA	342	136.8	NA	NA	NA	NA	1,501	125.7
1965	36	318	354	141.6	NA	NA	NA	NA	1,388	116.2
1966	38	268	306	122.4	NA	NA	NA	NA	1,272	106.5
1967	29	249	278	111.2	NA	NA	NA	NA	1,135	95.1
1968	20	252	272	108.8	NA	NA	NA	NA	1,169	97.9
1969	16	247	263	105.2	NA	NA	199.9	51.8	1,194	100.0
1970	10	185	195	78.0	NA	NA	167.3	43.3	1,028	86.1
1971	10	211	221	88.4	NA	NA	191.7	49.7	976	81.7
1972	12	239	251	100.4	NA	NA	235.7	61.0	1,107	92.7
1973	23	227	250	100.0	258.9	127.2	386.1	100.0	1,194	100.0
1974	31	274	305	122.0	341.8	158.6	500.4	129.6	1,472	123.3
1975	30	254	284	113.6	309.3	150.7	460.0	119.1	1,660	139.0
1976	25	237	262	104.8	226.3	142.9	369.2	95.6	1,658	138.9
1977	27	281	308	123.2	124.7	120.1	244.7	63.4	2,001	167.6
1978	25	327	352	140.8	174.6	135.9	310.5	80.4	2,259	189.2
1979	30	270	400	160.0	193.2	163.9	357.1	92.5	2,177	182.3
1980	37	493	530	212.0	202.7	184.1	386.8	100.2	2,909	243.6
1981	44	637	681	272.4	338.2	256.2	594.4	153.9	3,970	332.5
1982	57	531	588	235.2	558.5	248.5	806.9	209.0	3,105	260.1
1983	47	426	473	189.2	469.2	188.5	657.7	170.3	2,232	186.9
1984	49	445	494	197.6	NA	NA	NA	NA	2,428	203.4

[1] Data are not for the exact calendar year but for the 52 or 53 consecutive whole weeks that most nearly coincide with the calendar year.
[2] Index: 1973 = 100.0.
NA = Not available.
Sources: •**Average Number of Seismic Crews and Line Miles of Seismic Surveys:** Society of Exploration Geophysicists, *SEG News Release,* Monthly, Tulsa, Oklahoma. •**Average Number of Rotary Rigs in Use:** *Rotary Rigs Running-By States,* Hughes Tool Company, Houston, Texas.

Figure 32. Exploratory Wells Completed, by Well Type, 1949-1984

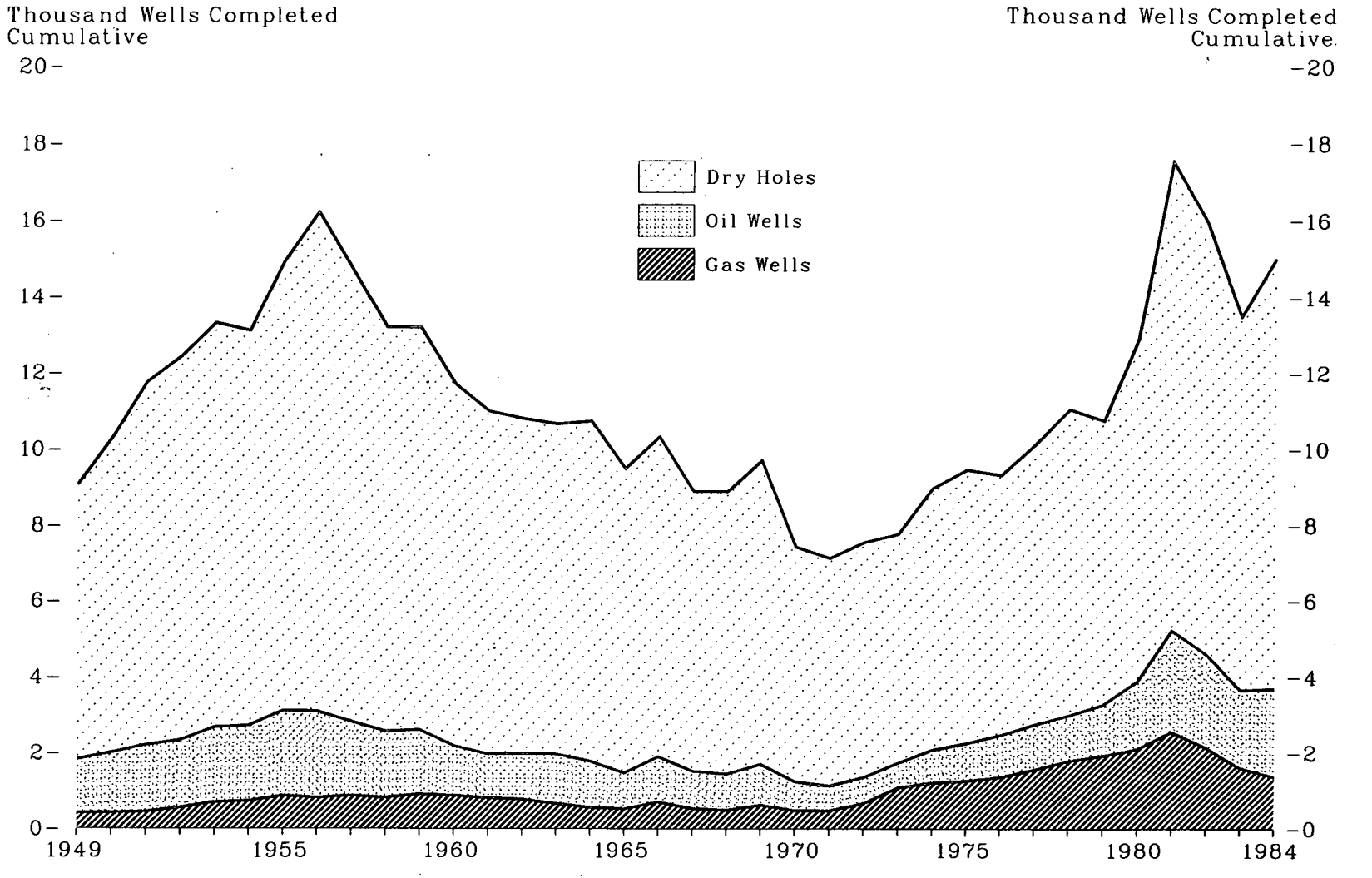


Table 32. Exploratory Wells Completed, by Well Type, 1949-1984

Year	Wells Completed (thousands)				Footage Drilled (million feet)				Average Depth (feet)				Successful Wells (percent)
	Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total	
1949	1.41	0.42	7.23	9.06	6.0	2.4	26.4	34.8	4,232	5,682	3,658	3,842	20.2
1950	1.58	0.43	8.29	10.31	6.9	2.4	31.0	40.2	4,335	5,466	3,733	3,898	19.5
1951	1.76	0.45	9.54	11.76	8.1	2.5	38.7	49.3	4,609	5,497	4,059	4,197	18.9
1952	1.78	0.56	10.09	12.42	8.5	3.4	43.7	55.6	4,781	6,071	4,334	4,476	18.8
1953	1.98	0.70	10.63	13.31	9.4	4.0	47.3	60.7	4,761	5,654	4,447	4,557	20.1
1954	1.98	0.73	10.39	13.10	9.4	4.4	45.8	59.6	4,740	6,059	4,408	4,550	20.7
1955	2.24	0.87	11.83	14.94	10.8	5.2	53.2	69.2	4,819	5,964	4,498	4,632	20.8
1956	2.27	0.82	13.12	16.21	11.1	5.2	58.0	74.3	4,901	6,301	4,425	4,587	19.1
1957	1.94	0.86	11.90	14.71	9.8	6.0	53.4	69.2	5,036	6,898	4,488	4,702	19.1
1958	1.74	0.82	10.63	13.20	8.7	5.5	47.3	61.5	4,993	6,657	4,449	4,658	19.4
1959	1.70	0.91	10.58	13.19	8.5	6.0	48.7	63.3	5,021	6,613	4,602	4,795	19.8
1960	1.32	0.87	9.52	11.70	6.8	5.5	43.5	55.8	5,170	6,298	4,575	4,770	18.7
1961	1.16	0.81	9.02	10.99	5.9	5.2	43.3	54.4	5,099	6,457	4,799	4,953	17.9
1962	1.21	0.77	8.82	10.80	6.2	5.2	42.2	53.6	5,124	6,728	4,790	4,966	18.4
1963	1.31	0.66	8.69	10.66	6.4	4.2	42.8	53.5	4,878	6,370	4,933	5,016	18.5
1964	1.22	0.56	8.95	10.73	6.7	4.2	44.6	55.5	5,509	7,547	4,980	5,174	16.6
1965	0.95	0.52	8.00	9.47	5.4	3.8	40.1	49.2	5,672	7,295	5,007	5,198	15.4
1966	1.20	0.70	8.42	10.31	6.8	5.8	43.1	55.7	5,700	8,321	5,117	5,402	18.4
1967	0.99	0.53	7.36	8.88	5.7	4.0	38.2	47.8	5,758	7,478	5,188	5,388	17.1
1968	0.95	0.49	7.44	8.88	5.6	3.7	41.6	51.0	5,914	7,697	5,589	5,739	16.2
1969	1.08	0.62	8.00	9.70	6.6	5.0	45.9	57.5	6,054	8,092	5,739	5,924	17.5
1970	0.76	0.48	6.19	7.42	4.8	3.7	35.5	44.0	6,278	7,727	5,739	5,922	16.7
1971	0.66	0.47	6.00	7.13	3.8	3.6	34.9	42.4	5,805	7,734	5,828	5,952	15.9
1972	0.69	0.66	6.20	7.55	4.0	4.9	36.4	45.3	5,858	7,378	5,865	5,997	17.9
1973	0.65	1.08	6.04	7.76	4.0	7.1	34.9	46.0	6,196	6,572	5,786	5,930	22.3
1974	0.87	1.20	6.90	8.97	5.1	7.8	38.9	51.7	5,826	6,432	5,635	5,761	23.1
1975	0.99	1.26	7.21	9.47	5.8	8.5	40.8	55.1	5,873	6,712	5,657	5,820	23.8
1976	1.10	1.36	6.86	9.32	6.5	9.2	38.3	53.9	5,907	6,749	5,575	5,785	26.3
1977	1.18	1.56	7.39	10.13	6.9	10.2	41.1	58.2	5,828	6,568	5,564	5,749	27.0
1978	1.19	1.79	8.07	11.05	7.1	11.8	46.7	65.6	5,977	6,582	5,786	5,935	26.9
1979	1.33	1.93	7.49	10.75	8.0	12.7	42.8	63.5	6,008	6,600	5,715	5,910	30.3
1980[1]	1.78	2.10	9.02	12.90	10.1	13.7	50.0	73.9	5,686	6,556	5,544	5,728	30.1
1981[1]	2.67	2.55	12.31	17.53	15.4	17.0	68.7	101.1	5,765	6,671	5,585	5,770	29.8
1982[1]	2.46	2.14	11.36	15.95	12.9	13.9	58.4	85.2	5,274	6,514	5,137	5,342	28.8
1983[1]	2.04	1.60	9.85	13.50	10.9	10.3	50.9	72.2	5,346	6,436	5,168	5,346	27.0
1984[1]	2.32	1.37	11.32	15.02	12.1	8.3	56.7	77.1	5,200	6,083	5,004	5,133	24.6

[1] Data for these years are preliminary. They are derived in part by applying historical (1970 through 1982) factors for the relationship between well completion dates and well report dates as reported to the American Petroleum Institute.

Note: Sum of components may not equal total due to independent rounding. Average depth may not equal average of components due to independent rounding.

Note: For 1949 through 1959, data represent wells completed in a given year. For 1960 through 1969, data are for well completion reports received by the American Petroleum Institute during the reporting year. For 1970 forward, the data represent wells completed in a given year.

Sources: •1949 through 1960—American Association of Petroleum Geologists, *Statistics on Exploratory Drilling in the United States, 1940 through 1960,* Tulsa, Oklahoma, 1962, pp. 4-19. •1961 through 1965 —*Bulletin of the American Association of Petroleum Geologists,* "North American Developments" issue, Tulsa, Oklahoma. •1966 through 1969—American Petroleum Institute, *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. •1970 and forward—Energy Information Administration computations based on well reports submitted to the American Petroleum Institute.

Figure 33. Total Wells Completed, by Well Type, 1949-1984

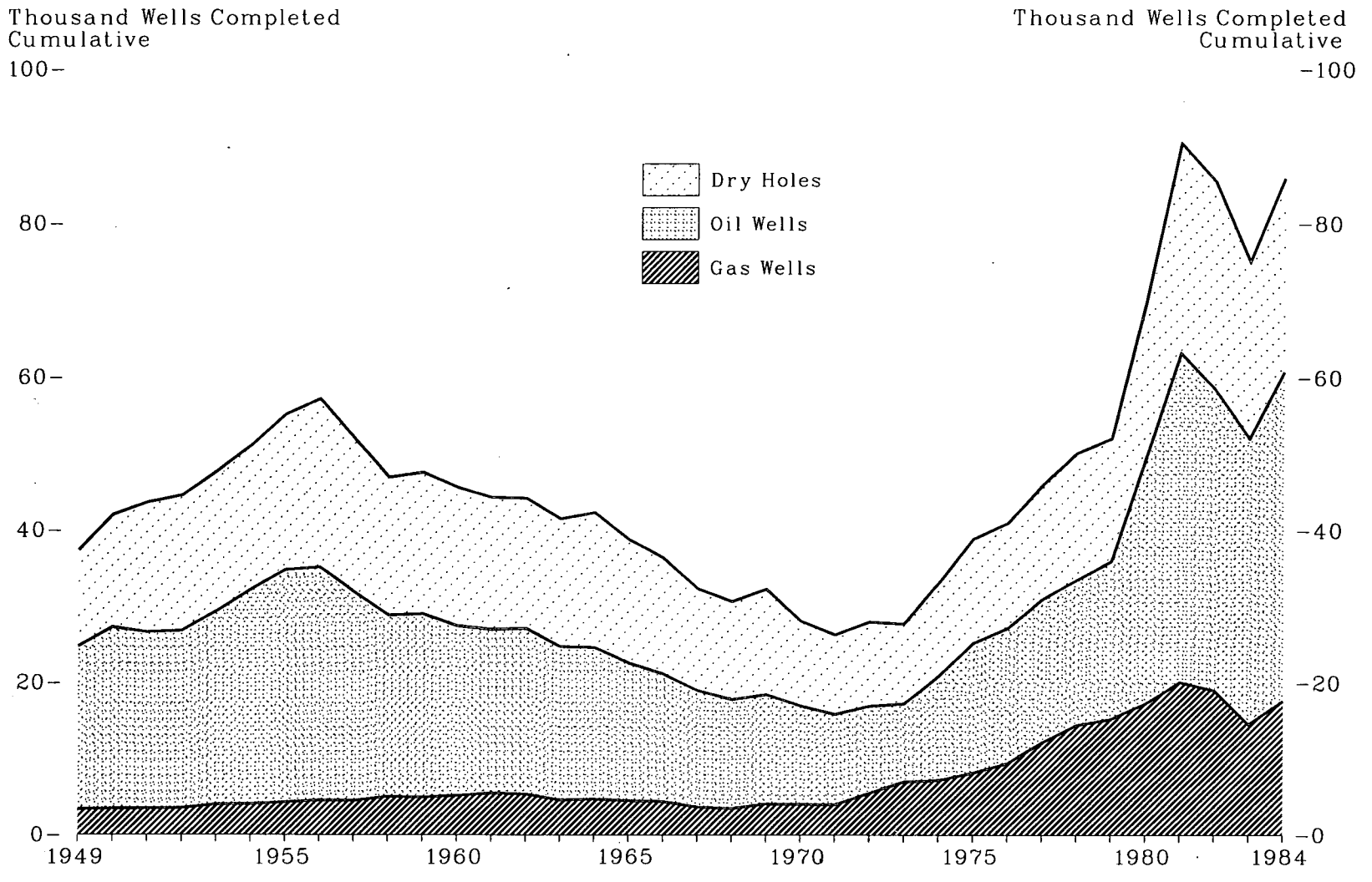


Table 33. Total Wells [1] Completed, by Well Type, 1949-1984

Year	Wells Completed (thousands)				Footage Drilled (million feet)				Average Depth (feet)				Successful Wells (percent)
	Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total	
1949	21.35	3.36	12.60	37.31	79.4	12.4	43.8	135.6	3,720	3,698	3,473	3,635	66.2
1950	23.81	3.44	14.80	42.05	92.7	13.7	51.0	157.4	3,893	3,979	3,445	3,742	64.8
1951	23.18	3.44	17.03	43.64	95.1	13.9	63.1	172.1	4,103	4,056	3,706	3,944	61.0
1952	23.29	3.51	17.76	44.56	98.1	15.3	70.7	184.1	4,214	4,342	3,983	4,132	60.1
1953	25.32	3.97	18.45	47.74	102.1	18.2	73.9	194.2	4,033	4,599	4,004	4,069	61.4
1954	28.14	4.04	18.93	51.11	113.4	18.9	75.8	208.0	4,028	4,670	4,004	4,070	63.0
1955	30.43	4.27	20.45	55.15	121.1	19.9	85.1	226.2	3,981	4,672	4,161	4,101	62.9
1956	30.53	4.53	22.11	57.17	120.4	22.7	90.2	233.3	3,942	5,018	4,079	4,080	61.3
1957	27.36	4.48	20.16	52.00	110.0	23.8	83.2	217.0	4,021	5,326	4,126	4,174	61.2
1958	23.77	5.00	18.16	46.94	93.1	25.6	74.6	193.3	3,916	5,106	4,110	4,118	61.3
1959	24.04	4.93	18.59	47.56	94.6	26.6	79.5	200.7	3,935	5,396	4,275	4,220	60.9
1960	22.26	5.15	18.21	45.62	86.6	28.2	77.4	192.2	3,889	5,486	4,248	4,213	60.1
1961	21.44	5.49	17.33	44.25	85.6	29.3	74.7	189.6	3,994	5,339	4,311	4,285	60.8
1962	21.73	5.35	17.08	44.16	88.4	28.9	77.3	194.6	4,070	5,408	4,524	4,408	61.3
1963	20.14	4.57	16.76	41.47	81.8	24.5	76.3	182.6	4,063	5,368	4,552	4,405	59.6
1964	19.90	4.69	17.69	42.29	80.5	25.6	81.4	187.4	4,042	5,453	4,598	4,431	58.2
1965	18.06	4.48	16.23	38.77	73.3	24.9	76.6	174.9	4,059	5,562	4,723	4,510	58.2
1966	16.78	4.38	15.23	36.38	67.3	25.9	69.6	162.9	4,013	5,928	4,573	4,478	58.1
1967	15.33	3.66	13.25	32.23	58.6	21.6	61.1	141.4	3,825	5,898	4,616	4,385	58.9
1968	14.33	3.46	12.81	30.60	59.5	20.7	64.7	145.0	4,153	5,994	5,053	4,738	58.1
1969	14.37	4.08	13.74	32.19	61.6	24.2	71.4	157.1	4,286	5,918	5,195	4,881	57.3
1970	12.93	4.03	11.10	28.05	58.5	23.9	58.8	141.2	4,524	5,943	5,302	5,035	60.4
1971	11.89	3.98	10.39	26.26	50.2	23.6	55.4	129.3	4,226	5,927	5,333	4,922	60.4
1972	11.45	5.48	11.01	27.94	49.6	30.2	59.1	138.9	4,331	5,513	5,365	4,970	60.6
1973	10.25	6.97	10.46	27.68	44.8	38.2	56.5	139.4	4,368	5,479	5,397	5,037	62.2
1974	13.67	7.17	12.22	33.06	52.1	38.5	63.3	153.9	3,810	5,370	5,180	4,654	63.0
1975	16.98	8.17	13.75	38.90	66.9	44.5	69.7	181.2	3,941	5,447	5,072	4,657	64.7
1976	17.68	9.42	13.85	40.95	68.8	49.1	69.5	187.4	3,889	5,211	5,020	4,576	66.2
1977	18.72	12.13	15.06	45.91	75.3	63.6	77.3	216.1	4,023	5,240	5,130	4,708	67.2
1978	19.07	14.42	16.63	50.12	76.6	75.7	86.4	238.7	4,019	5,250	5,194	4,763	66.8
1979	20.73	15.22	16.09	52.05	82.3	80.2	81.9	244.4	3,969	5,267	5,090	4,695	69.1
1980[2]	32.31	17.27	20.32	69.90	123.6	90.8	98.0	312.4	3,825	5,257	4,823	4,469	70.9
1981[2]	43.08	20.09	27.24	90.41	169.1	106.2	132.3	407.7	3,926	5,288	4,857	4,509	69.9
1982[2]	39.46	19.03	26.98	85.48	151.1	105.1	124.8	380.9	3,828	5,520	4,625	4,457	68.4
1983[2]	37.48	14.55	23.00	75.03	145.0	79.6	107.7	332.2	3,868	5,470	4,681	4,428	69.3
1984[2]	43.13	17.65	25.11	85.88	161.7	98.7	113.1	373.4	3,749	5,594	4,503	4,348	70.8

[1] Includes exploratory and development wells; excludes service wells, stratigraphic tests, and core tests.

[2] Data for these years are preliminary. They are derived in part by applying historical (1970 through 1982) factors for the relationship between well completion dates and well report dates as reported to the American Petroleum Institute.

Note: Sum of components may not equal total due to independent rounding. Average depth may not equal average of components due to independent rounding.

Note: For 1949 through 1959, data represent wells completed in a given year. For 1960 through 1969, data are for well completion reports received by the American Petroleum Institute during the reporting year. For 1970 forward, the data represent wells completed in a given year.

Sources: •1949 through 1965—*World Oil*, "Forecast-Review" issue, Houston, Texas. •1966 through 1969—American Petroleum Institute, *Quarterly Review of Drilling Statistics for the United States*, annual summaries and monthly reports. •1970 and forward—Energy Information Administration computations based on well reports submitted to the American Petroleum Institute.

Figure 34. Average Cost of Oil and Gas Wells Drilled, 1960–1983

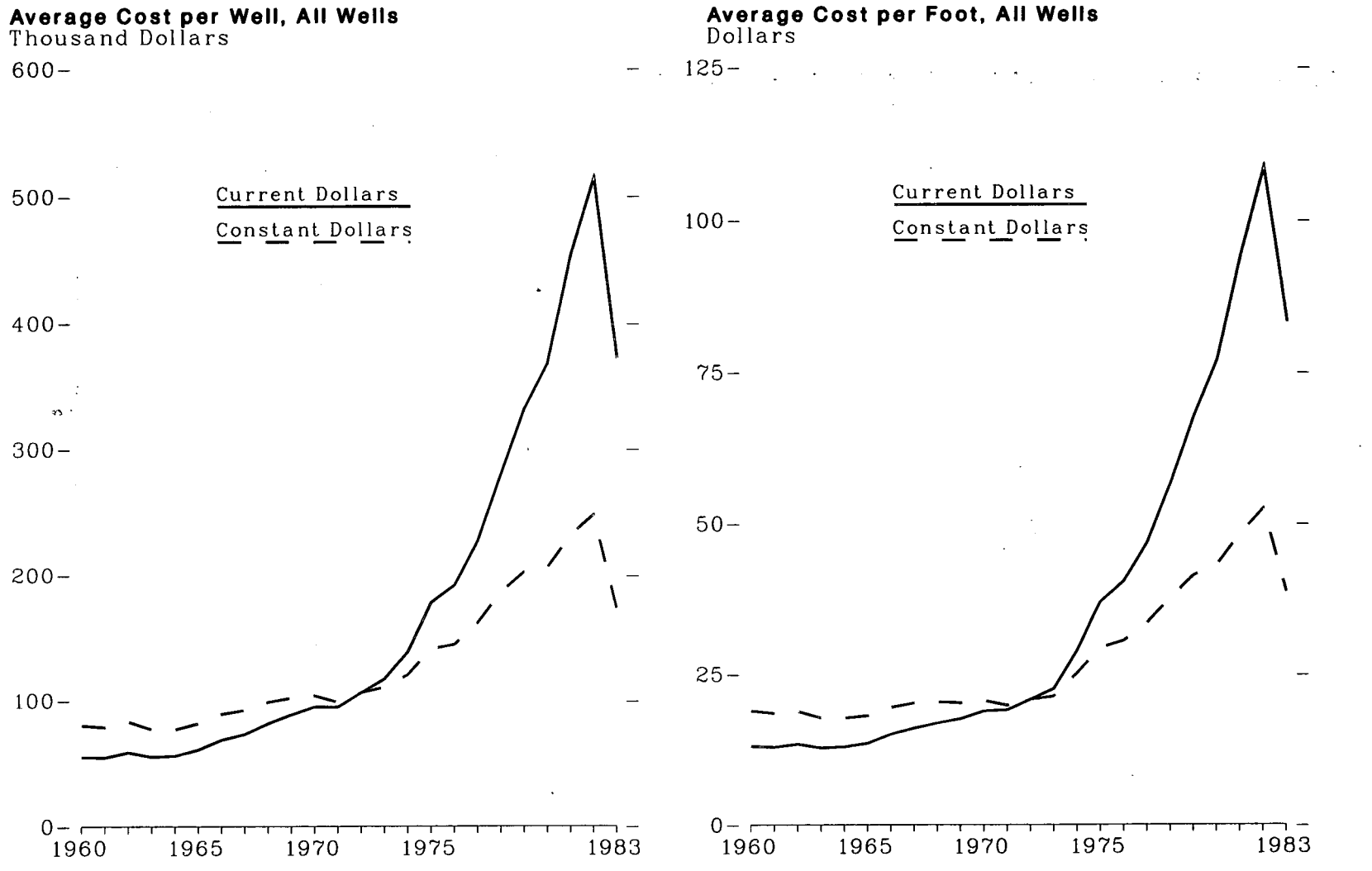


Table 34. Average Cost of Oil and Gas Wells Drilled, 1960-1983

Year	Average Cost per Well (thousand dollars)					Average Cost per Foot (dollars)				
	Oil	Gas	Dry Holes	All		Oil	Gas	Dry Holes	All	
	(current)	(current)	(current)	(current)	(constant)[1]	(current)	(current)	(current)	(current)	(constant)[1]
1960	52.2	102.7	44.0	54.9	80.0	13.22	18.57	10.56	13.01	18.94
1961	51.3	94.7	45.2	54.5	78.6	13.11	17.65	10.56	12.85	18.53
1962	54.2	97.1	50.8	58.6	83.0	13.41	18.10	11.20	13.31	18.85
1963	51.8	92.4	48.2	55.0	76.8	13.20	17.19	10.58	12.69	17.71
1964	50.6	104.8	48.5	55.8	76.7	13.12	18.57	10.64	12.86	17.67
1965	56.6	101.9	53.1	60.6	81.6	13.94	18.35	11.21	13.44	18.07
1966	62.2	133.8	56.9	68.4	89.1	15.04	21.75	12.34	14.95	19.48
1967	66.6	141.0	61.5	72.9	92.2	16.61	23.05	12.87	15.97	20.20
1968	79.1	148.5	66.2	81.5	98.7	18.63	24.05	12.88	16.83	20.39
1969	86.5	154.3	70.2	88.6	102.0	19.28	25.58	13.23	17.56	20.23
1970	86.7	160.7	80.9	94.9	103.8	19.29	26.75	15.21	18.84	20.60
1971	78.4	166.6	86.8	94.7	98.6	18.41	27.70	16.02	19.03	19.82
1972	93.5	157.8	94.9	106.4	106.4	20.77	27.78	17.28	20.76	20.76
1973	103.8	155.3	105.8	117.2	110.8	22.54	27.46	19.22	22.50	21.28
1974	110.2	189.2	141.7	138.7	120.5	27.82	34.11	26.76	28.93	25.14
1975	138.6	262.0	177.2	177.8	141.3	34.17	46.23	33.86	36.99	29.41
1976	151.1	270.4	190.3	191.6	144.8	37.35	49.78	36.94	40.46	30.57
1977	170.0	313.5	230.2	227.2	162.2	41.16	57.57	43.49	46.81	33.42
1978	208.0	374.2	281.7	280.0	186.1	49.72	68.37	52.55	56.63	37.65
1979	243.1	443.1	339.6	331.4	202.8	58.29	80.66	64.60	67.70	41.43
1980	272.1	536.4	376.5	367.7	206.1	66.36	95.16	73.70	77.02	43.17
1981	336.3	698.6	464.0	453.7	231.9	80.40	122.17	90.03	94.30	48.21
1982	347.4	864.3	515.4	514.4	248.0	86.34	146.20	104.09	108.73	52.43
1983	283.8	608.1	366.5	371.7	172.6	72.65	108.37	79.10	83.34	38.70

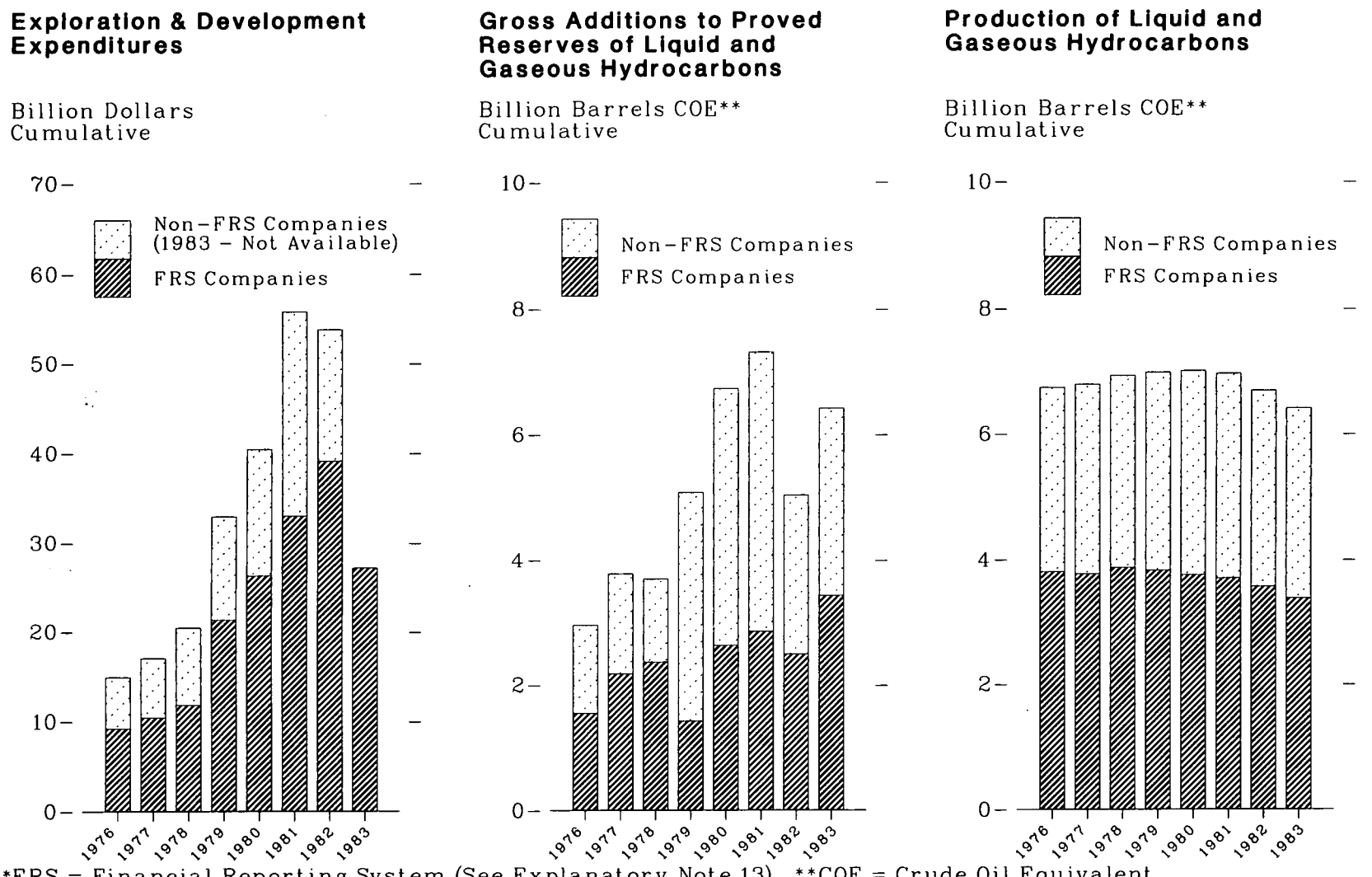
[1] Constant 1972 costs calculated using GNP implicit price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section.

Note: Average cost is the arithmetic mean and includes all costs for drilling and equipping wells and for surface producing facilities. Wells drilled include exploratory and development wells; excludes service wells, stratigraphic tests, and core tests.

Note: The information reported for 1965 and prior years is not strictly comparable with the more recent surveys.

Source: American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, Washington, D.C., *Joint Association Survey of the U.S. Oil and Gas Producing Industry.*

Figure 35. Exploration and Development Expenditures, Gross Additions to Proved Reserves, and Production of Liquid and Gaseous Hydrocarbons by FRS* Companies, 1976–1983



*FRS = Financial Reporting System (See Explanatory Note 13). **COE = Crude Oil Equivalent.

Table 35. Exploration and Development Expenditures, Gross Additions to Proved Reserves, and Production of Liquid and Gaseous Hydrocarbons by FRS [1] Companies, 1976-1983

	1976	1977	1978	1979	1980	1981	1982	1983
Exploration and Development Expenditures (billion dollars)								
FRS Companies	9.2	10.4	11.8	21.3	26.2	33.0	39.1	27.1
U.S. Total	14.9	17.0	20.4	32.9	40.4	55.7	53.7	NA
Gross Additions to Proved Reserves [2] of Liquid and Gaseous Hydrocarbons [3] (million barrels COE [4])								
FRS Companies [5]	1,541.7	2,171.6	2,355.4	1,416.1	2,624.5	2,847.6	2,483.2	3,418.9
U.S. Total	2,946.6	3,765.3	3,678.9	5,071.3	6,723.1	7,303.6	5,029.6	6,407.6
Production of Liquid and Gaseous Hydrocarbons [3] (million barrels COE [4])								
FRS Companies [5]	3,796.5	3,760.7	3,867.1	3,822.0	3,746.9	3,693.0	3,552.6	3,364.1
U.S. Total	6,729.5	6,776.6	6,918.0	6,969.9	6,995.3	6,954.4	6,681.9	6,397.0

[1] FRS = Financial Reporting System (See Explanatory Note 13).
[2] Gross additions to proved reserves equal annual change in proved reserves plus annual production.
[3] Liquid and gaseous hydrocarbons include crude oil, natural gas liquids, and natural gas.
[4] Crude oil equivalent: converted to Btu based on annual average conversion factors. See Units of Measure and Conversion Factors section.
[5] Based on net ownership interest (See Glossary).
NA = Not available.

Sources: **FRS Companies:** Energy Information Administration, *Form EIA-28,* "Financial Reporting System." **U.S. Total, Exploration and Development Expenditures:** •1976 through 1982 - Bureau of the Census, *Annual Survey of Oil and Gas.* **U.S. Total, Gross Additions to Proved Reserves of Liquid and Gaseous Hydrocarbons:** •1976 through 1979 - American Gas Association, American Petroleum Institute, and Canadian Petroleum Association (published jointly), *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada as of December 31, 1979,* Volume 34, June 1980. • 1980 through 1983 - Energy Information Administration, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1983 Annual Report.* **U.S. Total, Production of Liquid and Gaseous Hydrocarbons:** •1976 through 1983, see Tables 39 and 60.

Figure 36. Proved Reserves of Liquid and Gaseous Hydrocarbons, Yearend, 1949–1983

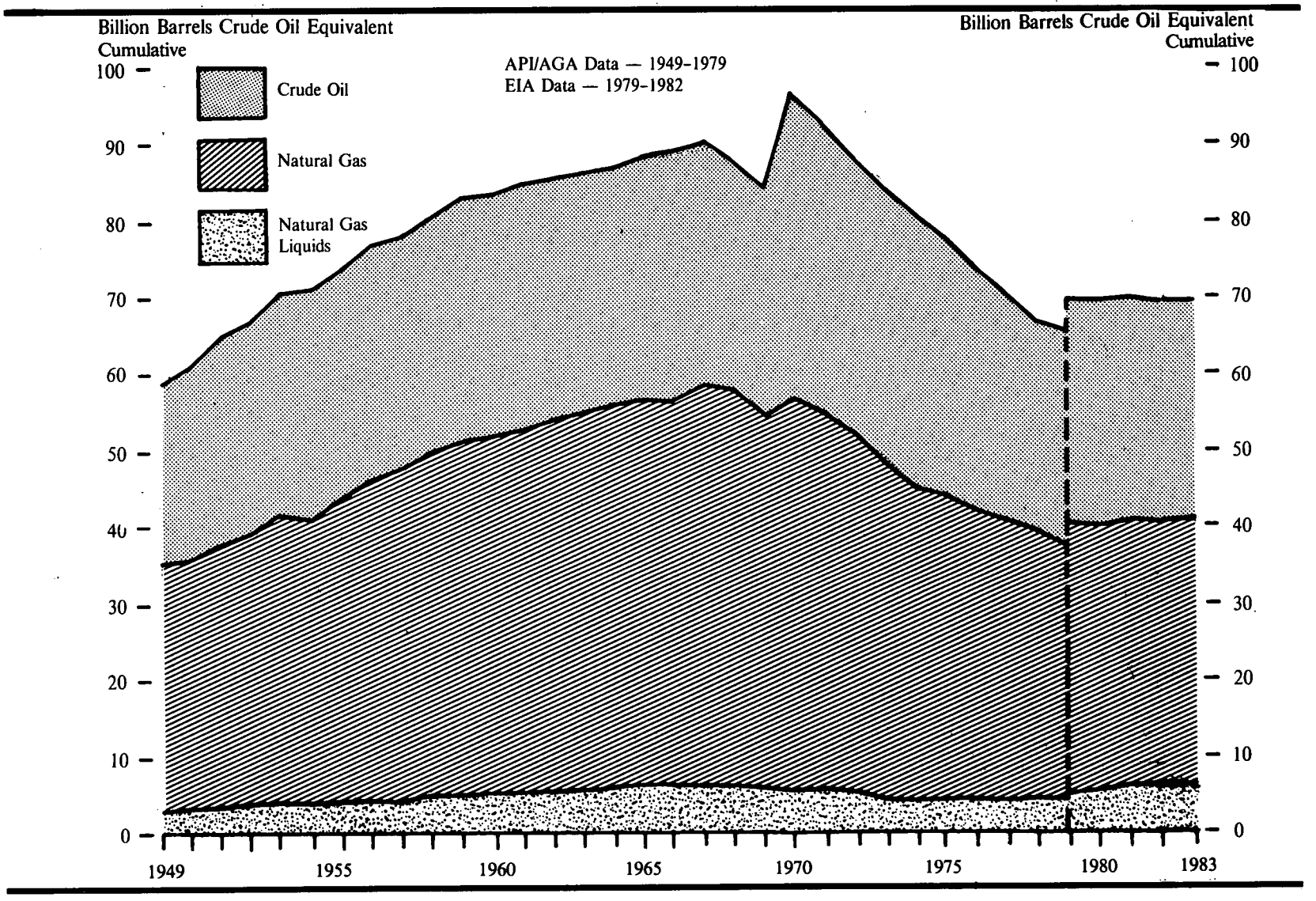


Figure 36. Proved Reserves of Liquid and Gaseous Hydrocarbons, Yearend, 1949–1983

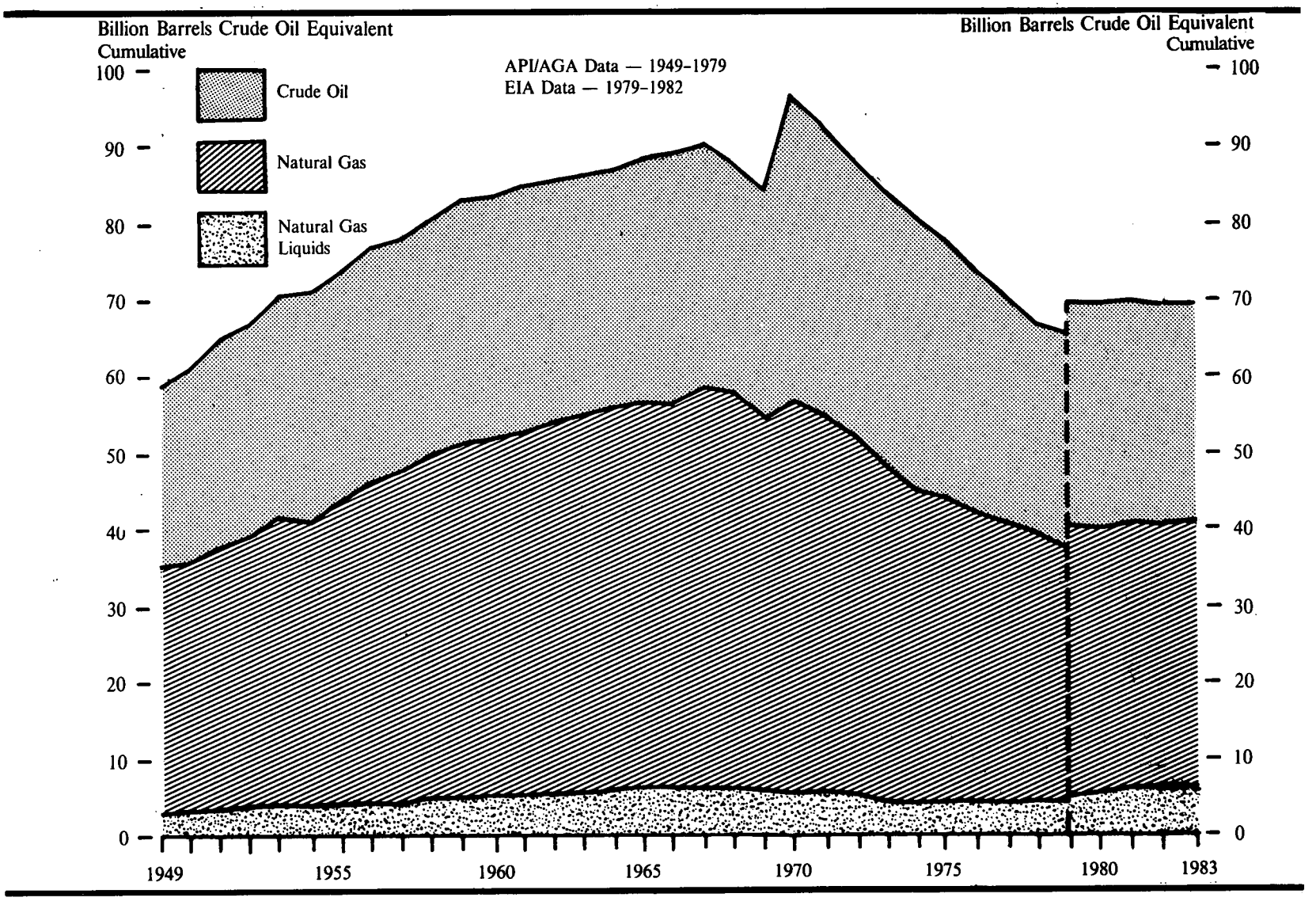


Table 36. Proved Reserves of Liquid and Gaseous Hydrocarbons, Yearend 1949-1983

Year	Crude Oil	Natural Gas		Natural Gas Liquids		Total
	Billion Barrels	Trillion Cubic Feet [1]	Billion Barrels COE [2]	Billion Barrels	Billion Barrels COE [2]	Billion Barrels COE
	American Petroleum Institute and American Gas Association Data					
1949	24.6	179.4	32.0	3.7	3.1	59.7
1950	25.3	184.6	32.9	4.3	3.5	61.7
1951	27.5	192.8	34.4	4.7	3.9	65.7
1952	28.0	198.6	35.4	5.0	4.1	67.5
1953	28.9	210.3	37.5	5.4	4.4	70.9
1954	29.6	210.6	37.6	5.2	4.2	71.3
1955	30.0	222.5	39.7	5.4	4.4	74.1
1956	30.4	236.5	42.2	5.9	4.7	77.3
1957	30.3	245.2	43.8	5.7	4.5	78.6
1958	30.5	252.8	45.1	6.2	5.0	80.6
1959	31.7	261.2	46.6	6.5	5.2	83.5
1960	31.6	262.3	46.8	6.8	5.4	83.8
1961	31.8	266.3	47.5	7.0	5.6	84.8
1962	31.4	272.3	48.6	7.3	5.8	85.7
1963	31.0	276.2	49.1	7.7	6.0	86.1
1964	31.0	281.3	50.0	7.7	6.1	87.1
1965	31.4	286.5	51.0	8.0	6.3	88.6
1966	31.5	289.3	51.5	8.3	6.5	89.5
1967	31.4	292.9	52.1	8.6	6.7	90.2
1968	30.7	287.3	51.1	8.6	6.7	88.5
1969	29.6	275.1	48.9	8.1	6.3	84.8
1970	39.0	290.7	51.7	7.7	5.9	96.6
1971	38.1	278.8	49.6	7.3	5.5	93.2
1972	36.3	266.1	47.1	6.8	5.1	88.5
1973	35.3	250.0	44.0	6.5	4.8	84.1
1974	34.2	237.1	41.9	6.4	4.7	80.8
1975	32.7	228.2	40.2	6.3	4.6	77.5
1976	30.9	216.0	38.0	6.4	4.7	73.6
1977	29.5	208.9	36.8	6.0	4.4	70.6
1978	27.8	200.3	35.2	5.9	4.3	67.3
1979	27.1	194.9	34.3	5.7	4.1	65.5
	Energy Information Administration Data					
1977	31.8	207.4	36.5	NA	NA	NA
1978	31.4	208.0	36.5	6.8	4.9	72.8
1979	29.8	201.0	35.4	6.6	4.8	70.0
1980	29.8	199.0	35.2	6.7	4.9	69.9
1981	29.4	201.7	35.7	7.1	5.2	70.3
1982	27.9	201.5	35.7	7.2	5.2	68.8
1983	27.7	200.2	35.6	7.9	5.7	69.0

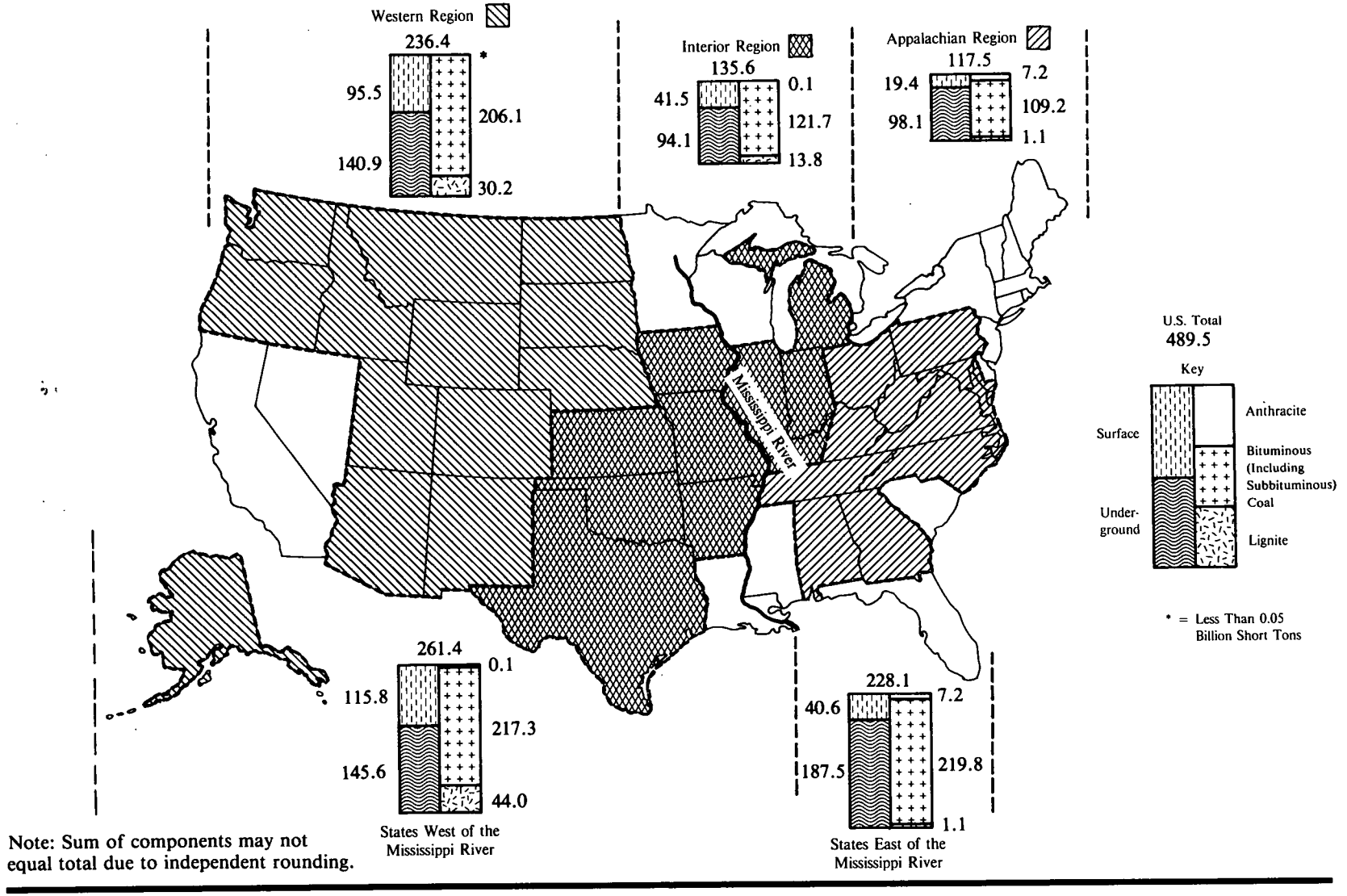
[1] The American Gas Association estimates of natural gas proved reserves include volumes of gas held in underground storage. In 1979, this volume amounted to 4.9 trillion cubic feet. Energy Information Administration data do not include gas in underground storage.

[2] Crude oil equivalent; converted to Btu based on annual average conversion factors. See Units of Measure and Conversion Factors section.

NA = Not available.

Sources: •**API/AGA Data**—American Gas Association, American Petroleum Institute, and Canadian Petroleum Association (published jointly). *Reserves of Crude Oil, Natural Gas Liquids and Natural Gas in the United States and Canada as of December 31, 1979.* Volume 34, June 1980. •**EIA Data**—Energy Information Administration, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1983 Annual Report.*

Figure 37. Demonstrated Reserve Base of Coal, January 1, 1983
(Billion Short Tons)



Note: Sum of components may not equal total due to independent rounding.

Table 37. Demonstrated Reserve Base of Coal,[1] January 1, 1983

(Billion Short Tons)

Region and State	Anthracite	Bituminous Coal [2]		Lignite	Total		
	Underground and Surface [3]	Underground	Surface	Surface [4]	Underground	Surface	Total
Appalachian							
Alabama	0	1.7	2.4	1.1	1.7	3.4	5.2
Kentucky, Eastern	0	17.2	2.1	0	17.2	2.1	19.3
Ohio	0	13.0	5.9	0	13.0	5.9	18.9
Pennsylvania	7.1	21.5	1.5	0	28.4	1.6	30.0
Virginia	0.1	2.3	0.8	0	2.4	0.8	3.3
West Virginia	0	34.0	5.1	0	34.0	5.1	39.1
Other [5]	0	1.3	0.4	0	1.3	0.4	1.8
Total	7.2	91.0	18.2	1.1	98.1	19.4	117.5
Interior							
Illinois	0	63.4	15.6	0	63.4	15.6	79.1
Indiana	0	8.9	1.6	0	8.9	1.6	10.5
Iowa	0	1.7	0.5	0	1.7	0.5	2.2
Kentucky, Western	0	16.9	4.0	0	16.9	4.0	20.9
Missouri	0	1.5	4.6	0	1.5	4.6	6.0
Oklahoma	0	1.2	0.4	0	1.2	0.4	1.6
Texas	0	0	0	13.8	0	13.8	13.8
Other [6]	0.1	0.3	1.1	(7)	0.4	1.1	1.5
Total	0.1	94.0	27.7	13.8	94.1	41.5	135.6
Western							
Alaska	0	5.4	0.7	(7)	5.4	0.7	6.2
Colorado	(7)	12.2	0.7	4.2	12.3	4.9	17.2
Montana	0	71.0	33.6	15.8	71.0	49.4	120.3
New Mexico	(7)	2.1	2.5	0	2.1	2.5	4.7
North Dakota	0	0	0	9.9	0	9.9	9.9
Utah	0	6.1	0.3	0	6.1	0.3	6.4
Washington	0	1.3	0.1	(7)	1.3	0.1	1.5
Wyoming	0	42.6	27.0	0	42.6	27.0	69.6
Other [8]	0	0.1	0.3	0.3	0.1	0.6	0.7
Total	(7)	140.9	65.3	30.2	140.9	95.5	236.4
U.S. Total	7.3	325.9	111.2	45.1	333.1	156.4	489.5
States East of the Mississippi River	7.2	180.4	39.4	1.1	187.5	40.6	228.1
States West of the Mississippi River	0.1	145.5	71.8	44.0	145.6	115.8	261.4

[1] Includes measured and indicated resource categories representing 100 percent of the coal in place. Recoverability varies from less than 40 percent to more than 90 percent for individual deposits. About one-half of the demonstrated reserve base of coal in the United States is estimated to be recoverable.
[2] Includes subbituminous coal.
[3] Includes 129.0 million short tons of surface mine reserves, of which 113.5 million tons are in Pennsylvania and 15.5 million tons are in Arkansas.
[4] There are no underground demonstrated coal reserves of lignite.
[5] Includes Georgia, Maryland, North Carolina, and Tennessee.
[6] Includes Arkansas, Kansas, and Michigan.
[7] Less than 0.05 billion short tons.
[8] Includes Arizona, Idaho, Oregon, and South Dakota.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *Coal Production 1983.*

Figure 38. Uranium Resources, December 31, 1983

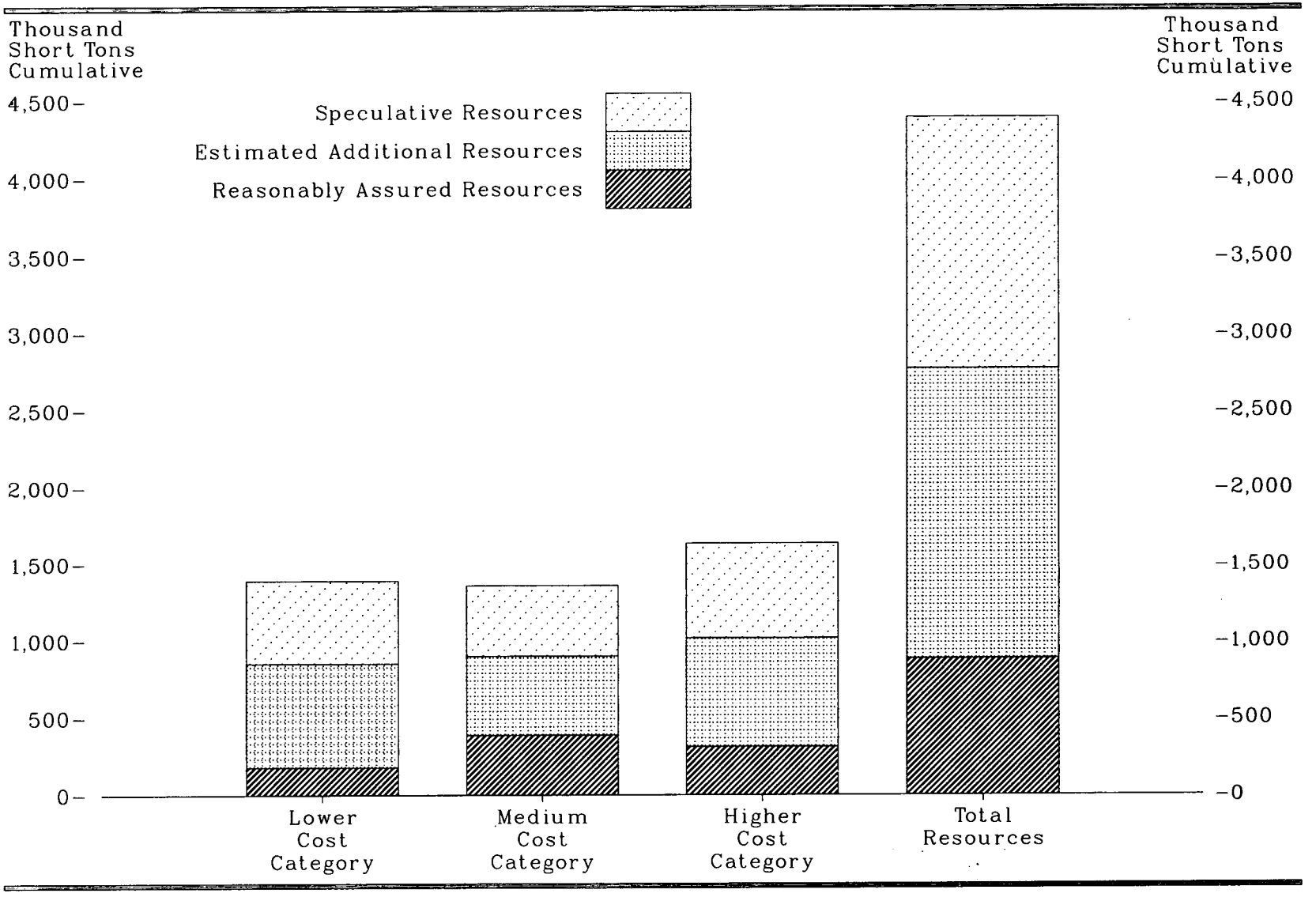


Table 38. Uranium Resources, December 31, 1983

(Thousand Short Tons, U_3O_8)

Resource Category [1]	Cost Category [2]			
	Lower	Medium	Higher	Total
Reasonably Assured Resources	180	390	315	885
Estimated Additional Resources	672	512	705	1,889
Speculative Resources	540	460	620	1,620
Total	1,392	1,362	1,640	4,394

[1] The correspondence between these resource categories and previous Department of Energy resource classes is as follows: reasonably assured resources correlate with reserves; estimated additional resources correlate with probable potential resources; and speculative resources correlate with possible plus speculative potential resources. See Glossary for definition of uranium resources.

[2] The correspondence between the cost categories and the traditional Department of Energy forward cost categories is as follows: lower cost correlates with less than $30 per pound; medium cost correlates with $30 to $50 per pound; and higher cost correlates with $50 to $100 per pound.

Sources: U.S. Department of Energy, *United States Uranium Mining and Milling Industry, A Comprehensive Review,* Report DOE/S-0028, May 1984.

Section 4. Petroleum Supply and Disposition

Production. U.S. crude oil (including lease condensate, the liquid condensed from natural gas at or near the surface of gas wells during production operations) is produced primarily in Texas, Alaska, Louisiana, California, and their associated offshore areas. Crude oil production from an estimated 616,000 oil wells averaged about 14.2 barrels per day per well during 1984 (Table 40). Domestic crude oil (and lease condensate) production averaged 8.8 million barrels per day during 1984, up modestly from 1983. Most of the increase occurred in offshore areas. Production from the Lower-48 States was the highest since 1979 (Table 40).

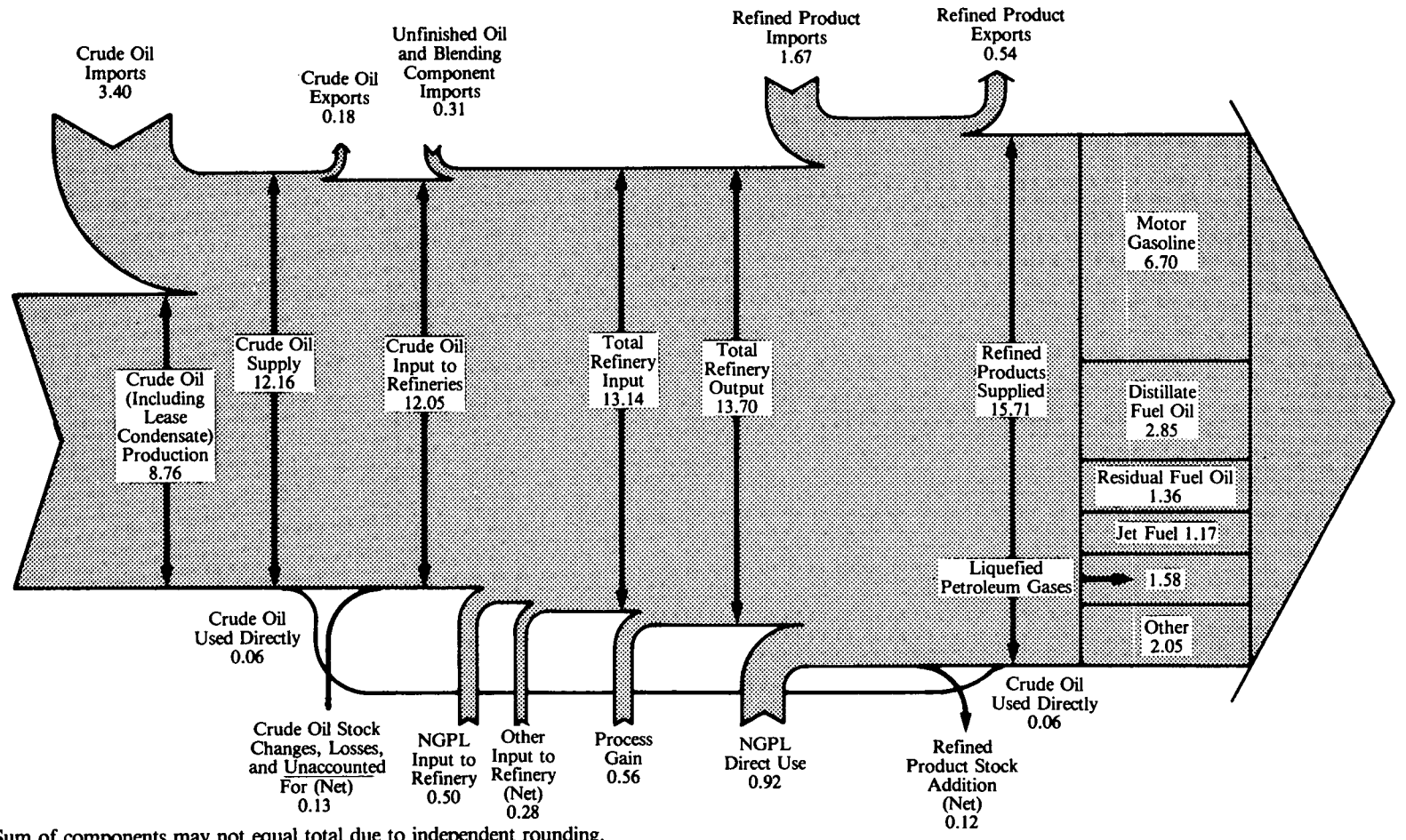
Consumption. Consumption (products supplied) of petroleum products increased in 1984 to 15.7 million barrels per day, the first annual increase since 1978. The increased use of petroleum is a reflection of increased industrial activity, falling prices, and an increase in real disposable income. Except for residual fuel oil which declined for the seventh consecutive year, consumption of every major petroleum product increased. Consumption of residual fuel oil in 1984 was about one-half that of 1979. Most of the decline in demand was in the electric utility sector where coal and uranium were being substituted as fuel inputs for generation. Consumption of other major petroleum products increased by 5.7 percent in 1984, representing the second consecutive year of increase (Table 49).

Refining. Increases in petroleum consumption in 1984 led to increased domestic refining. Refinery output registered the first year-to-year increase since 1978, and averaged 13.7 million barrels per day in 1984 (Table 46). Increased consumption, together with the decommissioning of less efficient refineries, caused the refinery utilization rate to rise to 76.1 percent, the highest rate since 1979 (Table 47).

Stocks. At yearend 1984, crude oil stocks totaled 794 million barrels, a 10-percent increase from the 1983 yearend level (Table 52). Most of the increase was in stocks held at the Strategic Petroleum Reserve (SPR—a U.S. Government program to hedge against petroleum supply disruptions). The 451 million barrels in SPR at yearend 1984 were equal to 141 days of non-SPR crude oil imports that year. This compares to SPR stocks equal to 88 days of crude oil imports in 1982 (Table 53). After 3 years of stock drawdown, private stocks of petroleum products increased in 1984. The 761 million barrels of inventories at yearend 1984 were considerably below the record level of 964 million barrels set at yearend 1977.

Domestic Prices. U.S. average crude oil wellhead prices (in current dollars) increased each year from 1973 through 1981, when they reached a record level of $31.77 per barrel. After 1981 prices declined, falling to $25.87 per barrel in 1984 (Table 54). Refiner acquisition cost of imported crude oil also declined. The 1984 price of $28.88 per barrel was down $8.17 per barrel (22.1 percent) from the 1981 price (Table 56). These reductions in refiners' prices were reflected in the wholesale (reseller) prices of most major petroleum products (Table 59). The retail price of motor gasoline (including taxes) fell 13.9 percent during the 3 years (Table 58).

Diagram 2. Petroleum Flow, 1984
(Million Barrels per Day)



Note: Sum of components may not equal total due to independent rounding.

Figure 39. Petroleum Supply and Disposition, 1949, 1959, 1969, 1979, and 1984

Table 39. Petroleum Supply and Disposition, 1949-1984

(Million Barrels per Day)

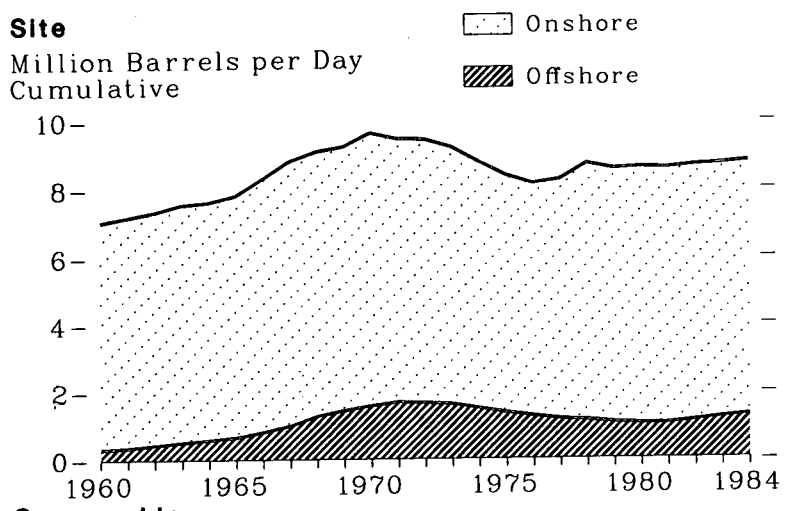
Year	Supply									Disposition				
	Production			Imports										
	Crude Oil [1]	Natural Gas Plant Liquids	Total Production	Crude Oil [2]	Petroleum Products [3]	Total Imports	Change in Stocks [4]	Other Supply [5]	Total Supply	Exports	Crude Oil Losses	Petroleum Products Supplied	Total Disposition	Net Trade [6]
1949	5.05	0.43	5.48	0.42	0.22	0.65	0.01	(7)	6.13	0.33	0.04	5.76	6.13	-0.32
1950	5.41	0.50	5.91	0.49	0.36	0.85	0.06	(7)	6.81	0.30	0.05	6.46	6.81	-0.55
1951	6.16	0.56	6.72	0.49	0.35	0.84	-0.10	0.01	7.47	0.42	0.03	7.02	7.47	-0.42
1952	6.26	0.61	6.87	0.57	0.38	0.95	-0.11	0.01	7.72	0.43	0.02	7.27	7.72	-0.52
1953	6.46	0.65	7.11	0.65	0.39	1.03	-0.14	0.02	8.02	0.40	0.02	7.60	8.02	-0.63
1954	6.34	0.69	7.03	0.66	0.40	1.05	0.03	0.02	8.14	0.36	0.03	7.76	8.14	-0.70
1955	6.81	0.77	7.58	0.78	0.47	1.25	(7)	0.04	8.86	0.37	0.04	8.46	8.86	-0.88
1956	7.15	0.80	7.95	0.93	0.50	1.44	-0.18	0.04	9.25	0.43	0.05	8.78	9.25	-1.01
1957	7.17	0.81	7.98	1.02	0.55	1.57	-0.17	0.04	9.43	0.57	0.05	8.81	9.43	-1.01
1958	6.71	0.81	7.52	0.95	0.75	1.70	0.14	0.06	9.42	0.28	0.03	9.12	9.42	-1.42
1959	7.05	0.88	7.93	0.97	0.81	1.78	-0.05	0.09	9.75	0.21	0.01	9.53	9.75	-1.57
1960	7.04	0.93	7.96	1.02	0.80	1.81	0.08	0.15	10.01	0.20	0.01	9.80	10.01	-1.61
1961	7.18	0.99	8.17	1.05	0.87	1.92	-0.11	0.18	10.16	0.17	0.01	9.98	10.16	-1.74
1962	7.33	1.02	8.35	1.13	0.96	2.08	-0.03	0.18	10.58	0.17	0.01	10.40	10.58	-1.91
1963	7.54	1.10	8.64	1.13	0.99	2.12	(7)	0.20	10.96	0.21	0.01	10.74	10.96	-1.91
1964	7.61	1.15	8.77	1.20	1.06	2.26	-0.01	0.22	11.23	0.20	0.01	11.02	11.23	-2.06
1965	7.80	1.21	9.01	1.24	1.23	2.47	0.01	0.22	11.71	0.19	0.01	11.51	11.71	-2.28
1966	8.30	1.28	9.58	1.22	1.35	2.57	-0.10	0.25	12.29	0.20	0.01	12.08	12.29	-2.37
1967	8.81	1.41	10.22	1.13	1.41	2.54	-0.17	0.29	12.88	0.31	0.01	12.56	12.88	-2.23
1968	9.10	1.50	10.60	1.29	1.55	2.84	-0.15	0.35	13.64	0.23	0.01	13.39	13.64	-2.61
1969	9.24	1.59	10.83	1.41	1.76	3.17	0.05	0.34	14.38	0.23	0.01	14.14	14.38	-2.93
1970	9.64	1.66	11.30	1.32	2.10	3.42	-0.10	0.35	14.97	0.26	0.01	14.70	14.97	-3.16
1971	9.46	1.69	11.16	1.68	2.25	3.93	-0.07	0.44	15.45	0.22	0.01	15.21	15.45	-3.70
1972	9.44	1.74	11.18	2.22	2.53	4.74	0.23	0.44	16.60	0.22	0.01	16.37	16.60	-4.52
1973	9.21	1.74	10.95	3.24	3.01	6.26	-0.14	0.49	17.55	0.23	0.01	17.31	17.55	-6.02
1974	8.77	1.69	10.46	3.48	2.64	6.11	-0.18	0.49	16.89	0.22	0.01	16.65	16.89	-5.89
1975	8.37	1.63	10.01	4.10	1.95	6.06	-0.03	0.51	16.54	0.21	0.01	16.32	16.54	-5.85
1976	8.13	1.60	9.74	5.29	2.03	7.31	0.06	0.59	17.70	0.22	0.01	17.46	17.70	-7.09
1977	8.24	1.62	9.86	6.61	2.19	8.81	-0.55	0.57	18.69	0.24	0.02	18.43	18.69	-8.56
1978	8.71	1.57	10.27	6.36	2.01	8.36	0.09	0.49	19.22	0.36	0.02	18.85	19.22	-8.00
1979	8.55	1.58	10.14	6.52	1.94	8.46	-0.15	0.56	19.00	0.47	0.02	18.51	19.00	-7.99
1980	8.60	1.57	10.17	5.26	1.65	6.91	-0.14	0.68	17.61	0.54	0.01	17.06	17.61	-6.36
1981	8.57	1.61	10.18	4.40	1.60	6.00	-0.16	0.64	16.66	0.59	(7)	16.06	16.66	-5.40
1982	8.65	1.55	10.20	3.49	1.63	5.11	0.15	0.65	16.11	0.82	(7)	15.30	16.11	-4.30
1983	8.69	1.56	10.25	3.33	1.72	5.05	0.02	0.65	15.97	0.74	(7)	15.23	15.97	-4.31
1984[8]	8.76	1.63	10.39	3.40	1.98	5.38	-0.28	0.94	16.43	0.72	(7)	15.71	16.43	-4.66

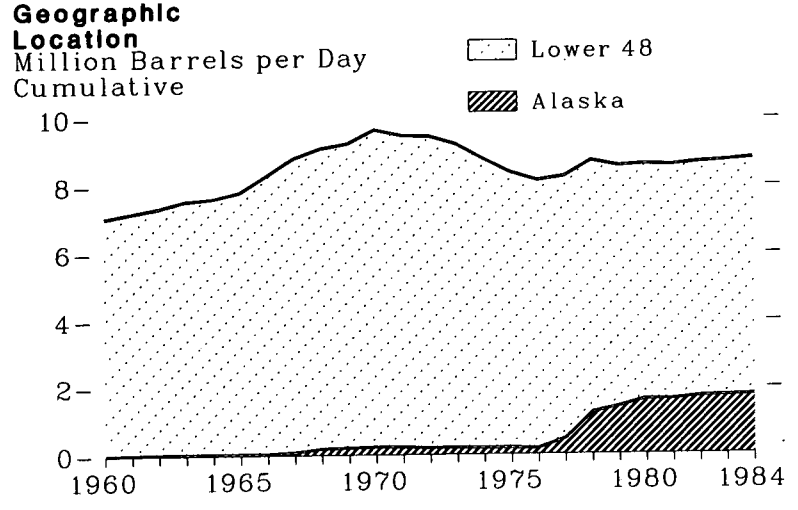
[1] Includes lease condensate.
[2] Includes imports for the Strategic Petroleum Reserve, which began in 1977.
[3] Includes plant condensate, natural gasoline, unfinished oils, motor gasoline blending components, and aviation gasoline blending components.
[4] Negative numbers denote a net addition to stocks or a reduction in supply. Positive numbers denote a net withdrawal from stocks or an addition to supply.
[5] Includes benzol, other hydrocarbons, hydrogen, alcohol, processing gains, and unaccounted for crude oil.
[6] Net trade = exports minus imports.
[7] Less than 5,000 barrels per day.
[8] Preliminary.

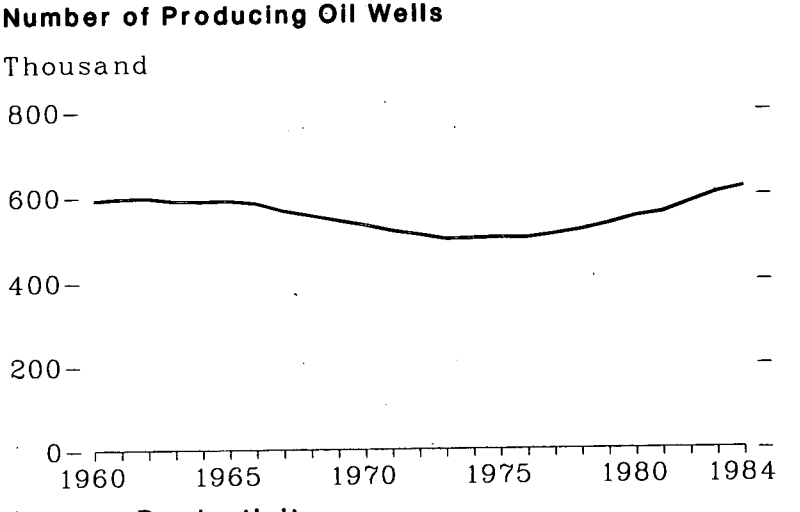
Note: Sum of components may not equal total due to independent rounding.

Sources: •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 40. Crude Oil and Lease Condensate Production and Oil Well Productivity, 1960-1984







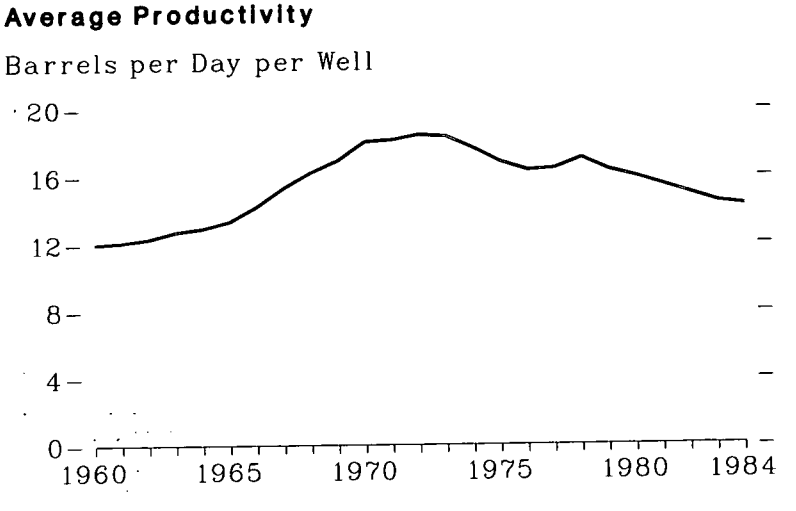


Table 40. Crude Oil and Lease Condensate Production and Oil Well Productivity, 1954-1984

(Thousand Barrels per Day, Except as Noted)

Year	Geographic Location		Site		Type			Oil Well Productivity	
	Lower 48	Alaska	Onshore	Offshore	Crude Oil	Lease Condensate	Total Production	Thousands of Producing Wells [1]	Average Productivity [2] (barrels per day per well)
1954	6,342	0	6,209	133	6,342	[3]	6,342	511	12.6
1955	6,807	0	6,645	162	6,807	[3]	6,807	524	13.2
1956	7,151	0	6,951	201	7,151	[3]	7,151	551	13.3
1957	7,170	0	6,940	229	7,170	[3]	7,170	569	12.8
1958	6,710	0	6,473	236	6,710	[3]	6,710	575	11.7
1959	7,053	1	6,779	274	7,054	[3]	7,054	583	12.2
1960	7,034	2	6,716	319	7,035	[3]	7,035	591	12.0
1961	7,166	17	6,817	365	7,183	[3]	7,183	595	12.1
1962	7,304	28	6,888	444	7,332	[3]	7,332	596	12.3
1963	7,512	29	7,026	515	7,542	[3]	7,542	589	12.7
1964	7,584	30	7,027	587	7,614	[3]	7,614	588	12.9
1965	7,774	30	7,140	665	7,804	[3]	7,804	589	13.3
1966	8,256	39	7,473	823	8,295	[3]	8,295	583	14.2
1967	8,730	80	7,802	1,009	8,810	[3]	8,810	565	15.3
1968	8,915	181	7,808	1,287	8,660	436	9,096	554	16.2
1969	9,035	203	7,797	1,441	8,778	460	9,238	542	16.9
1970	9,408	229	8,060	1,577	9,180	457	9,637	531	18.0
1971	9,245	218	7,779	1,684	9,032	431	9,463	517	18.1
1972	9,242	199	7,780	1,660	8,998	443	9,441	508	18.4
1973	9,010	198	7,592	1,616	8,784	424	9,208	497	18.3
1974	8,581	193	7,285	1,489	8,375	399	8,774	498	17.6
1975	8,183	191	7,012	1,362	8,007	367	8,375	500	16.8
1976	7,958	173	6,868	1,264	7,776	356	8,132	499	16.3
1977	7,781	464	7,069	1,176	7,875	370	8,245	507	16.4
1978	7,478	1,229	7,571	1,136	8,353	355	8,707	517	17.0
1979	7,151	1,401	7,485	1,067	8,181	371	8,552	531	16.3
1980	6,980	1,617	7,562	1,034	8,210	386	8,597	548	15.9
1981	6,962	1,609	7,537	1,034	8,176	395	8,572	557	15.4
1982	6,953	1,696	7,538	1,110	8,261	387	8,649	580	14.9
1983	6,974	1,714	7,492	1,196	8,688	[3]	8,688	603	14.4
1984[4]	7,022	1,735	7,487	1,270	8,757	[3]	8,757	616	14.2

[1] As of December 31.

[2] For 1954 through 1976, average productivity is based on the average number of producing wells. For 1977 forward, average productivity is based on the number of wells producing at year-end.

[3] Included in crude oil.

[4] Preliminary.

Note: Sum of components may not equal total due to independent rounding.

Sources: **Offshore:** •1954 through 1969—U.S. Geological Survey, *Outer Continental Shelf Statistics*, June 1979. •1970 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly* and *Weekly Petroleum Status Report.* **Oil Well Productivity:** •1954 through 1975—Bureau of Mines, *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter. •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Independent Petroleum Association of America, *The Oil Producing Industry in Your State.* •1984—Energy Information Administration, estimate. **All Other Data:** •1954 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 41. Imports of Petroleum Products, 1949-1984

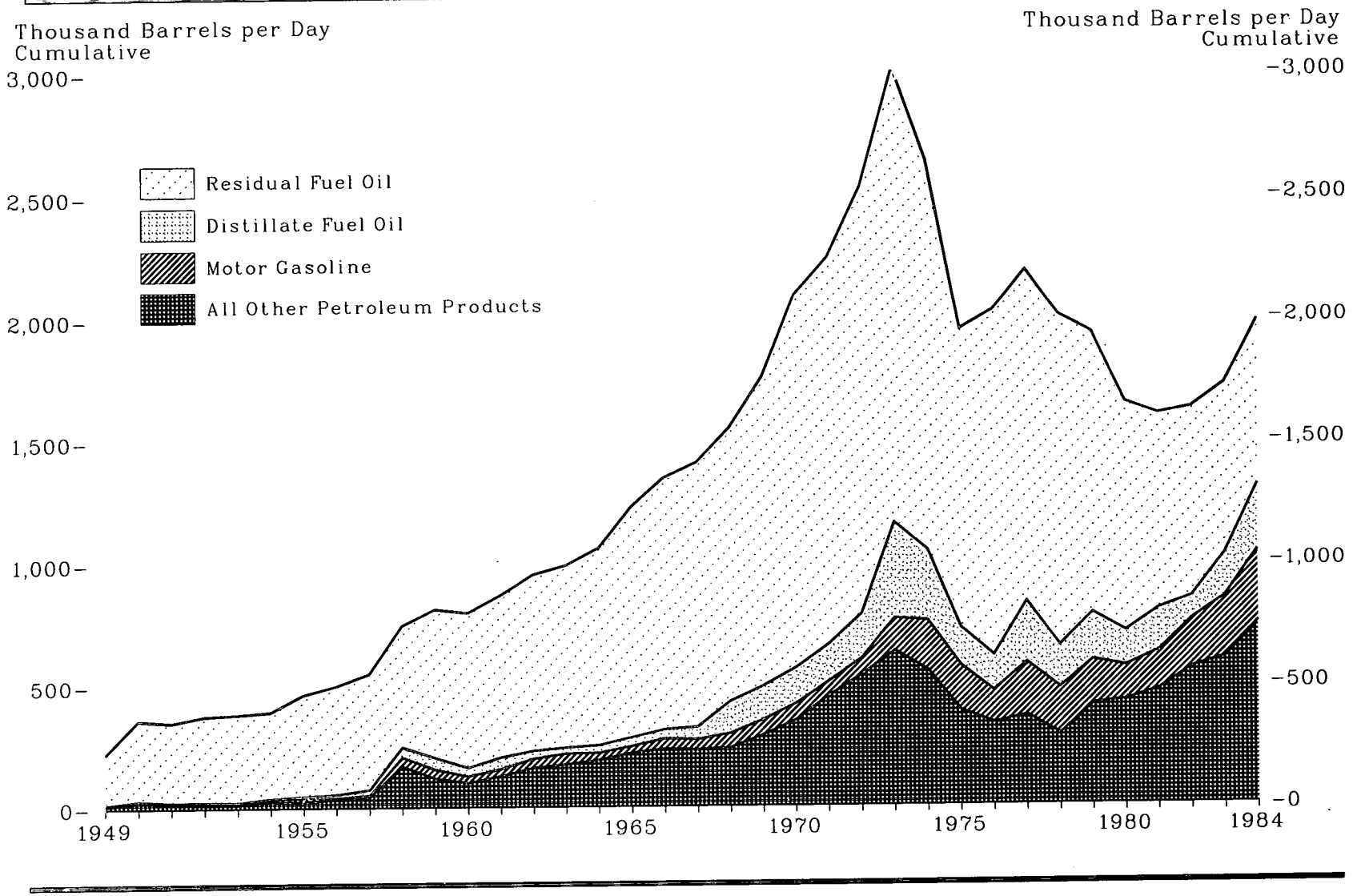


Table 41. Imports[1] of Petroleum Products, 1949-1984

(Thousand Barrels per Day)

Year	Motor Gasoline [2]	Jet Fuel [3]	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Unfinished Oils	Other Products [4]	Total
1949	0	NA	5	206	0	10	3	224
1950	(5)	NA	7	329	0	21	6	363
1951	1	NA	5	326	0	14	7	354
1952	5	NA	7	351	0	9	7	380
1953	1	NA	9	360	0	9	7	386
1954	3	NA	9	354	0	21	9	396
1955	13	NA	12	417	0	15	9	466
1956	5	21	14	445	0	7	10	502
1957	8	25	23	475	0	3	18	552
1958	38	57	41	499	0	92	21	747
1959	37	37	48	610	0	63	19	814
1960	27	34	35	637	4	45	17	799
1961	29	28	48	666	5	69	26	872
1962	38	30	32	724	6	89	36	955
1963	44	41	25	747	7	87	41	992
1964	29	33	32	808	11	89	58	1,060
1965	28	81	36	946	21	92	27	1,229
1966	43	86	38	1,032	29	97	24	1,348
1967	42	89	51	1,085	27	97	20	1,409
1968	59	105	132	1,120	32	80	22	1,549
1969	62	125	139	1,265	35	106	25	1,757
1970	67	144	147	1,528	52	108	49	2,095
1971	59	180	153	1,583	70	124	76	2,245
1972	68	194	182	1,742	89	125	126	2,525
1973	134	212	392	1,853	132	137	152	3,012
1974	204	163	289	1,587	123	121	148	2,635
1975	184	133	155	1,223	112	36	108	1,951
1976	131	76	146	1,413	130	32	97	2,026
1977	217	75	250	1,359	161	31	99	2,193
1978	190	86	173	1,355	123	27	53	2,008
1979	181	78	193	1,151	217	59	58	1,937
1980	140	80	142	939	216	55	76	1,646
1981	157	38	173	800	244	112	76	1,599
1982	197	29	93	776	226	174	131	1,625
1983	247	29	174	699	190	234	147	1,722
1984[6]	291	57	270	674	195	230	262	1,979

[1] Includes imports from U.S. possessions and territories.
[2] Excludes motor gasoline blending components after 1980. Prior to 1964, motor gasoline data were for total gasoline, including motor gasoline, aviation gasoline, and special naphtha.
[3] Prior to 1965, imports of kerosene-type jet fuel were included with kerosene, which is listed under "Other Products."
[4] Includes aviation gasoline, kerosene, petrochemical feedstocks, special naphthas, lubricants, wax, asphalt, natural gasoline, unfractionated stream, plant condensate, pentane plus, motor gasoline blending components, aviation gasoline blending components, and miscellaneous products.
[5] Less than 500 barrels per day.
[6] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* • 1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 42. Imports of Petroleum by Country of Origin, 1960-1984

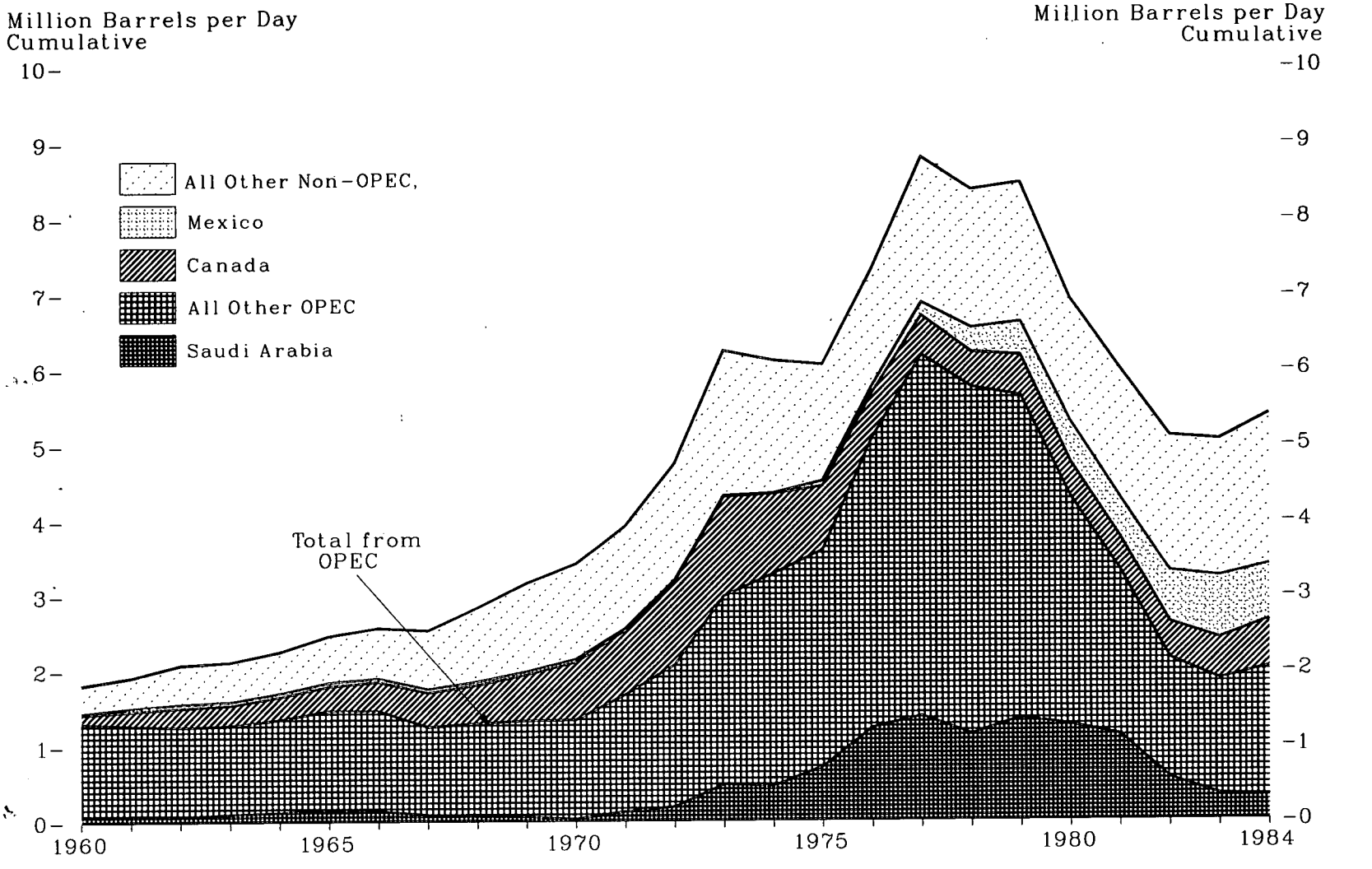


Table 42. Imports of Petroleum by Country of Origin, 1960-1984

(Thousand Barrels per Day)

Year	Organization of Petroleum Exporting Countries (OPEC) [1]													
	Algeria	Indonesia	Nigeria	Saudi Arabia	Venezuela	Other OPEC [2]	Total OPEC [3]	Arab Members of OPEC [4]	Canada	Mexico	United Kingdom	Virgin Is. and Puerto Rico	Other Non-OPEC	Total
1960	1	77	0	84	911	241	1,314	292	120	16	[5]	36	328	1,815
1961	0	62	0	73	879	272	1,286	284	190	40	1	44	357	1,917
1962	0	69	0	74	906	216	1,265	241	250	49	2	41	475	2,082
1963	1	63	0	108	900	211	1,283	258	265	48	3	44	480	2,123
1964	6	68	0	131	933	223	1,361	293	299	47	[5]	47	505	2,259
1965	9	63	15	158	994	237	1,476	324	323	48	[5]	47	574	2,468
1966	4	53	11	147	1,018	238	1,471	300	384	45	6	61	606	2,573
1967	5	66	5	92	938	153	1,259	177	450	49	11	96	673	2,537
1968	6	73	9	74	886	255	1,302	272	506	45	28	145	814	2,840
1969	2	88	49	65	875	256	1,336	276	608	43	20	189	971	3,166
1970	8	70	50	30	989	197	1,343	196	766	42	11	271	985	3,419
1971	15	111	102	128	1,020	296	1,673	327	857	27	10	368	991	3,926
1972	92	164	251	190	959	406	2,063	530	1,108	21	9	432	1,108	4,741
1973	136	213	459	486	1,135	564	2,993	915	1,325	16	15	429	1,479	6,256
1974	190	300	713	461	979	635	3,280	752	1,070	8	8	481	1,265	6,112
1975	282	390	762	715	702	750	3,601	1,383	846	71	14	496	1,026	6,056
1976	432	539	1,025	1,230	700	1,140	5,066	2,424	599	87	31	510	1,019	7,313
1977	559	541	1,143	1,380	690	1,880	6,193	3,185	517	179	126	571	1,221	8,807
1978	649	573	919	1,144	645	1,821	5,751	2,963	467	318	180	522	1,126	8,363
1979	636	420	1,080	1,356	690	1,456	5,637	3,056	538	439	202	523	1,116	8,456
1980	488	348	857	1,261	481	865	4,300	2,551	455	533	176	476	969	6,909
1981	311	366	620	1,129	406	491	3,323	1,848	447	522	375	389	939	5,996
1982	170	248	514	552	412	250	2,146	854	482	685	456	366	979	5,113
1983	240	338	302	337	422	223	1,862	632	547	826	382	322	1,111	5,051
1984[6]	318	342	214	322	536	290	2,023	809	629	739	396	335	1,259	5,381

[1] See Glossary for membership.
[2] Includes Ecuador, Gabon, Iran, Iraq, Kuwait, Libya, Qatar, and United Arab Emirates.
[3] Excludes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European refining areas, as petroleum products which were refined from crude oil produced in OPEC countries.
[4] Includes Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and United Arab Emirates.
[5] Less than 500 barrels per day.
[6] Preliminary.
Note: Data include imports for the Strategic Petroleum Reserve, which began in 1977.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1960 through 1975—Bureau of Mines, *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" Chapter. •1976 through 1980—Energy Information Administration, Energy Data Reports, *P.A.D. Districts Supply/Demand, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 43. Exports of Petroleum by Type, 1949-1984

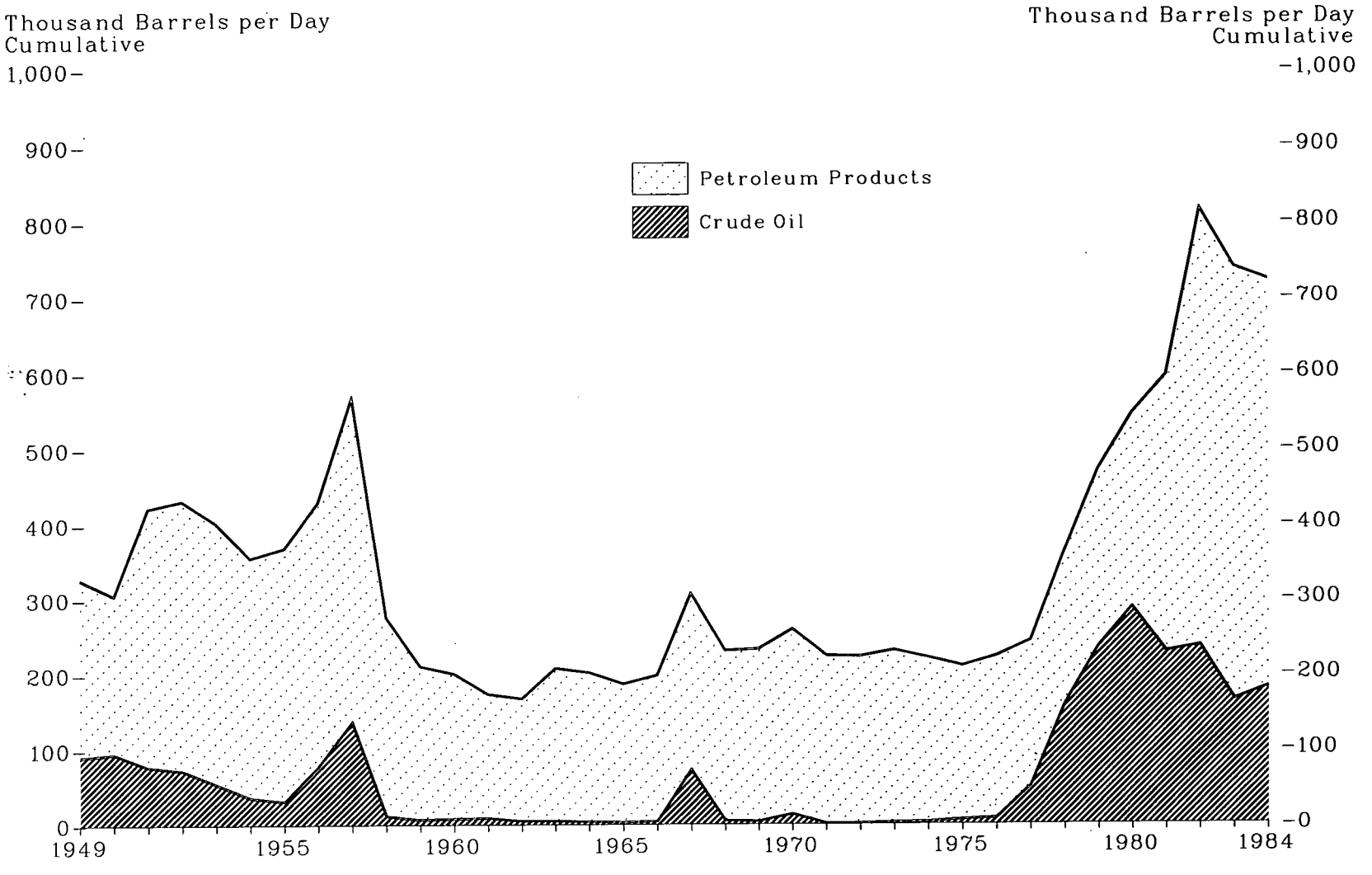


Table 43. Exports[1] of Petroleum by Type, 1949-1984

(Thousand Barrels per Day)

Year	Crude Oil	Petroleum Products							Total Petroleum
		Liquefied Petroleum Gases	Residual Fuel Oil	Petrochemical Feedstocks	Lubricants	Petroleum Coke	Other Products[2]	Total	
1949	91	4	35	0	35	7	156	236	327
1950	95	4	44	0	39	7	115	210	305
1951	78	6	79	0	48	12	199	344	422
1952	73	7	76	0	44	11	222	359	432
1953	55	8	71	0	36	10	222	347	402
1954	37	11	73	0	41	9	184	318	355
1955	32	12	93	0	39	12	180	336	368
1956	78	12	76	0	38	18	209	352	430
1957	138	12	106	0	38	14	260	430	568
1958	12	8	71	0	36	12	138	264	276
1959	7	6	57	0	38	13	90	204	211
1960	8	8	51	0	43	19	73	193	202
1961	9	10	38	0	47	20	50	165	174
1962	5	11	35	0	48	20	49	163	168
1963	5	13	42	0	50	29	69	203	208
1964	4	15	52	0	50	37	45	198	202
1965	3	21	41	5	45	32	40	184	187
1966	4	22	35	7	47	40	43	194	198
1967	73	25	60	8	51	45	45	234	307
1968	5	29	55	8	49	53	32	226	231
1969	4	35	46	11	45	63	29	229	233
1970	14	27	54	10	44	84	25	245	259
1971	1	26	36	14	43	74	29	223	224
1972	1	31	33	13	41	85	19	222	222
1973	2	27	23	19	35	96	29	229	231
1974	3	25	14	15	33	113	18	218	221
1975	6	26	15	22	25	102	14	204	209
1976	8	25	12	30	26	103	19	215	223
1977	50	18	6	24	26	102	15	193	243
1978	158	20	13	23	27	111	10	204	362
1979	235	15	9	31	23	146	12	236	471
1980	287	21	33	29	23	136	14	258	544
1981	228	42	118	26	19	138	24	367	595
1982	236	65	209	24	16	156	109	579	815
1983	164	73	185	20	16	195	87	575	739
1984[3]	181	48	190	21	15	193	73	541	722

[1] Includes exports to U.S. possessions and territories.
[2] Includes aviation gasoline, motor gasoline, jet fuel, distillate fuel oil, kerosene, special naphthas, wax, asphalt, pentane plus, and miscellaneous products.
[3] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 44. Exports of Petroleum by Major Country of Destination, 1960-1984

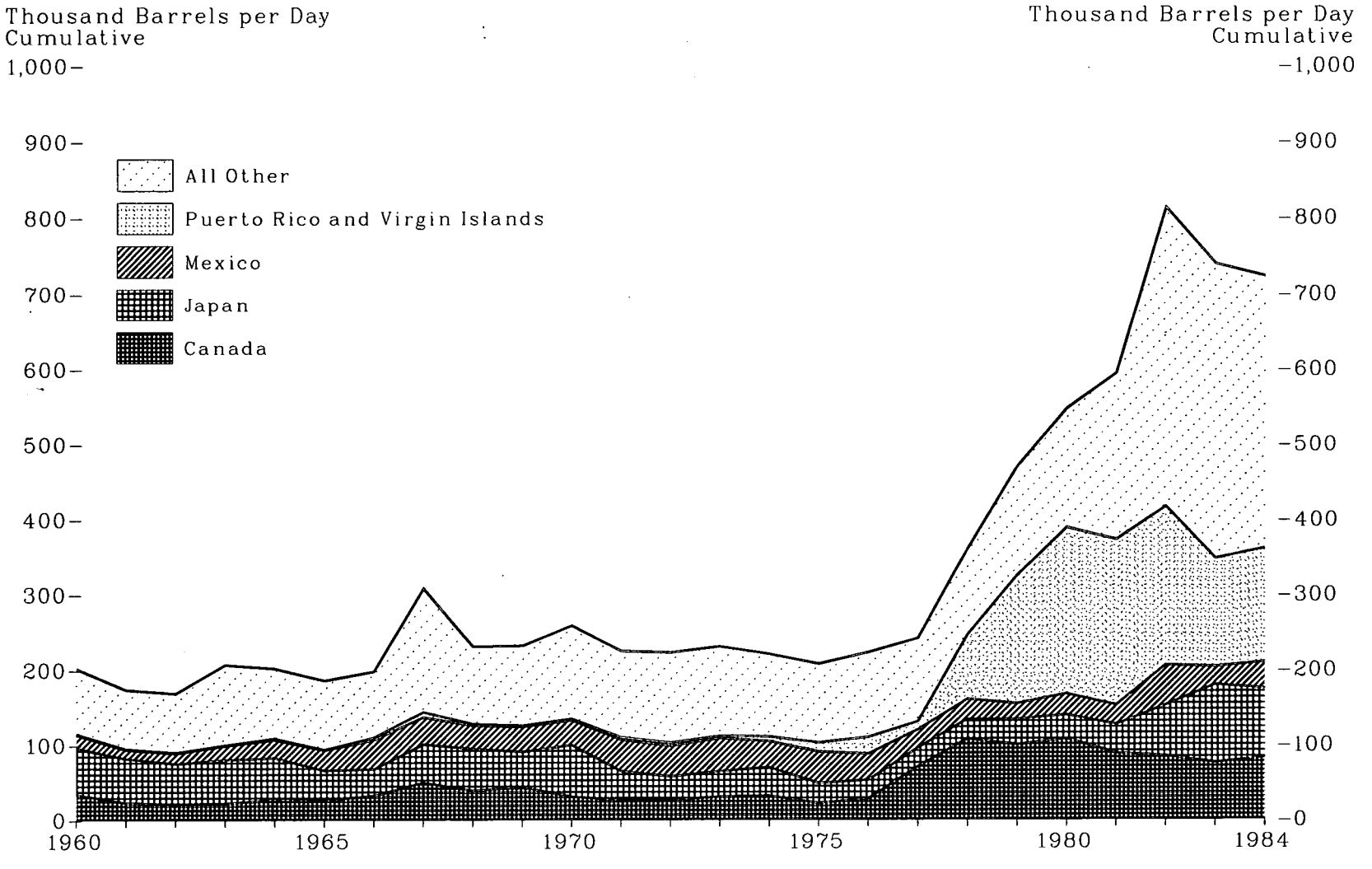


Table 44. Exports of Petroleum by Major Country of Destination, 1960-1984

(Thousand Barrels per Day)

Year	Canada	Japan	Mexico	Netherlands	Belgium[1]	Italy	United Kingdom	France	Brazil	Puerto Rico	Virgin Islands	Other	Total
1960	34	62	18	6	3	6	12	4	4	1	NA	52	202
1961	23	59	12	4	4	5	10	4	4	1	[2]	48	174
1962	21	54	14	5	3	5	8	3	5	1	[2]	50	168
1963	22	58	19	13	9	8	11	4	4	1	[2]	59	208
1964	27	56	24	9	4	8	10	4	4	1	1	55	202
1965	26	40	27	10	3	7	12	3	3	1	1	54	187
1966	32	36	39	9	3	7	12	4	4	3	[2]	49	198
1967	50	51	36	13	5	9	62	3	6	7	[2]	65	307
1968	39	56	31	10	4	8	14	4	8	2	[2]	55	231
1969	44	47	33	9	4	9	13	4	7	2	1	59	233
1970	31	69	33	15	5	10	12	5	7	1	[2]	71	259
1971	26	39	42	11	7	8	9	5	9	3	[2]	67	224
1972	26	32	41	12	13	9	10	5	9	3	[2]	63	222
1973	31	34	44	13	15	9	9	5	8	3	[2]	60	231
1974	32	38	35	17	13	9	6	4	9	4	2	52	221
1975	22	27	42	23	9	10	7	6	6	5	7	44	209
1976	28	25	35	22	12	10	13	6	7	21	1	43	223
1977	71	25	24	17	16	10	9	9	6	6	5	44	243
1978	108	26	27	18	15	10	7	9	8	44	42	47	362
1979	100	34	21	28	19	15	7	13	7	64	106	57	471
1980	108	32	28	23	20	14	7	11	4	86	134	79	544
1981	89	38	26	42	12	22	5	15	1	81	140	124	595
1982	85	68	53	85	17	32	14	24	8	95	116	216	815
1983	76	104	24	49	22	35	8	23	2	33	111	251	739
1984[3]	83	92	35	37	21	39	14	18	1	24	128	229	722

[1] Including Luxembourg.
[2] Less than 500 barrels per day.
[3] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1960 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Bureau of the Census, *U.S. Exports by Schedule B Commodities,* EM522; *Shipments of Merchandise from the United States to Puerto Rico, U.S. Virgin Islands, and Shipments from Puerto Rico to the United States,* EM594; and Energy Information Administration, *Petroleum Supply Monthly.*

Figure 45. Net Imports of Petroleum by Country of Origin, 1960-1984

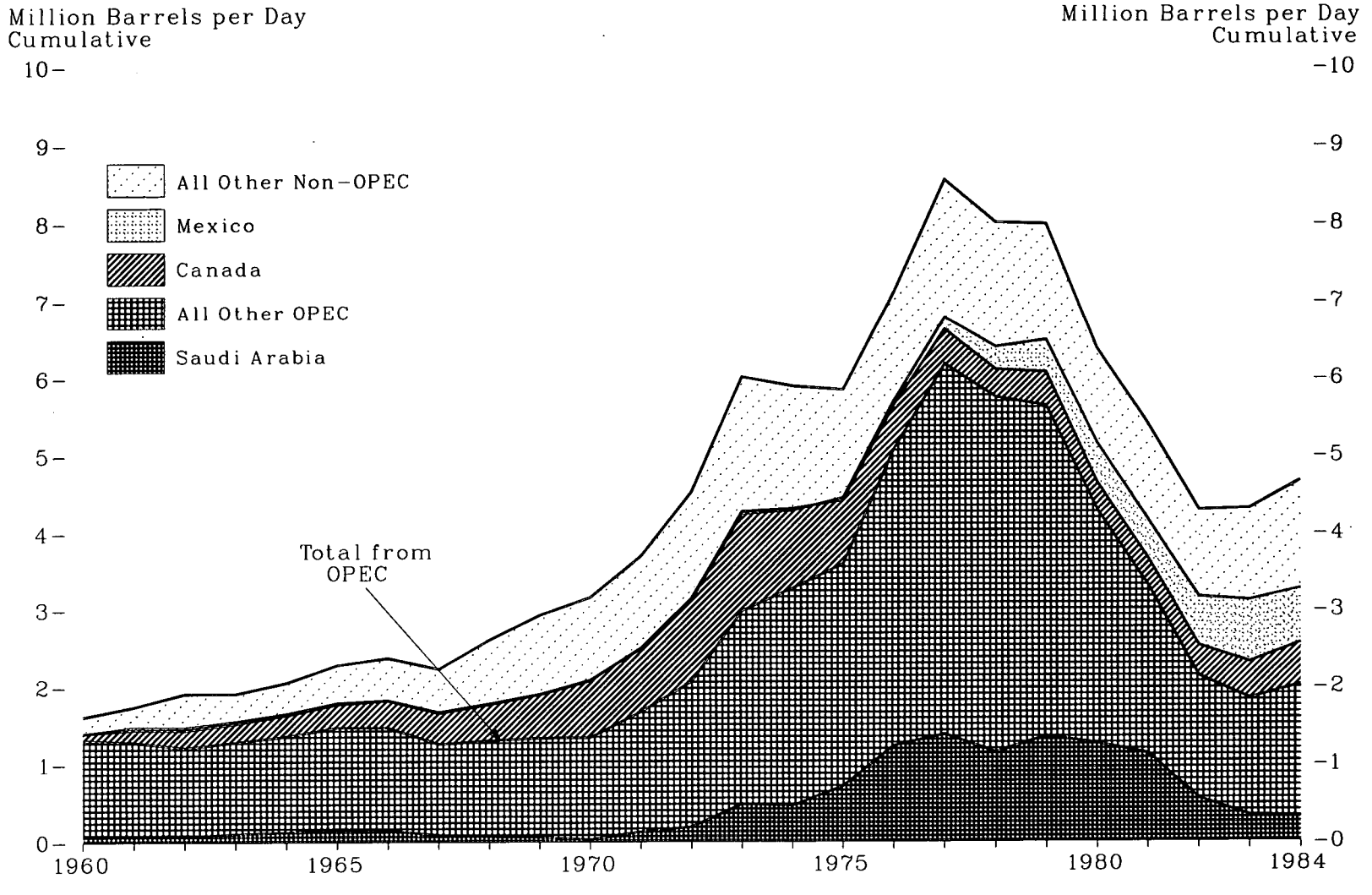


Table 45. Net Imports [1] of Petroleum by Country of Origin, 1960-1984

(Thousand Barrels per Day, Except as Shown)

Year	Organization of Petroleum Exporting Countries (OPEC)													U.S. Dependence on OPEC	
	Nigeria	Saudi Arabia	Venezuela	Other OPEC [2]	Total OPEC	Arab Members of OPEC [3]	Canada	Mexico	United Kingdom	Virgin Is. and Puerto Rico	Other Non-OPEC	Total Net Imports	Total Net Imports Percent of Consumption [4]	Percent of Net Imports [5]	Percent of Consumption [6]
1960	0	84	910	317	1,311	292	86	-2	-12	34	195	1,613	16.5	81.3	13.4
1961	0	73	878	333	1,283	284	167	27	-10	42	232	1,743	17.5	73.6	12.9
1962	0	74	905	232	1,210	241	229	35	-6	40	405	1,913	18.4	63.3	11.6
1963	0	108	899	274	1,282	258	243	29	-7	43	325	1,915	17.8	67.0	11.9
1964	0	131	932	296	1,359	293	272	23	-9	45	368	2,057	18.7	66.1	12.3
1965	15	158	994	308	1,475	324	297	21	-11	45	454	2,281	19.8	64.7	12.8
1966	11	147	1,018	295	1,470	291	352	6	-6	58	494	2,375	19.6	61.9	12.2
1967	5	92	937	224	1,258	177	400	13	-51	89	521	2,230	17.8	56.4	10.0
1968	9	74	886	332	1,302	272	468	15	13	143	668	2,609	19.5	49.9	9.7
1969	49	65	875	346	1,336	276	564	10	7	186	831	2,933	20.8	45.5	9.4
1970	50	30	989	274	1,343	196	736	9	-1	270	804	3,161	21.5	42.5	9.1
1971	102	128	1,019	422	1,671	327	831	-14	1	365	848	3,701	24.3	45.2	11.0
1972	251	189	959	662	2,061	529	1,082	-20	-1	428	969	4,519	27.6	45.6	12.6
1973	459	485	1,134	913	2,991	914	1,294	-28	(7)	426	1,343	6,025	34.8	49.6	17.3
1974	713	461	978	1,125	3,277	752	1,038	-27	1	475	1,127	5,892	35.4	55.6	19.7
1975	762	714	702	1,421	3,599	1,382	824	29	7	484	904	5,846	35.8	61.6	22.0
1976	1,025	1,229	699	2,110	5,063	2,423	571	53	24	488	891	7,090	40.6	71.4	29.0
1977	1,143	1,379	689	2,978	6,190	3,184	446	155	117	560	1,097	8,565	46.5	72.3	33.6
1978	919	1,142	644	3,042	5,747	2,962	359	291	173	436	996	8,002	42.5	71.8	30.5
1979	1,080	1,354	688	2,510	5,633	3,054	438	418	196	353	948	7,985	43.1	70.5	30.4
1980	857	1,259	478	1,699	4,293	2,549	347	506	169	256	794	6,365	37.3	67.4	25.2
1981	620	1,128	403	1,165	3,315	1,844	358	497	370	169	693	5,401	33.6	61.4	20.6
1982	512	551	409	663	2,136	852	397	632	442	154	538	4,298	28.1	49.7	14.0
1983	299	336	420	788	1,843	630	471	802	374	178	644	4,312	28.3	42.7	12.1
1984[8]	214	321	532	944	2,011	807	546	705	381	183	833	4,660	29.7	43.2	12.8

[1] Imports minus exports; negative numbers indicate that exports exceed imports.
[2] Includes Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Qatar, and United Arab Emirates.
[3] Includes Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and United Arab Emirates.
[4] Calculated by dividing total net petroleum imports by total U.S. petroleum products supplied (consumption).
[5] Calculated by dividing net petroleum imports from OPEC countries by total net petroleum imports.
[6] Calculated by dividing net petroleum imports from OPEC countries by total U.S. petroleum product supplied (consumption).
[7] Less than 500 barrels per day.
[8] Preliminary.
Note: Data include imports for the Strategic Petroleum Reserve which began in 1977.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1960 through 1975—Bureau of Mines, *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter. •1976 through 1980—Energy Information Administration, Energy Data Reports, *P.A.D. Districts Supply/Demand, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 46. Refinery Input and Output, 1949, 1959, 1969, 1979, and 1984

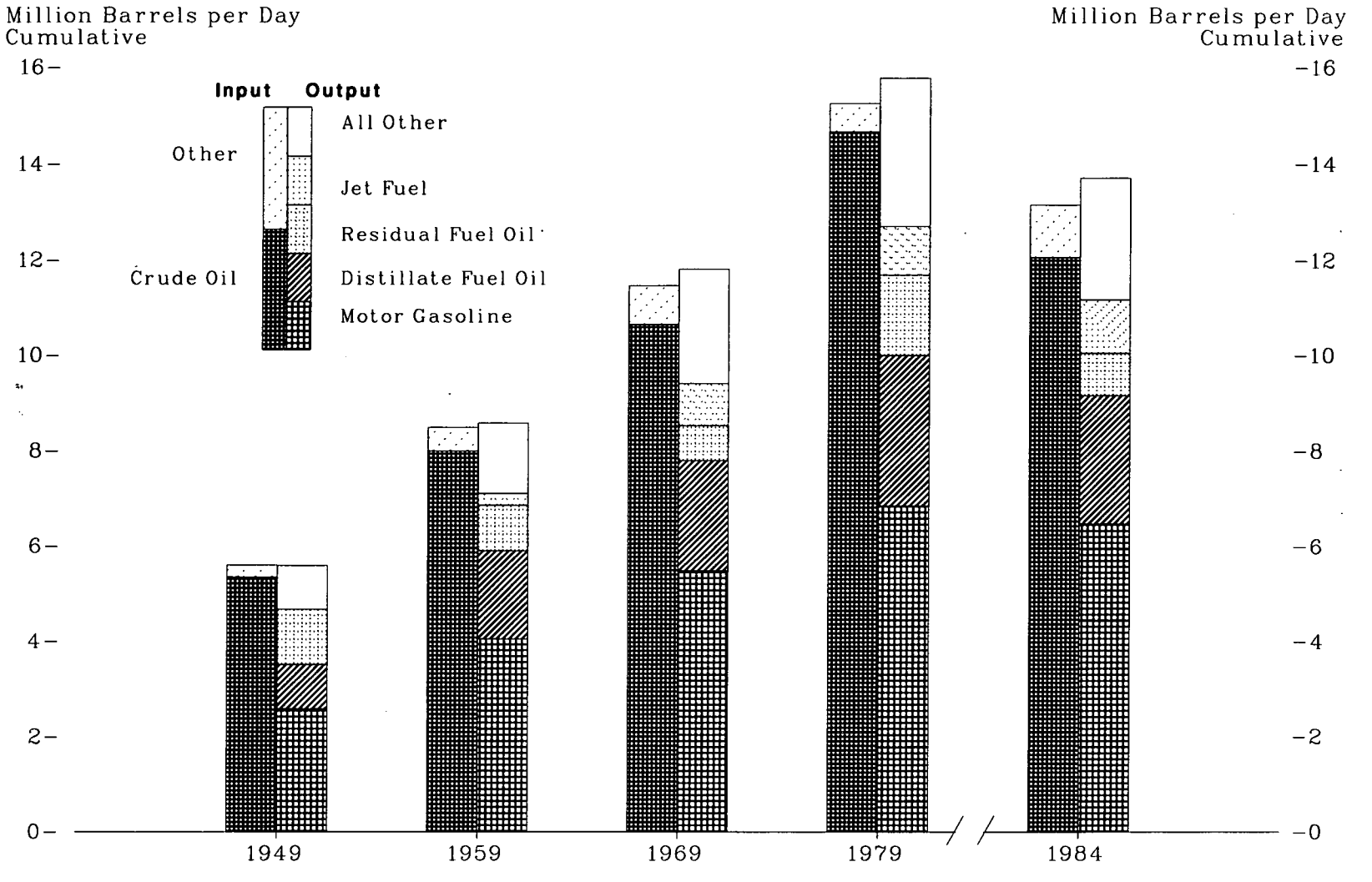


Table 46. Refinery Input and Output, 1949-1984

(Million Barrels per Day)

Year	Input				Output							Processing Gain or Loss
	Crude Oil	Natural Gas Plant Liquids	Other Liquids [1]	Total Input	Motor Gasoline [2]	Jet Fuel [2]	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Other Products [3]	Total Output	
1949	5.33	0.23	0.03	5.59	2.57	NA	0.93	1.16	0.06	0.85	5.59	[4]
1950	5.74	0.26	0.02	6.02	2.74	NA	1.09	1.16	0.08	0.95	6.02	[4]
1951	6.49	0.27	0.03	6.80	3.04	NA	1.30	1.29	0.09	1.09	6.80	0.01
1952	6.67	0.28	0.01	6.97	3.12	0.06	1.42	1.24	0.08	1.06	6.97	0.01
1953	7.00	0.30	[4]	7.31	3.38	0.10	1.45	1.23	0.09	1.08	7.33	0.02
1954	6.96	0.32	0.02	7.30	3.38	0.13	1.49	1.14	0.09	1.10	7.32	0.02
1955	7.48	0.34	0.03	7.86	3.65	0.16	1.65	1.15	0.12	1.17	7.89	0.03
1956	7.94	0.37	0.01	8.32	3.82	0.18	1.82	1.17	0.14	1.24	8.36	0.04
1957	7.92	0.41	[4]	8.33	3.88	0.17	1.83	1.14	0.15	1.20	8.37	0.04
1958	7.64	0.37	0.09	8.11	3.87	0.20	1.73	1.00	0.16	1.22	8.17	0.06
1959	7.99	0.42	0.07	8.48	4.04	0.25	1.86	0.95	0.19	1.28	8.57	0.09
1960	8.07	0.45	0.06	8.58	4.13	0.24	1.82	0.91	0.21	1.42	8.73	0.15
1961	8.18	0.46	0.06	8.71	4.15	0.26	1.91	0.86	0.22	1.49	8.89	0.18
1962	8.41	0.50	0.08	8.99	4.30	0.28	1.97	0.81	0.21	1.59	9.16	0.18
1963	8.69	0.52	0.09	9.30	4.39	0.27	2.09	0.76	0.26	1.72	9.50	0.20
1964	8.81	0.58	0.07	9.46	4.37	0.29	2.03	0.73	0.29	1.97	9.68	0.22
1965	9.04	0.62	0.09	9.75	4.51	0.52	2.10	0.74	0.29	1.81	9.97	0.22
1966	9.44	0.65	0.09	10.18	4.77	0.59	2.15	0.72	0.29	1.90	10.43	0.25
1967	9.82	0.67	0.09	10.58	4.94	0.75	2.20	0.76	0.31	1.92	10.87	0.29
1968	10.31	0.71	0.08	11.10	5.20	0.86	2.29	0.75	0.32	1.99	11.42	0.32
1969	10.63	0.72	0.11	11.46	5.47	0.88	2.32	0.73	0.34	2.06	11.79	0.34
1970	10.87	0.76	0.12	11.75	5.70	0.83	2.45	0.71	0.35	2.08	12.11	0.36
1971	11.20	0.78	0.14	12.12	5.97	0.83	2.50	0.75	0.36	2.09	12.50	0.38
1972	11.70	0.83	0.17	12.69	6.28	0.85	2.63	0.80	0.36	2.17	13.08	0.39
1973	12.43	0.82	0.15	13.40	6.53	0.86	2.82	0.97	0.37	2.30	13.85	0.45
1974	12.13	0.75	0.14	13.02	6.36	0.84	2.67	1.07	0.34	2.23	13.50	0.48
1975	12.44	0.71	0.07	13.23	6.52	0.87	2.65	1.24	0.31	2.10	13.68	0.46
1976	13.42	0.73	0.06	14.20	6.84	0.92	2.92	1.38	0.34	2.28	14.68	0.48
1977	14.60	0.67	0.07	15.35	7.03	0.97	3.28	1.75	0.35	2.49	15.87	0.52
1978	14.74	0.64	0.09	15.47	7.17	0.97	3.17	1.67	0.35	2.64	15.97	0.50
1979	14.65	0.51	0.08	15.24	6.84	1.01	3.15	1.69	0.34	2.74	15.76	0.53
1980	13.48	0.46	0.08	14.02	6.49	1.00	2.66	1.58	0.33	2.56	14.62	0.60
1981	12.47	0.52	0.49	13.48	6.40	0.97	2.61	1.32	0.31	2.37	13.99	0.51
1982	11.77	0.52	0.57	12.86	6.34	0.98	2.61	1.07	0.27	2.13	13.39	0.53
1983	11.69	0.46	0.50	12.65	6.34	1.02	2.46	0.85	0.33	2.14	13.14	0.49
1984[5]	12.05	0.50	0.59	13.14	6.47	1.13	2.68	0.89	0.36	2.16	13.70	0.56

[1] Prior to 1981, includes unfinished oils (net), hydrogen, and hydrocarbons not included elsewhere. 1981 forward includes unfinished oils (net), motor gasoline blending components (net), aviation gasoline blending components (net), hydrogen, other hydrocarbons, and alcohol. See Explanatory Note 4.

[2] Prior to 1964, motor gasoline data were for total gasoline, including motor gasoline, aviation gasoline, and special naphtha. Prior to 1965, kerosene-type jet fuel was included in kerosene.

[3] Includes kerosene, petrochemical feedstocks, lubricants, wax, petroleum coke, asphalt, road oil, still gas, and miscellaneous products. Since 1964, aviation gasoline and special naphthas are included.

[4] Less than 5,000 barrels per day.

[5] Preliminary.

Note: Sum of components may not equal total due to independent rounding.

Sources: •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* • 1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 47. Refinery Capacity and Utilization, 1949, 1954, 1959, 1964, 1969, 1974, 1979, and 1984

Table 47. Refinery Capacity and Utilization, 1949-1984

(Million Barrels per Day, Except as Noted)

Year	Operable Refineries		Gross Input to Distillation Units [3]	Utilization [4] (percent)
	Number [1]	Capacity [2]		
1949	336	6.23	5.56	89.2
1950	320	6.22	5.98	92.5
1951	325	6.70	6.76	97.5
1952	327	7.16	6.93	93.8
1953	315	7.62	7.26	93.1
1954	308	7.98	7.27	88.8
1955	296	8.39	7.82	92.2
1956	317	8.58	8.25	93.5
1957	317	9.07	8.22	89.2
1958	315	9.36	8.02	83.9
1959	313	9.76	8.36	85.2
1960	309	9.84	8.44	85.1
1961	309	10.00	8.57	85.7
1962	309	10.01	8.83	88.2
1963	304	10.01	9.14	90.0
1964	298	10.31	9.28	89.6
1965	293	10.42	9.56	91.8
1966	280	10.39	9.99	94.9
1967	276	10.66	10.39	94.4
1968	282	11.35	10.89	94.5
1969	279	11.70	11.25	94.8
1970	276	12.02	11.52	92.6
1971	272	12.86	11.88	90.9
1972	274	13.29	12.43	92.3
1973	268	13.64	13.15	93.9
1974	273	14.36	12.69	86.6
1975	279	14.96	12.90	85.5
1976	276	15.24	13.88	87.8
1977	282	16.40	14.98	89.6
1978	296	17.05	15.07	87.4
1979	308	17.44	14.96	84.4
1980	319	17.99	13.80	75.4
1981	324	18.62	12.72	68.6
1982	301	17.89	12.17	69.9
1983	258	16.86	11.95	71.7
1984	247	16.14	12.21	76.1

[1] Prior to 1956, the number of refineries includes only those in operation on January 1. For 1957 and forward, the number of refineries includes all operable refineries on January 1 (see Glossary).

[2] Capacity in million barrels per calendar year on January 1.

[3] See Explanatory Note 15.

[4] For 1949 through 1980, utilization is derived by dividing gross input to distillation units by one-half of the current year January 1 capacity and the following year January 1 capacity. Percentages were derived from unrounded numbers. For 1981 and forward, utilization is derived by averaging reported monthly utilization.

Note: Data are for refineries in the United States, excluding the Hawaiian Foreign Trade Zone.

Sources: **Operable Refineries:** •1949 through 1977—Bureau of Mines, Mineral Industry Surveys, *Petroleum Refineries, Annual.* •1978 through 1981—Energy Information Administration, Energy Data Reports, *Petroleum Refineries in the United States and U.S. Territories.* • 1982 and 1983—Energy Information Administration, *Petroleum Supply Annual.* **Gross Input to Distillation Units:** •1949 through 1966—Bureau of Mines, *Minerals Yearbook,* "Natural Gas Liquids" and "Crude Petroleum and Petroleum Products" chapters. •1967 through 1977—Bureau of Mines, Mineral Industry Surveys, *Petroleum Refineries, Annual.* •1978 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Refineries in the United States and U.S. Territories.* •1981 and forward—Energy Information Administration, *Petroleum Supply Annual.* **Utilization:** •1949 through 1980—calculated. •1981 and forward—Energy Information Administration, *Petroleum Supply Annual.*

Figure 48. Production and Imports of Residual Fuel Oil by Sulfur Content Categories, 1972-1982

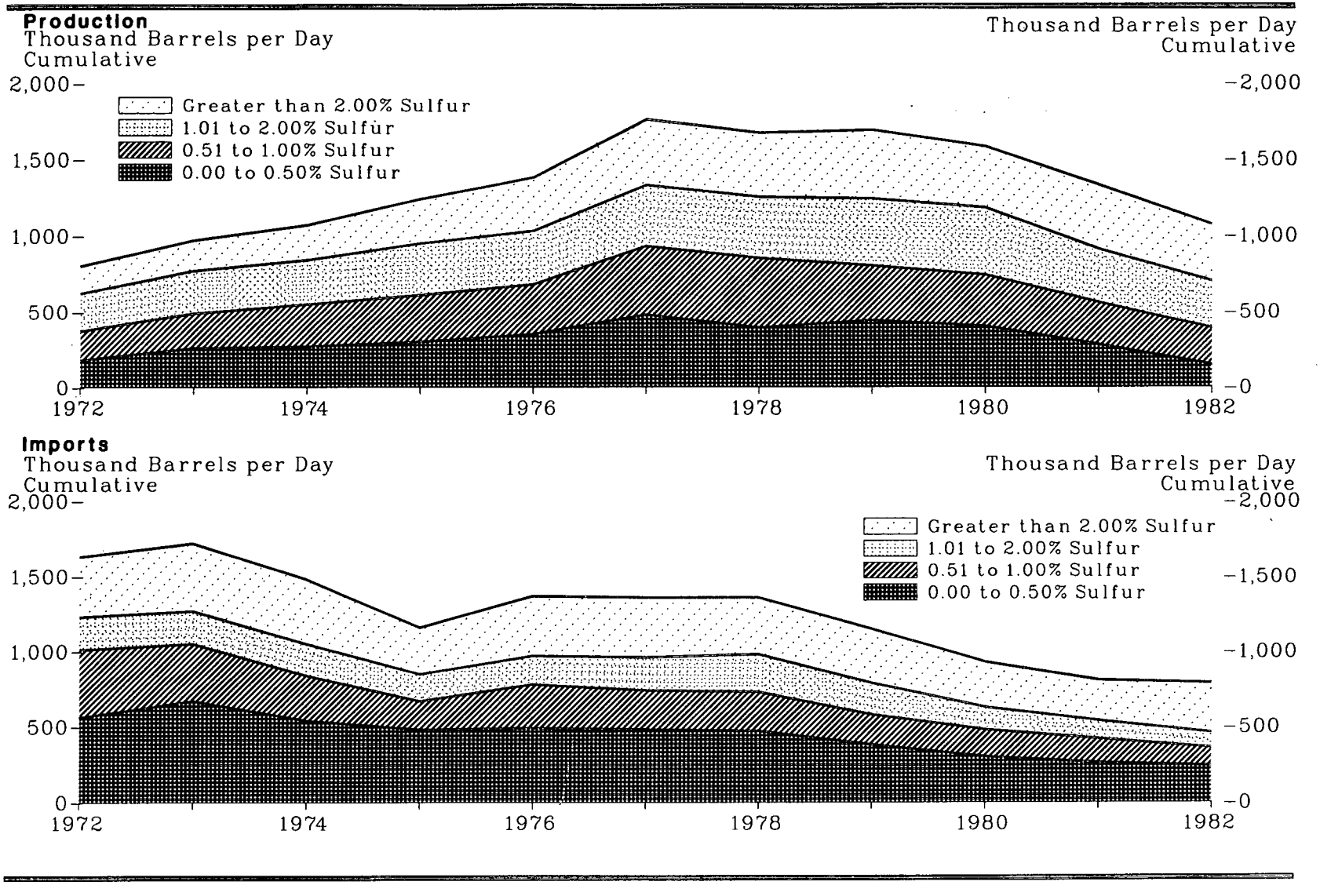


Table 48. Production and Imports of Residual Fuel Oil by Sulfur Content Categories, 1972-1984

(Million Barrels per Day)

Year	Production					Imports [1]				
	0.00 to 0.50% S	0.51 to 1.00% S	1.01 to 2.00% S	Greater Than 2.00% S	Total	0.00 to 0.50% S	0.51 to 1.00% S	1.01 to 2.00% S	Greater Than 2.00% S	Total
1972	0.18	0.19	0.25	0.18	0.80	0.56	0.45	0.22	0.40	1.62
1973	0.26	0.23	0.28	0.20	0.97	0.67	0.38	0.22	0.45	1.72
1974	0.27	0.28	0.29	0.23	1.07	0.54	0.30	0.21	0.43	1.48
1975	0.30	0.31	0.34	0.29	1.24	0.48	0.19	0.18	0.31	1.16
1976	0.35	0.33	0.35	0.35	1.38	0.49	0.29	0.19	0.40	1.37
1977	0.48	0.45	0.40	0.43	1.75	0.48	0.26	0.22	0.40	1.35
1978	0.39	0.46	0.40	0.42	1.67	0.47	0.26	0.25	0.38	1.35
1979	0.44	0.36	0.44	0.45	1.69	0.38	0.20	0.21	0.36	1.15
1980	0.40	0.34	0.44	0.40	1.58	0.30	0.18	0.15	0.30	0.94
1981	0.28	0.28	0.35	0.42	1.32	0.26	0.16	0.12	[2] 0.27	0.80
1982	0.15	0.24	0.31	0.37	1.07	0.24	0.12	0.10	[2] 0.33	0.78
1983	[3]	[3]	[3]	[3]	0.85	[4]	[4]	[4]	[4]	0.70
1984	[3]	[3]	[3]	[3]	0.89	[4]	[4]	[4]	[4]	0.67

[1] Excludes imports of residual fuel oil for offshore military use and bonded ships' bunkers for 1980 and earlier years. In 1980, the excluded quantities were 0.2 percent of total residual fuel oil imports.

[2] Includes small amounts of residual fuel oil with unspecified sulfur content.

[3] Sulfur content categories were revised, as follows, for 1983 and 1984; quantities in thousand barrels per day. •1983: 0.00 to 0.30% sulfur — 73; 0.31 to 1.00% sulfur — 268; greater than 1.00% sulfur — 512. •1984: 0.00 to 0.30% sulfur — 76; 0.31 to 1.00% sulfur — 277; greater than 1.00% sulfur — 539.

[4] Sulfur content categories were revised, as follows, for 1983 and 1984; quantities in thousand barrels per day. •1983: 0.00 to 0.30% sulfur — 220; 0.31 to 1.00% sulfur — 157; greater than 1.00% sulfur — 322. •1984: 0.00 to 0.30% sulfur — 268; 0.31 to 1.00% sulfur — 131; greater than 1.00% sulfur — 275.

S=Sulfur.

Note: Sum of components may not equal total due to independent rounding.

Sources: •1972 through 1976—Bureau of Mines, Mineral Industry Surveys, *Availability of Heavy Fuel Oils by Sulfur Levels,* monthly. • 1977 through 1980—Energy Information Administration, Energy Data Reports, *Availability of Heavy Fuel Oils by Sulfur Levels,* monthly. • 1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 49. Petroleum Products Supplied by Type, 1949-1984

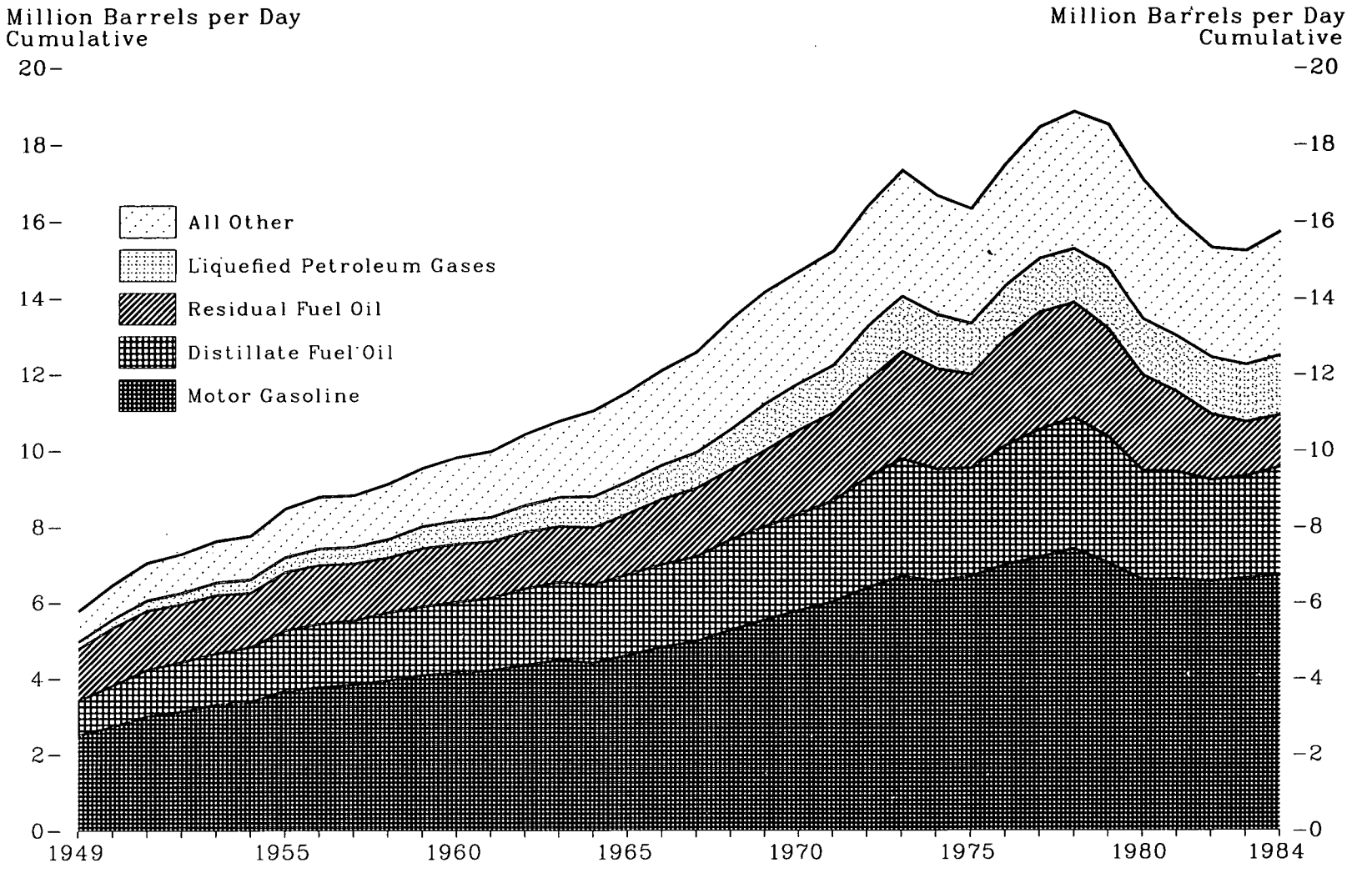


Table 49. Petroleum Products Supplied [1] by Type, 1949-1984

(Million Barrels per Day)

Year	Motor Gasoline [2]	Jet Fuel	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Other Products [3]	Total Products	Percentage Change from Previous Year [4]
1949	2.50	NA	0.90	1.36	0.19	0.81	5.76	—
1950	2.72	NA	1.08	1.52	0.23	0.90	6.46	12.1
1951	2.99	NA	1.23	1.55	0.28	0.98	7.02	8.6
1952	3.12	0.05	1.30	1.52	0.30	0.98	7.27	3.9
1953	3.30	0.09	1.34	1.54	0.33	1.00	7.60	4.3
1954	3.37	0.13	1.44	1.43	0.35	1.03	7.76	2.1
1955	3.66	0.15	1.59	1.53	0.40	1.12	8.46	9.0
1956	3.75	0.20	1.68	1.54	0.44	1.16	8.78	4.1
1957	3.82	0.20	1.69	1.50	0.45	1.15	8.81	0.1
1958	3.93	0.26	1.79	1.45	0.49	1.19	9.12	3.5
1959	4.07	0.29	1.81	1.54	0.58	1.24	9.53	4.5
1960	4.13	0.28	1.87	1.53	0.62	1.36	9.80	3.1
1961	4.20	0.29	1.90	1.50	0.64	1.44	9.98	1.5
1962	4.34	0.31	2.01	1.50	0.70	1.55	10.40	4.2
1963	4.47	0.32	2.05	1.48	0.76	1.68	10.74	3.3
1964	4.40	0.32	2.05	1.52	0.81	1.92	11.02	2.9
1965	4.59	0.60	2.13	1.61	0.84	1.74	11.51	4.2
1966	4.81	0.67	2.18	1.72	0.89	1.82	12.08	5.0
1967	4.96	0.82	2.24	1.79	0.94	1.81	12.56	3.9
1968	5.26	0.95	2.39	1.83	1.05	1.91	13.39	6.9
1969	5.53	0.99	2.47	1.98	1.22	1.95	14.14	5.3
1970	5.78	0.97	2.54	2.20	1.22	1.98	14.70	4.0
1971	6.01	1.01	2.66	2.30	1.25	1.98	15.21	3.5
1972	6.38	1.05	2.91	2.53	1.42	2.08	16.37	7.9
1973	6.67	1.06	3.09	2.82	1.45	2.21	17.31	5.5
1974	6.54	0.99	2.95	2.64	1.41	2.13	16.65	-3.8
1975	6.67	1.00	2.85	2.46	1.33	2.00	16.32	-2.0
1976	6.98	0.99	3.13	2.80	1.40	2.16	17.46	7.3
1977	7.18	1.04	3.35	3.07	1.42	2.37	18.43	5.3
1978	7.41	1.06	3.43	3.02	1.41	2.51	18.85	2.3
1979	7.03	1.08	3.31	2.83	1.59	2.67	18.51	-1.8
1980	6.58	1.07	2.87	2.51	1.47	2.57	17.06	-7.6
1981	6.59	1.01	2.83	2.09	1.47	2.08	16.06	-6.1
1982	6.54	1.01	2.67	1.72	1.50	1.86	15.30	-4.7
1983	6.62	1.05	2.69	1.42	1.51	1.94	15.23	-0.4
1984[5]	6.70	1.17	2.85	1.36	1.58	2.05	15.71	3.4

[1] See Explanatory Notes 4, 5, and 6.
[2] Prior to 1964, motor gasoline data were for total gasoline, including motor gasoline, aviation gasoline, and special naphtha.
[3] Includes kerosene, petrochemical feedstocks, lubricants, wax, petroleum coke, asphalt, road oil, still gas, natural gasoline, unfractionated stream, plant condensate, and miscellaneous products. Since 1964, aviation gasoline and special naphthas are included. Prior to 1965, kerosene-type jet fuel was included in kerosene. For 1981 and forward, other products include negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils and other products (from both primary and secondary supply) reclassified as gasoline blending components. Beginning in 1983, product supplied also includes crude oil burned as fuel.
[4] Percent change from previous year calculated from data prior to rounding.
[5] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 50. Petroleum Products Supplied to End-Use Sectors, 1949-1984

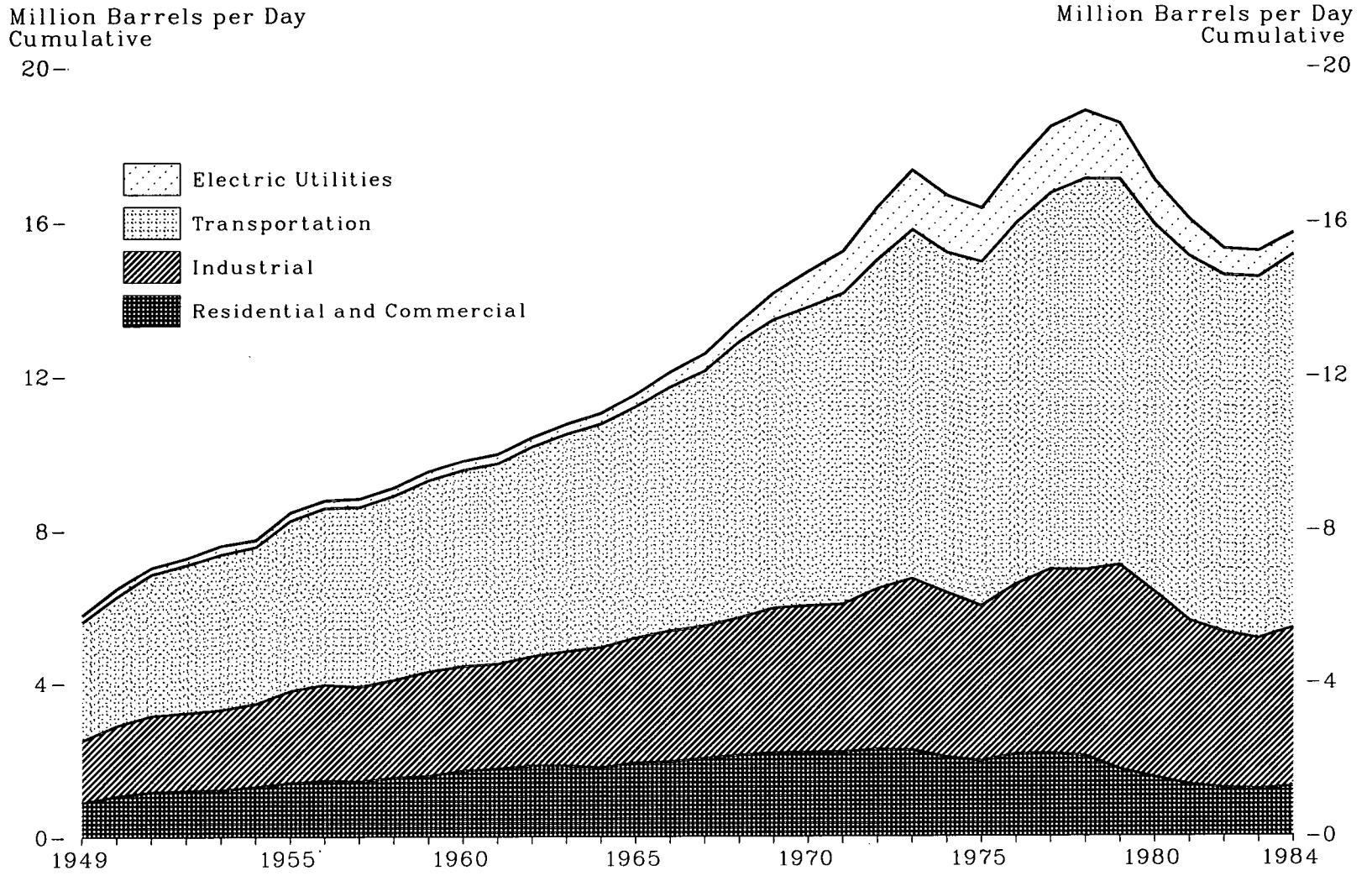


Table 50. Petroleum Products Supplied [1] to End-Use Sectors, 1949-1984

(Million Barrels per Day)

Year	Residential and Commercial	Industrial	Transportation	Electric Utilities	Total
1949	0.90	1.60	3.08	0.18	5.76
1950	1.07	1.82	3.36	0.21	6.46
1951	1.17	1.98	3.69	0.18	7.02
1952	1.20	2.02	3.87	0.18	7.27
1953	1.22	2.08	4.07	0.23	7.60
1954	1.30	2.16	4.11	0.18	7.76
1955	1.40	2.39	4.46	0.21	8.46
1956	1.46	2.49	4.62	0.20	8.78
1957	1.43	2.46	4.71	0.22	8.81
1958	1.53	2.54	4.83	0.21	9.12
1959	1.57	2.71	5.01	0.24	9.53
1960	1.71	2.71	5.14	0.24	9.80
1961	1.76	2.72	5.25	0.24	9.98
1962	1.84	2.84	5.48	0.24	10.40
1963	1.84	2.97	5.68	0.26	10.74
1964	1.79	3.13	5.83	0.28	11.02
1965	1.91	3.25	6.03	0.32	11.51
1966	1.94	3.41	6.35	0.39	12.08
1967	2.02	3.45	6.65	0.44	12.56
1968	2.10	3.59	7.18	0.52	13.39
1969	2.16	3.78	7.51	0.69	14.14
1970	2.18	3.82	7.77	0.93	14.70
1971	2.18	3.86	8.08	1.09	15.21
1972	2.25	4.20	8.55	1.36	16.37
1973	2.23	4.49	9.05	1.54	17.31
1974	2.04	4.30	8.84	1.48	16.65
1975	1.95	4.04	8.95	1.39	16.32
1976	2.12	4.45	9.37	1.52	17.46
1977	2.14	4.83	9.75	1.71	18.43
1978	2.07	4.88	10.14	1.75	18.85
1979	1.73	5.35	10.00	1.44	18.51
1980	1.52	4.84	9.55	1.15	17.06
1981	1.33	4.28	9.48	0.96	16.06
1982	1.24	4.06	9.30	0.69	15.30
1983	1.21	3.93	9.41	0.68	15.23
1984[2]	1.27	4.15	9.72	0.56	15.71

[1] See Explanatory Note 5.
[2] Estimated.
Note: Sum of components may not equal total due to independent rounding.
Sources: **Total:** •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly* and *Weekly Petroleum Status Report.* **Other Data:** •1949 through 1959—Energy Information Administration estimates. •1960 through 1983—Energy Information Administration, "State Energy Data System, 1960-1983." •1984—Energy Information Administration estimates.

Figure 51. Petroleum Products Supplied by Type and to End-Use Sectors, 1983 and 1984

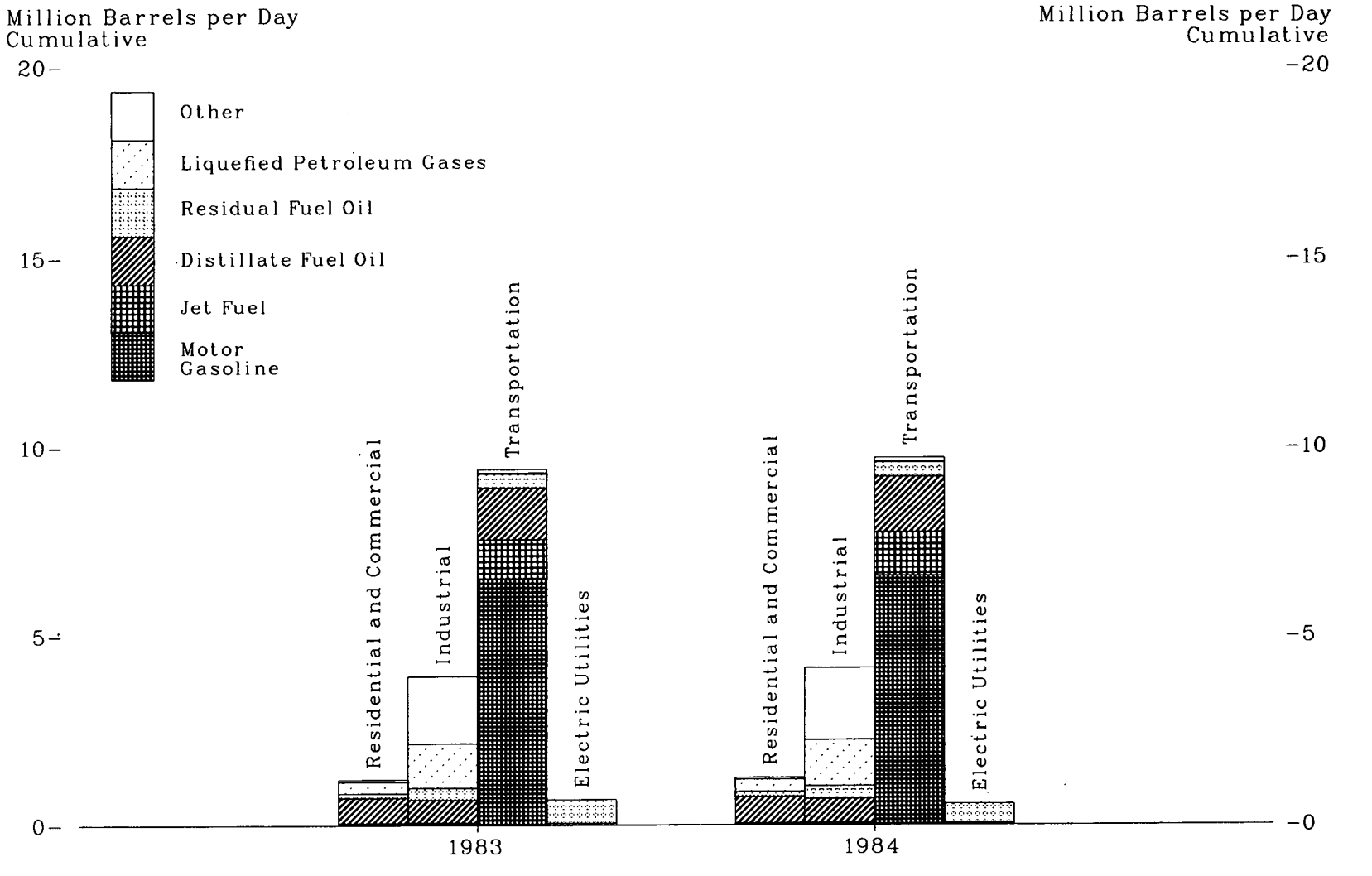


Table 51. Petroleum Products Supplied [1] by Type and to End-Use Sectors, 1983 and 1984

Year and Refined Product	Residential and Commercial		Industrial		Transportation		Electric Utilities		Total	
	Million Barrels per Day	Quadrillion Btu	Million Barrels per Day	Quadrillion Btu	Million Barrels per Day	Quadrillion Btu	Million Barrels per Day	Quadrillion Btu	Million Barrels per Day	Quadrillion Btu
1983										
Asphalt and Road Oil	0	0	0.37	0.90	0	0	0	0	0.37	0.90
Aviation Gasoline	0	0	0	0	0.03	0.05	0	0	0.03	0.05
Distillate Fuel Oil	0.67	1.42	0.61	1.29	1.37	2.92	0.05	0.10	2.69	5.72
Jet Fuel	0	0	0	0	1.05	2.14	0	0	1.05	2.14
Kerosene	0.06	0.12	0.07	0.15	0	0	0	0	0.13	0.26
Liquefied Petroleum Gases	0.31	0.41	1.17	1.54	0.03	0.04	0	0	1.51	1.99
Lubricants	0	0	0.08	0.17	0.07	0.16	0	0	0.15	0.32
Motor Gasoline	0.05	0.10	0.06	0.11	6.51	12.48	0	0	6.62	12.70
Residual Fuel Oil	0.12	0.27	0.32	0.73	0.36	0.82	0.63	1.44	1.42	3.26
All Other [2]	0	0	1.27	2.70	0	0	[3]	0.01	1.27	2.71
Total	1.21	2.32	3.93	7.58	9.41	18.61	0.68	1.54	15.23	30.05
1984 [4]										
Asphalt and Road Oil	0	0	0.40	0.98	0	0	0	0	0.40	0.98
Aviation Gasoline	0	0	0	0	0.03	0.05	0	0	0.03	0.05
Distillate Fuel Oil	0.71	1.51	0.64	1.36	1.46	3.11	0.04	0.09	2.85	6.07
Jet Fuel	0	0	0	0	1.17	2.40	0	0	1.17	2.40
Kerosene	0.05	0.11	0.06	0.13	0	0	0	0	0.12	0.24
Liquefied Petroleum Gases	0.33	0.43	1.22	1.60	0.03	0.04	0	0	1.58	2.08
Lubricants	0	0	0.08	0.17	0.07	0.17	0	0	0.15	0.34
Motor Gasoline	0.05	0.10	0.06	0.11	6.58	12.66	0	0	6.70	12.88
Residual Fuel Oil	0.13	0.29	0.34	0.78	0.38	0.88	0.52	1.19	1.36	3.14
All Other [2]	0	0	1.35	2.82	0	0	[3]	0.01	1.35	2.83
Total	1.27	2.44	4.15	7.97	9.72	19.30	0.56	1.29	15.71	31.00

[1] See Explanatory Notes 4, 5, and 6.
[2] Includes petrochemical feedstock, special naphthas, wax, petroleum coke, still gas, natural gasoline, crude oil, and miscellaneous products.
[3] Less than 5 thousand barrels per day.
[4] Estimated.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1983—Energy Information Administration, "State Energy Data System, 1960-1983." •1984—Energy Information Administration estimates.

Figure 52. Primary Stocks of Petroleum by Type, Yearend, 1949-1984

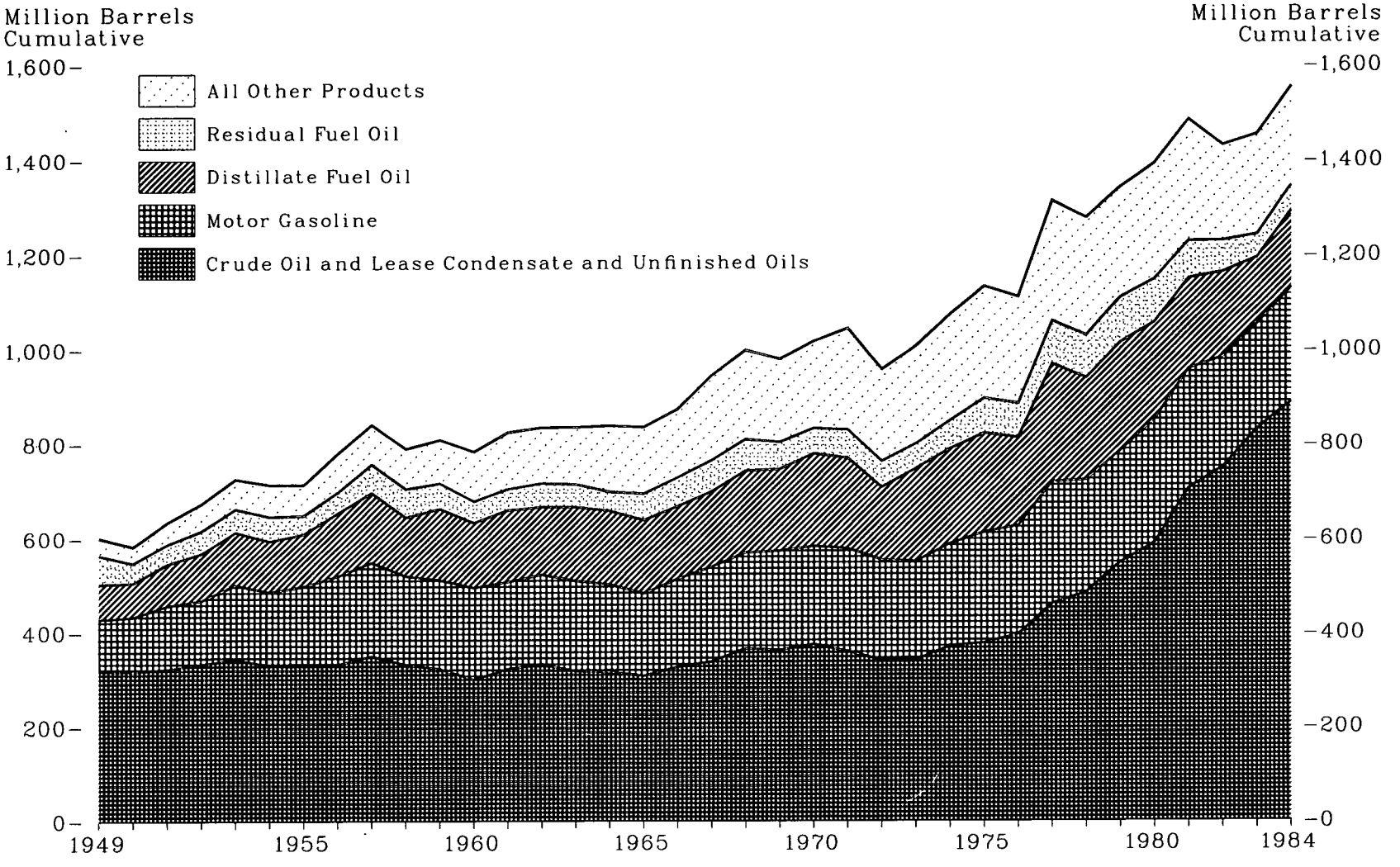


Table 52. Primary Stocks of Petroleum by Type, Yearend 1949-1984

(Million Barrels)

Year	Crude Oil and Lease Condensate [1]	Petroleum Products								Total Petroleum
		Motor Gasoline [2]	Jet Fuel	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Unfinished Oils	Other Products [3]	Total Products	
1949	253	110	NA	75	60	1	66	37	350	603
1950	248	116	NA	72	41	2	70	34	334	583
1951	256	135	NA	87	43	2	67	45	378	634
1952	272	135	2	99	49	3	62	53	402	674
1953	274	158	3	112	49	4	69	56	451	726
1954	258	155	3	108	52	7	74	57	457	715
1955	266	165	3	111	39	7	68	55	449	715
1956	266	187	5	134	44	14	67	63	514	780
1957	282	197	5	149	60	14	69	66	560	841
1958	263	187	6	125	60	16	70	63	526	789
1959	257	188	8	151	54	19	67	66	552	809
1960	240	195	7	138	45	23	62	76	545	785
1961	245	184	8	152	45	31	79	81	580	825
1962	252	189	10	144	50	25	82	83	582	834
1963	237	191	9	157	48	28	82	85	598	836
1964	230	186	19	156	40	30	87	92	609	839
1965	220	175	19	155	56	30	89	92	616	836
1966	238	186	19	154	61	35	89	91	636	874
1967	249	200	22	160	66	64	90	93	695	944
1968	272	204	24	173	67	76	93	89	727	1,000
1969	265	211	28	172	58	60	98	88	715	980
1970	276	209	28	195	54	67	99	89	741	1,018
1971	260	219	28	191	60	95	101	92	784	1,044
1972	246	213	25	154	55	86	95	84	713	959
1973	242	209	29	196	53	99	99	80	766	1,008
1974	265	218	29	200	60	113	106	82	809	1,074
1975	271	235	30	209	74	125	106	82	862	1,133
1976	285	231	32	186	72	116	110	78	826	1,112
1977	348	258	35	250	90	136	113	82	964	1,312
1978	376	238	34	216	90	132	109	82	901	1,278
1979	430	237	39	229	96	111	118	82	911	1,341
1980	466	261	42	205	92	120	124	82	926	1,392
1981	594	253	41	192	78	135	111	80	890	1,484
1982	644	235	37	179	66	94	105	70	786	1,430
1983	723	222	39	140	49	101	108	72	731	1,454
1984[4]	794	243	42	161	53	101	94	67	761	1,555

[1] Includes crude oil stored in the Strategic Petroleum Reserve, which began in 1977.
[2] Includes motor gasoline blending components. Prior to 1964, motor gasoline data were for total gasoline which included motor gasoline, aviation gasoline, and special naphthas.
[3] Includes kerosene, petrochemical feedstocks, lubricants, wax, petroleum coke, asphalt, road oil, natural gasoline, unfractionated stream, plant condensate, pentane plus, and miscellaneous products. Since 1964, aviation gasoline and special naphthas are included. For 1981 and forward, other products include stocks of aviation gasoline blending components, hydrogen, other hydrocarbons, and alcohol.
[4] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 53. Strategic Petroleum Reserve, 1977–1984

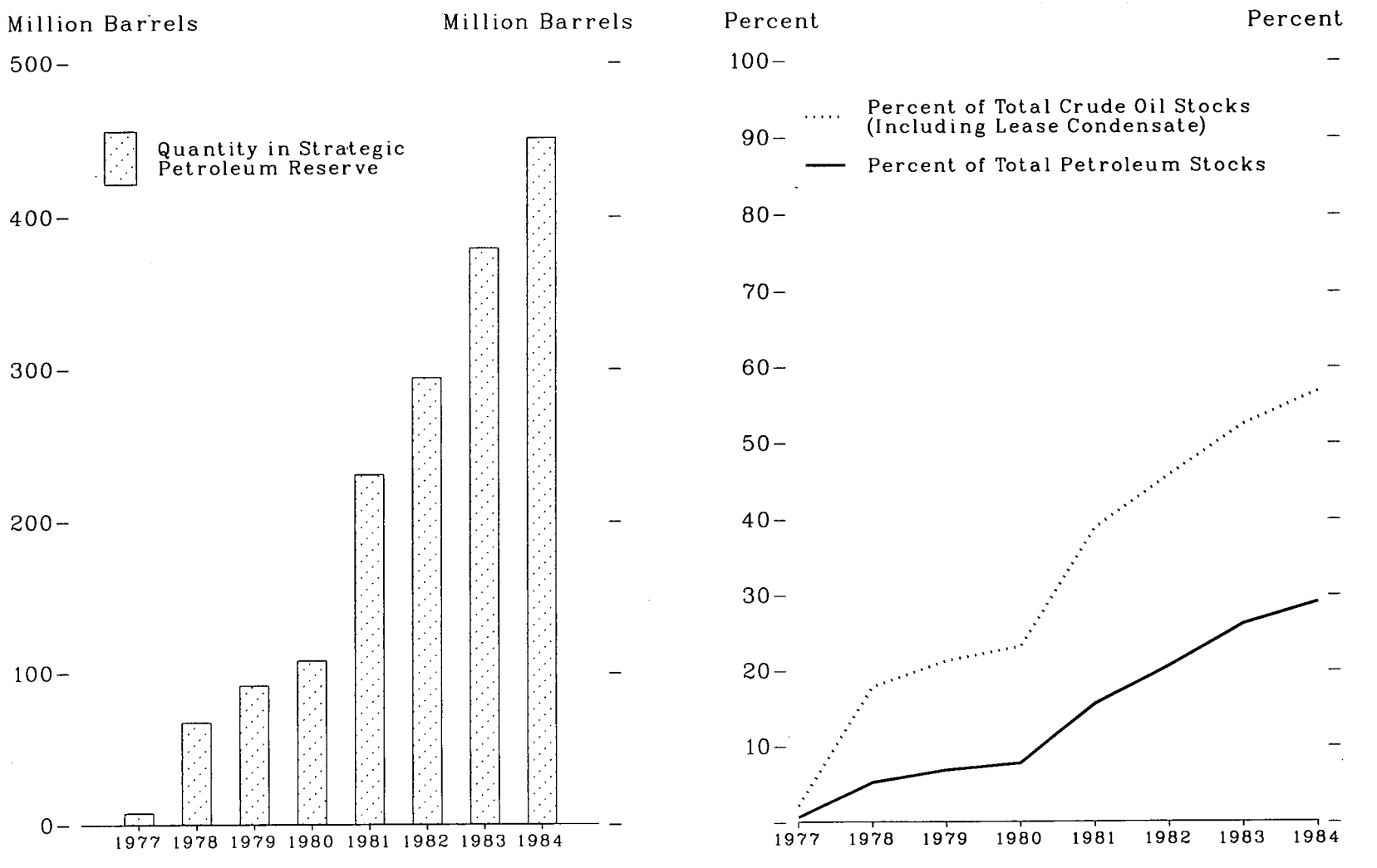


Table 53. Strategic Petroleum Reserve, 1977-1984
(Million Barrels, Except as Noted)

Year	Crude Oil Imports	Domestic Crude Oil Deliveries	Yearend Stocks		
			Quantity [1]	Percent of Crude Oil [2] Stocks	Percent of Total Petroleum Stocks
1977	7.54	[3] 0.37	7.46	2.1	0.6
1978	58.80	0	66.86	17.8	5.2
1979	24.43	(4)	91.19	21.2	6.8
1980	16.07	1.30	107.80	23.1	7.7
1981	93.30	28.79	230.34	38.8	15.5
1982	60.19	3.88	293.83	45.7	20.5
1983	85.29	0	379.09	52.4	26.1
1984	72.04	0	450.51	56.7	29.0

[1] Stocks do not include imported quantities in transit to Strategic Petroleum Reserve terminals, pipeline fill, and above-ground storage.
[2] Including lease condensate stocks.
[3] The quantity of domestic fuel oil which was in storage prior to injection of foreign crude oil.
[4] Less than 0.005 million barrels.
Sources: •1977 through 1980—Energy Information Administration, Energy Data Report, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* • 1984—Energy Information Administration, *Petroleum Supply Monthly.*

Figure 54. Crude Oil Wellhead Prices, 1949-1984

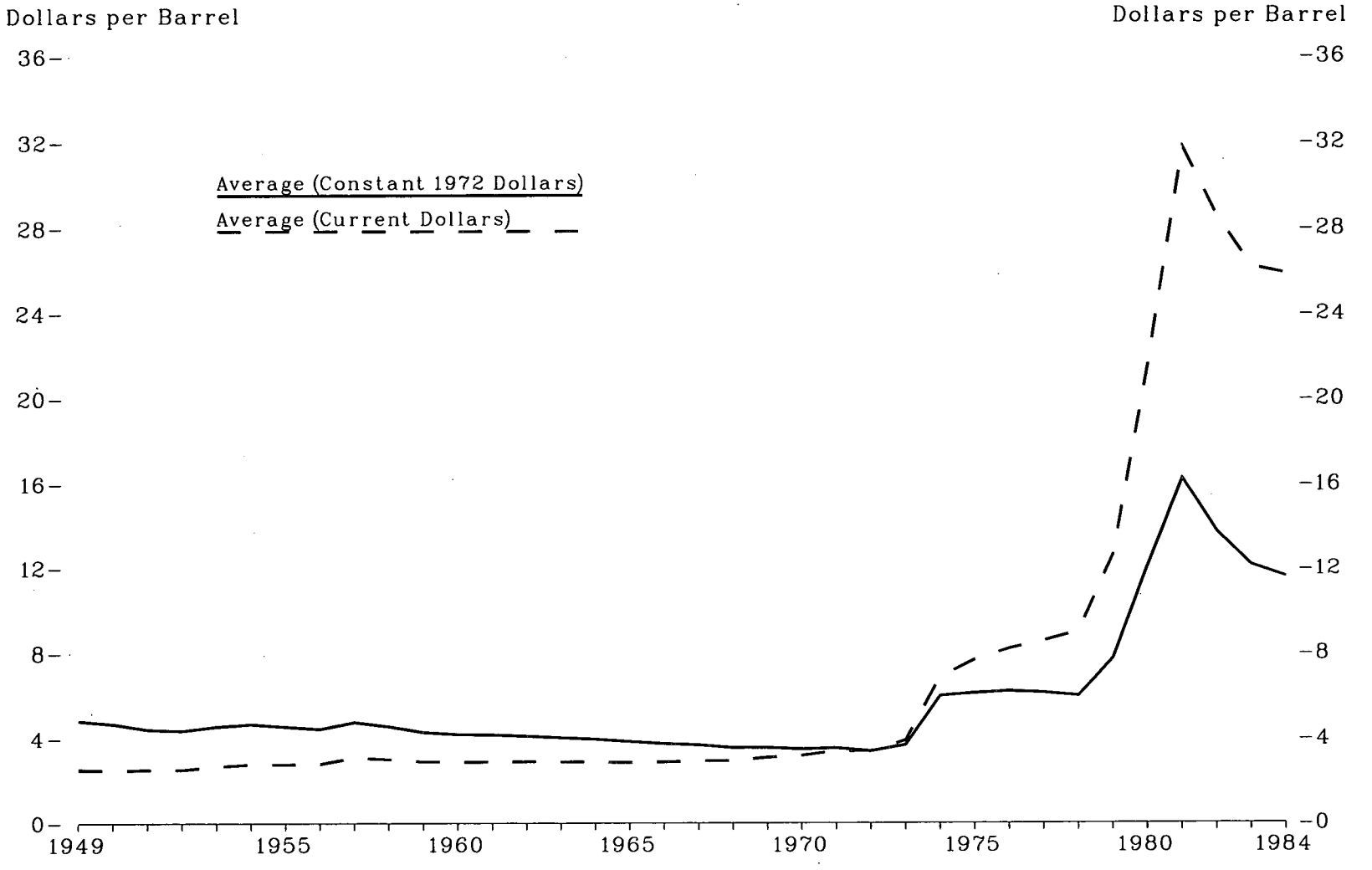


Table 54. Crude Oil Wellhead Prices,[1] 1949-1984

(Dollars per Barrel)

Year	Alaska North Slope (current)	Other U.S. (current)	U.S. Average (current)	U.S. Average (constant)[2]
1949	—	2.54	2.54	4.84
1950	—	2.51	2.51	4.69
1951	—	2.53	2.53	4.43
1952	—	2.53	2.53	4.37
1953	—	2.68	2.68	4.56
1954	—	2.78	2.78	4.67
1955	—	2.77	2.77	4.55
1956	—	2.79	2.79	4.44
1957	—	3.09	3.09	4.76
1958	—	3.01	3.01	4.56
1959	—	2.90	2.90	4.29
1960	—	2.88	2.88	4.19
1961	—	2.89	2.89	4.17
1962	—	2.90	2.90	4.11
1963	—	2.89	2.89	4.03
1964	—	2.88	2.88	3.96
1965	—	2.86	2.86	3.85
1966	—	2.88	2.88	3.75
1967	—	2.92	2.92	3.69
1968	—	2.94	2.94	3.56
1969	—	3.09	3.09	3.56
1970	—	3.18	3.18	3.48
1971	—	3.39	3.39	3.53
1972	—	3.39	3.39	3.39
1973	—	3.89	3.89	3.68
1974	—	6.87	6.87	5.97
1975	—	7.67	7.67	6.10
1976	—	8.19	8.19	6.19
1977	[3] 6.32	[3] 8.63	8.57	6.12
1978	5.21	9.56	9.00	5.98
1979	10.57	13.01	12.64	7.73
1980	16.87	22.65	21.59	12.10
1981	23.23	33.71	31.77	16.24
1982	19.92	30.43	28.52	13.75
1983	17.69	28.00	26.19	12.16
1984[4]	17.90	27.59	25.87	11.58

[1] See Explanatory Note 16.
[2] Constant 1972 dollars calculated using GNP implicit price deflators, 1972=100. See Energy Equivalents and Price Deflators section.
[3] Average for July through December only.
[4] Preliminary.
— = Not applicable.

Sources: •1949 through 1973—Bureau of Mines, *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter. •1974 through January 1976—Federal Energy Administration, FEA Form 90, "Crude Petroleum Production Monthly Report." • February 1976 through September 1979—Federal Energy Administration, Form FEA P-124, "Domestic Crude Oil Purchaser's Monthly Report." • October 1979 through 1982—Economic Regulatory Administration, Form 182, "Domestic Crude Oil First Purchase Report." • 1983 and 1984—Energy Information Administration, Form 182, "Domestic Crude Oil First Purchase Report."

Figure 55. Landed Cost of Crude Oil Imports into the United States from Selected Countries, 1976, 1980, and 1984

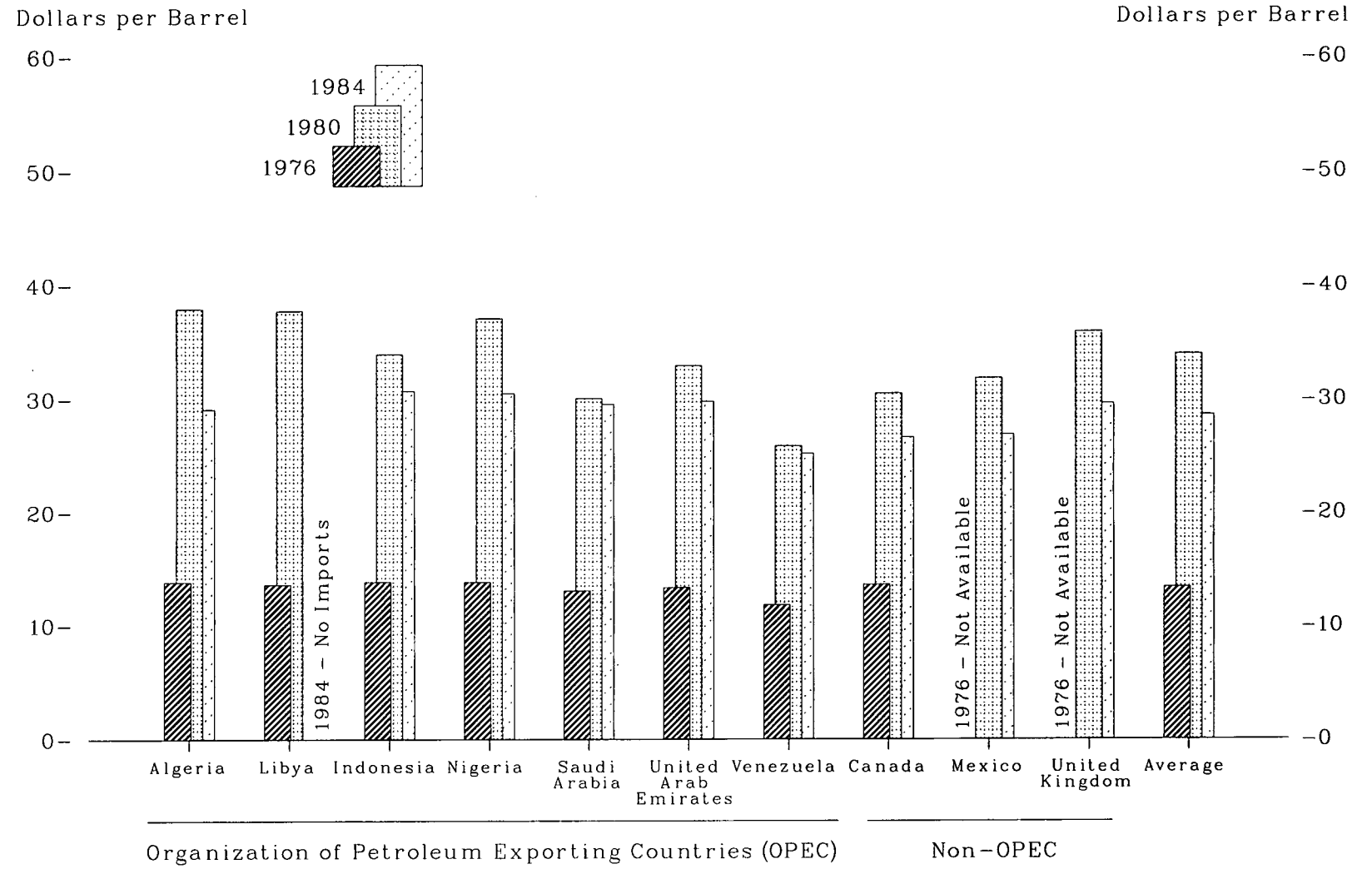


Table 55. Landed Cost of Crude Oil Imports into the United States from Selected Countries, 1975-1984

(Dollars per Barrel)

Country	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984 [1]
Algeria	12.72	13.81	15.20	14.91	21.90	37.90	40.49	35.28	31.26	29.08
Canada	12.72	13.57	14.21	14.50	20.43	30.47	32.16	26.92	25.63	26.60
Indonesia	13.79	13.82	14.63	14.64	20.69	33.92	37.57	36.75	31.57	30.69
Iran	12.21	12.82	13.80	13.88	25.02	[2]	[2]	32.40	29.81	28.70
Libya	12.35	13.58	14.87	14.72	23.68	37.72	40.92	36.05	[2]	[2]
Mexico	NA	NA	13.75	13.54	20.86	31.80	33.78	28.64	25.78	26.87
Nigeria	12.62	13.80	15.25	14.86	22.96	37.05	39.70	36.17	30.84	30.47
Saudi Arabia	12.30	13.04	13.61	13.92	19.15	30.02	34.19	35.00	29.76	29.51
United Arab Emirates	12.87	13.30	14.04	14.39	21.90	32.89	37.87	36.42	29.50	29.75
United Kingdom	NA	NA	NA	NA	22.16	35.88	37.24	34.28	30.87	29.58
Venezuela	11.65	11.80	13.13	12.83	18.18	25.86	29.87	24.82	22.94	25.19
Others	12.60	13.31	14.57	14.74	23.45	36.06	37.69	33.78	29.72	29.23
Average	12.45	13.34	14.31	14.38	21.65	33.95	36.52	33.18	28.93	28.58

[1] Preliminary.
[2] Not applicable; little or no crude oil imported.
NA = Not available.

Sources: •1975 through September 1977—Federal Energy Administration, Form FEA F701-M-0, "Transfer Pricing Report." • October 1977 through January 1979—Energy Information Administration, Form FEA F701-M-0, "Transfer Pricing Report." • February 1980 through September 1982—Energy Information Administration, Form ERA 51, "Transfer Pricing Report." • October 1982 through June 1984—Energy Information Administration, Form EP 51, "Foreign Crude Oil Transaction Report." • July 1984 and forward—Energy Information Administration, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report."

Figure 56. Refiner Acquisition Cost of Crude Oil, 1968-1984

Table 56. Refiner Acquisition Cost [1] of Crude Oil, 1968-1984

(Dollars per Barrel)

Year	Domestic [2]		Imported [2]		Composite [2]	
	Current	Constant [3]	Current	Constant [3]	Current	Constant [3]
1968	3.21	3.89	2.90	3.51	3.17	3.84
1969	3.37	3.88	2.80	3.23	3.29	3.79
1970	3.46	3.78	2.96	3.24	3.40	3.72
1971	3.68	3.83	3.17	3.30	3.60	3.75
1972	3.67	3.67	3.22	3.22	3.58	3.58
1973	4.17	3.94	4.08	3.86	4.15	3.92
1974	7.18	6.24	12.52	10.88	9.07	7.88
1975	8.39	6.67	13.93	11.07	10.38	8.25
1976	8.84	6.68	13.48	10.19	10.89	8.23
1977	9.55	6.82	14.53	10.37	11.96	8.54
1978	10.61	7.05	14.57	9.69	12.46	8.28
1979	14.27	8.73	21.67	13.26	17.72	10.84
1980	24.23	13.58	33.89	18.99	28.07	15.73
1981	34.33	17.55	37.05	18.94	35.24	18.02
1982	31.22	15.05	33.55	16.18	31.87	15.37
1983	28.87	13.41	29.30	13.61	28.99	13.46
1984	28.53	12.77	28.88	12.93	28.63	12.81

[1] Refiner acquisition cost of crude oil for each category and for the composite is derived by dividing the sum of the total purchasing (acquisition) costs of all refiners by the total volume of all refiners' purchases.

[2] Data 1968 through 1973 are estimated. See Explanatory Note 8.

[3] Constant 1972 prices calculated using GNP price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section.

Sources: •1974 through January 1976—Federal Energy Administration, Form FEO 96, "Monthly Cost Allocation Report." •February 1976 through September 1977—Federal Energy Administration, Form FEA P110-M-1, "Refiners' Monthly Cost Allocation Report." •October 1977 through June 1978—Energy Information Administration, Form FEA P110-M-1, "Refiners' Monthly Cost Allocation Report." •July 1978 through December 1980—Energy Information Administration, Form ERA 49, "Domestic Crude Oil Entitlements Program Refiners Monthly Report." •1981 through 1984—Energy Information Administration, Form EIA-14, "Refiners' Monthly Cost Report."

Figure 57. Petroleum Product Prices, 1978, 1981, and 1984

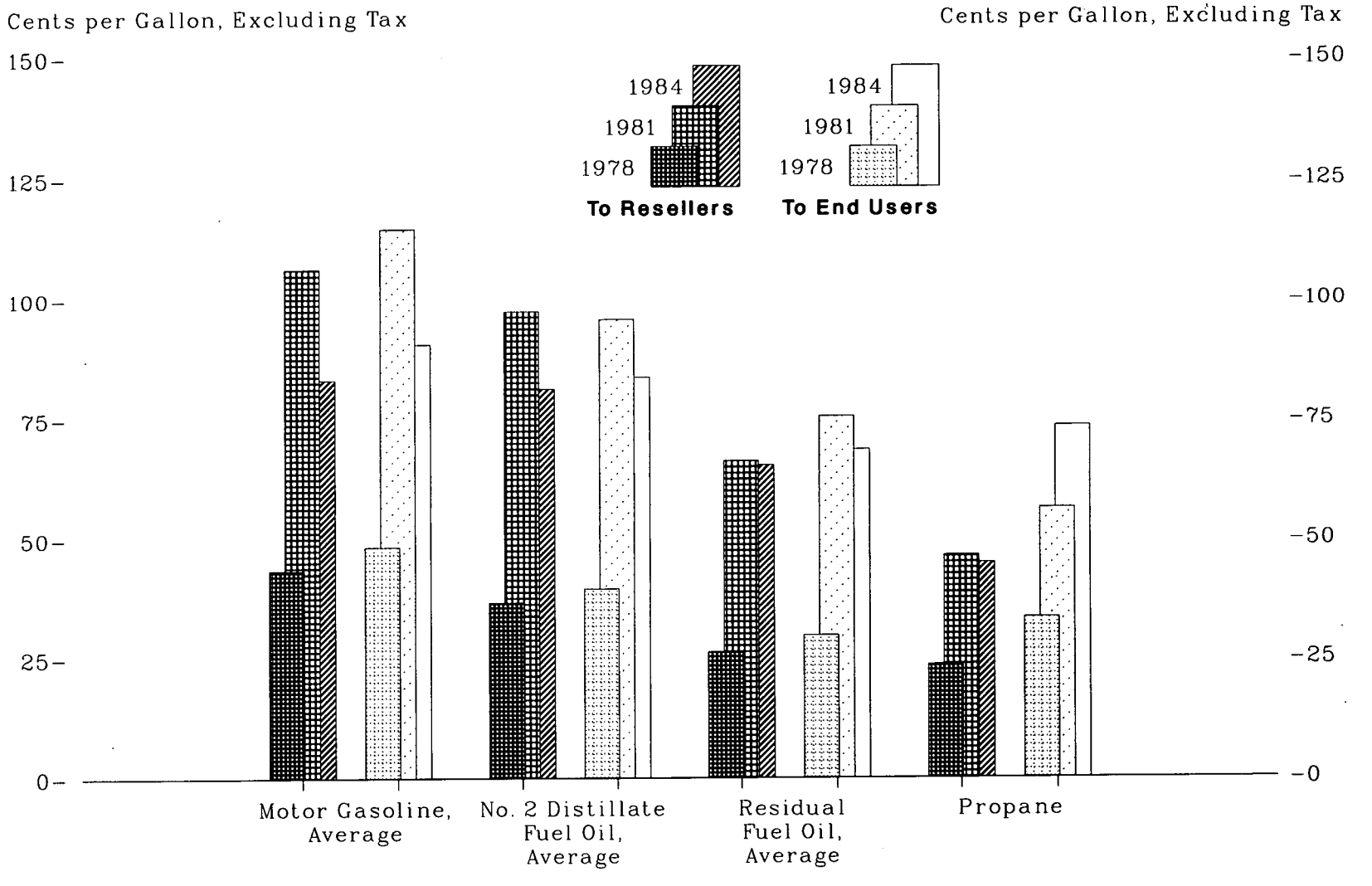


Table 57. Petroleum Product Prices, 1978-1984

(Cents per Gallon, Excluding Taxes)

Product	1978	1979	1980	1981	1982	1983	1984 [1]
To Resellers:							
Aviation Gasoline	53.7	72.1	112.8	125.0	122.8	117.8	116.5
Motor Gasoline							
Leaded Regular	NA	NA	NA	NA	NA	85.0	79.5
Unleaded Regular	NA	NA	NA	NA	NA	89.5	84.2
Premium [2]	NA	NA	NA	NA	NA	96.4	91.6
Average	43.4	63.7	94.1	106.4	97.3	88.2	83.2
Kerosene	40.4	62.4	86.4	106.6	101.8	89.2	91.6
Jet Fuel, Kerosene-Type	38.6	66.0	86.8	101.2	95.3	85.4	83.0
No. 1 Distillate Fuel Oil	40.6	58.3	88.0	107.1	103.8	89.6	89.2
No. 2 Distillate Fuel Oil							
No. 2 Fuel Oil	36.9	56.9	80.3	97.6	91.4	81.5	82.1
No. 2 Diesel Oil	36.5	57.4	80.1	97.2	91.4	80.8	80.3
Average	36.7	57.1	80.2	97.4	91.4	81.2	81.3
No. 4 Distillate Fuel Oil [3]	30.5	47.0	67.0	78.3	73.7	72.6	70.7
Residual Fuel Oil							
1% or Less Sulfur Content	29.3	45.0	60.8	74.8	69.5	64.3	68.5
Greater than 1% Sulfur Content	24.5	36.6	47.9	62.2	57.2	59.1	63.9
Average	26.3	39.9	52.8	66.3	61.2	60.9	65.4
Propane (Consumer Grade)	23.7	29.1	41.5	46.6	42.7	48.4	45.0
To End Users:							
Aviation Gasoline	51.6	68.9	108.4	130.3	131.2	125.5	123.4
Motor Gasoline							
Leaded Regular	NA	NA	NA	NA	NA	90.6	84.7
Unleaded Regular	NA	NA	NA	NA	NA	97.0	91.5
Premium [2]	NA	NA	NA	NA	NA	105.7	101.5
Average	48.4	71.3	103.5	114.7	106.0	95.4	90.6
Kerosene	42.1	58.5	90.2	112.3	108.9	96.1	103.6
Jet Fuel, Kerosene-Type	38.7	54.7	86.8	102.4	96.3	87.8	84.2
No. 1 Distillate Fuel Oil	40.9	57.2	83.4	103.9	102.3	96.2	92.7
No. 2 Distillate Fuel Oil							
No. 2 Fuel Oil	40.0	51.6	78.8	91.4	90.5	91.6	91.6
No. 2 Diesel Oil	37.7	58.5	81.8	99.5	94.2	82.6	82.3
Average	39.6	55.1	80.4	95.8	92.5	83.9	83.7
No. 4 Distillate Fuel Oil [3]	31.1	47.9	68.2	79.7	75.0	76.6	79.6
Residual Fuel Oil							
1% or Less Sulfur Content	31.4	46.8	67.5	82.9	74.7	69.5	72.0
Greater than 1% Sulfur Content	27.5	38.9	52.3	67.3	61.1	61.1	65.9
Average	29.8	43.6	60.7	75.6	67.6	65.1	68.7
Propane (Consumer Grade)	33.5	35.7	48.2	56.5	59.2	70.9	73.6

[1] Preliminary.
[2] Includes leaded and unleaded premium and gasohol.
[3] Includes No. 4 fuel oil and No. 4 diesel fuel.
NA = Not available.
Sources: •1978 through 1982—Energy Information Administration, Form EIA-460, "Petroleum Industry Monthly Report for Product Prices," the source for backcast estimates. •1983 and forward—Energy Information Administration, Form EIA-782A, "Monthly Petroleum Product Sales Report."

Figure 58. Motor Gasoline and Residential Heating Oil Retail Prices, 1949-1984

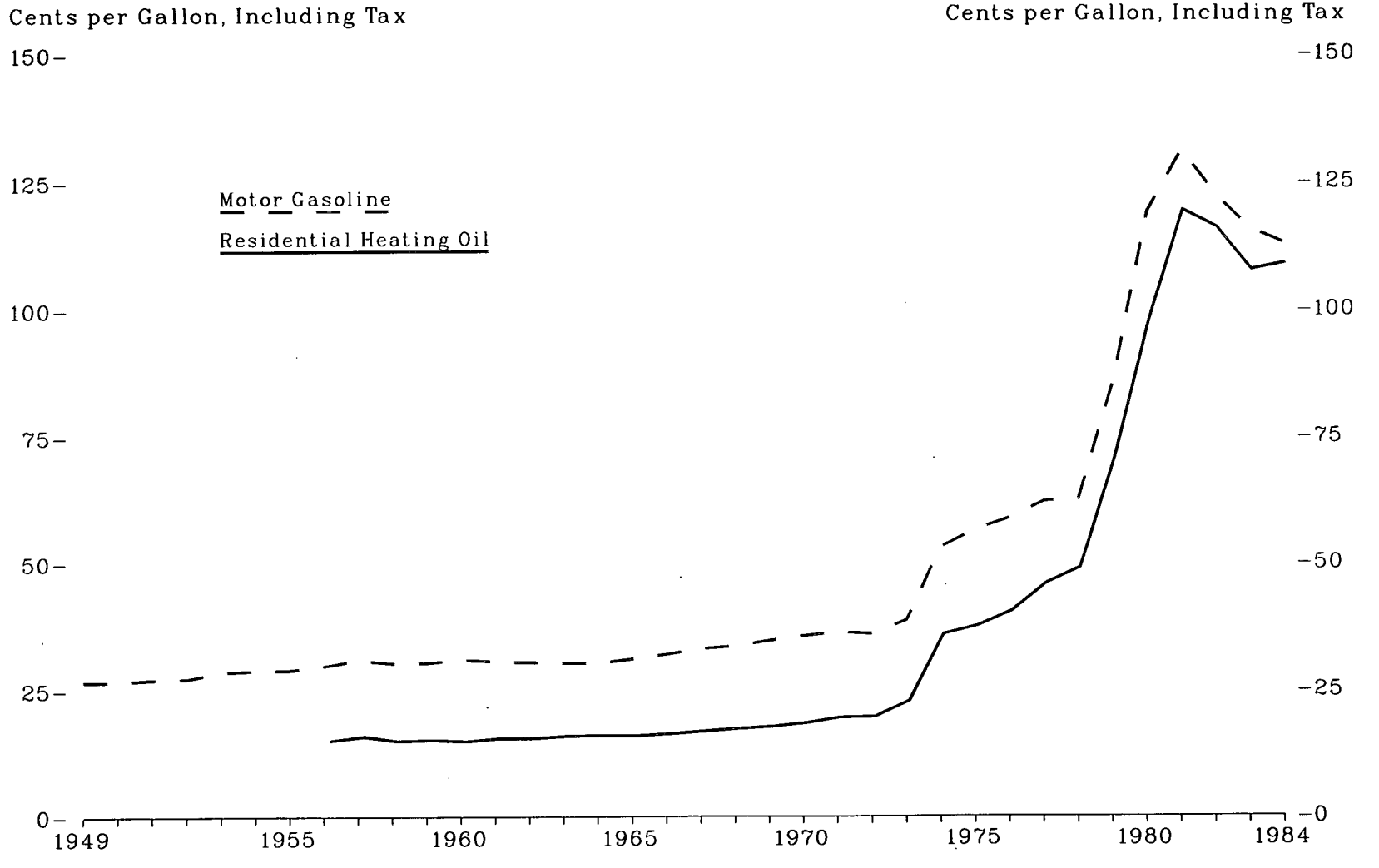


Table 58. Motor Gasoline and Residential Heating Oil Retail Prices, 1949-1984

(Cents per Gallon, Including Tax)

Year	Motor Gasoline [1]		Residential Heating Oil [2]	
	Current	Constant [3]	Current	Constant [3]
1949	26.8	51.1	NA	NA
1950	26.8	50.0	NA	NA
1951	27.2	47.6	NA	NA
1952	27.4	47.3	NA	NA
1953	28.7	48.8	NA	NA
1954	29.0	48.7	NA	NA
1955	29.1	47.8	NA	NA
1956	29.9	47.6	15.2	24.2
1957	31.0	47.7	16.0	24.6
1958	30.4	46.0	15.1	22.9
1959	30.5	45.1	15.3	22.6
1960	31.1	45.3	15.0	21.8
1961	30.8	44.4	15.6	22.5
1962	30.6	43.3	15.6	22.1
1963	30.4	42.4	16.0	22.3
1964	30.4	41.8	16.1	22.1
1965	31.2	42.0	16.0	21.5
1966	32.1	41.8	16.4	21.4
1967	33.2	42.0	16.9	21.4
1968	33.7	40.8	17.4	21.1
1969	34.8	40.1	17.8	20.5
1970	35.7	39.0	18.5	20.2
1971	36.4	37.9	19.6	20.4
1972	36.1	36.1	19.7	19.7
1973	38.8	36.7	22.8	21.6
1974	53.2	46.2	36.0	31.3
1975	56.7	45.1	37.7	30.0
1976	59.0	44.6	40.6	30.7
1977	62.2	44.4	46.0	32.8
1978	62.6	41.6	49.0	32.6
1979	85.7	52.4	70.4	43.1
1980	119.1	66.8	97.4	54.6
1981	131.1	67.0	119.4	61.0
1982	122.2	58.9	116.0	55.9
1983	115.7	53.7	107.8	50.1
1984	112.9	50.5	[4] 109.1	[4] 48.8

[1] Average motor gasoline prices are for leaded regular. They are calculated from a sample of service stations providing all types of service (i.e., full-, mini-, and self-serve). Geographic coverage - 1949 through 1973, 55 representative cities; 1974 through 1977, 56 urban areas; 1978 forward, 85 urban areas.

[2] Average residential heating oil (No. 2 fuel oil) prices are derived by dividing the sum of the estimated national value of retail sales for residential heating by the estimated volume of retail sales for residential heating. Data for 1978 and forward exclude a very small amount of State and local sales taxes. There is no Federal excise tax on residential heating oil.

[3] Constant 1972 prices calculated using GNP price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section.

[4] Preliminary.

NA = Not available.

Sources: **Motor Gasoline:** •1949 through 1973— *Platt's Oil Price Handbook and Oilmanac, 1974,* 51st Edition. •1974 through 1984—Bureau of Labor Statistics, *Consumer Prices: Energy,* monthly. **Residential Heating Oil:** •1956 through 1974—Bureau of Labor Statistics, *Retail Prices and Indexes of Fuels and Utilities for Residential Usage,* monthly. •January 1975 through September 1977—Federal Energy Administration, Form FEA P112-M-1, "No. 2 Heating Oil Supply/Price Monitoring Report." •October 1977 through December 1977—Energy Information Administration, Form EIA 9, "No. 2 Heating Oil Supply/Price Monitoring Report." •1978 through 1982—Energy Information Administration, Form EIA-9A, "No. 2 Distillate Price Monitoring Report," the source for backcast estimates. •1983 and 1984—Energy Information Administration, Form EIA-782A, "Monthly Petroleum Product Sales Report" and Form EIA-782B, "Monthly No. 2 Distillate Sales Report."

Section 5. Natural Gas Supply and Disposition

Gross Withdrawals and Marketed Production. Preliminary data for 1984 indicate that gross withdrawals of natural gas from gas and oil wells in the United States totaled 19.9 trillion cubic feet, an increase of 6.8 percent from the 1983 level of 18.6 trillion cubic feet. Despite this increase, gross withdrawals were still considerably below the all-time high of 24.1 trillion cubic feet reached in 1971 (Table 59).

Although most natural gas gross withdrawals are from natural gas wells, about 20 to 25 percent come from crude oil wells. Almost all of the gas withdrawn from oil wells is separated from the oil at or near the wellhead. In 1983, there were about 222,000 producing gas wells in the United States. Nearly all of the natural gas withdrawn is used as a fuel or as chemical feedstock, but small quantities are either vented, flared, or used for reservoir repressuring. Also, small quantities of nonhydrocarbon gases are removed. Data for 1984 show that of gross withdrawals from wells, 0.4 percent was vented or flared, 7.4 percent was used for repressuring, 1.1 percent represented nonhydrocarbon gases removed, and the remaining 91.0 percent was "marketed production." In 1984, marketed production totaled 18.1 trillion cubic feet, up 7.4 percent from the 1983 total, reversing a severe downturn evident since 1979 (Table 59).

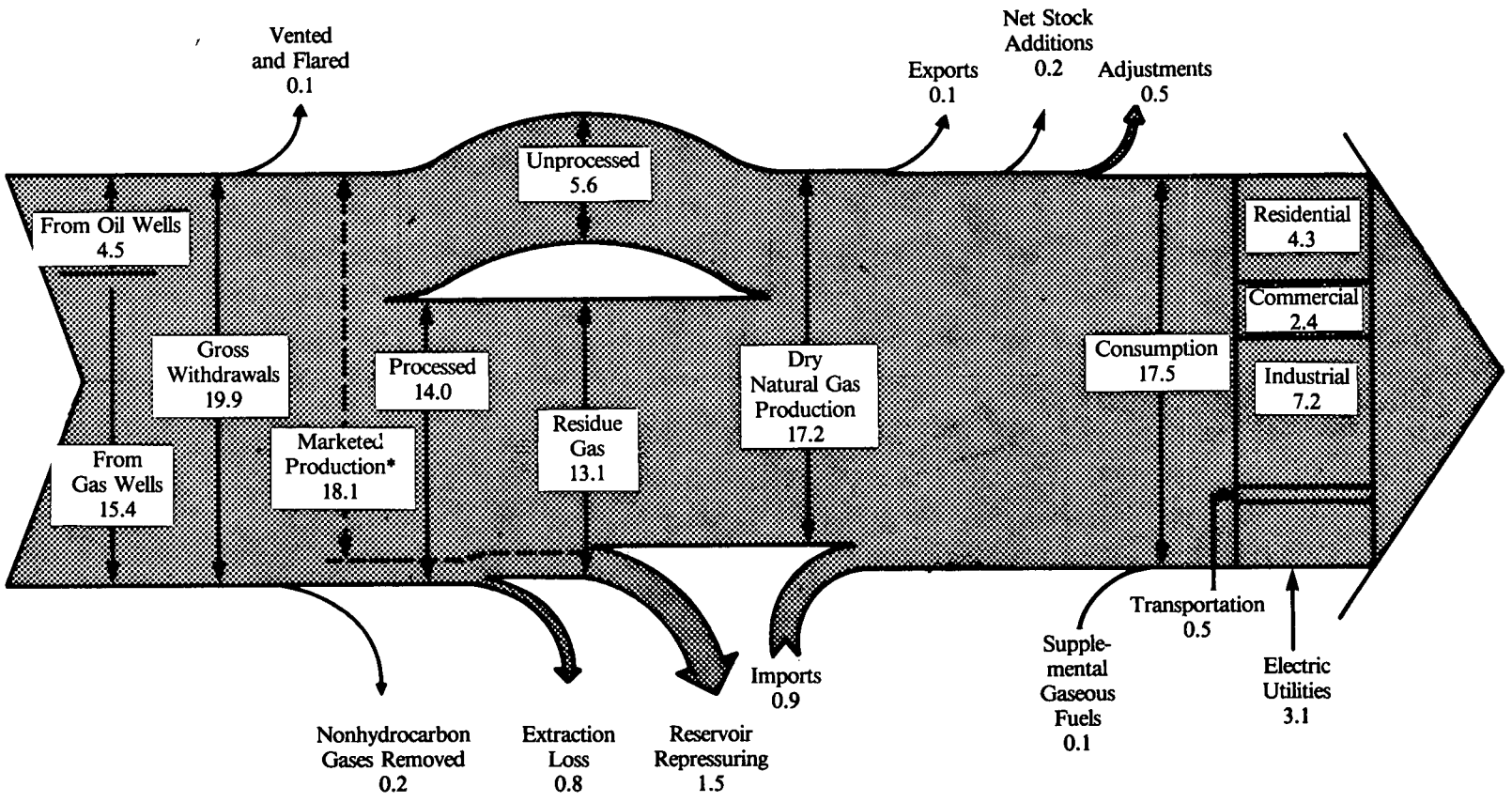
Consumption. In 1984, approximately 70 percent of natural gas gross withdrawals was processed to extract liquid hydrocarbons, and approximately 30 percent did not contain a volume of liquids sufficient to justify processing (Diagram 3). Gas that has been processed (residue gas) and gas that does not require processing are usually between 90 and 95 percent methane and are frequently referred to as "dry gas". It is this "dry gas" that is consumed by residences, industries, and electric utilities. An increase in natural gas consumption of 3.9 percent in 1984 is attributed to increased industrial activity and electric utility use (Table 61).

Storage. Because of fluctuating seasonal, daily, and even hourly marketing requirements, substantial natural gas storage facilities have been created to meet peak needs. Many of these facilities are depleted gas reservoirs located near transmission lines and marketing areas. Gas is usually injected into storage when market requirements are less than available gas flow in transmission lines. Gas is withdrawn from storage when supplies from producing fields, or the capacity of transmission systems, or both, are inadequate to meet peak requirements. Net withdrawals from underground storage supplied more than 15 percent of the gas consumed during recent winter heating seasons, and many transmission and distribution companies' peak day deliveries from underground storage exceeded 50 percent of their total maximum daily delivery. At the beginning of the 1984-1985 heating season (October 1984), the total volume of gas in underground storage was 7.0 trillion cubic feet. Of this total, 3.2 trillion cubic feet was working gas (i.e., available for withdrawal). Yearend underground storage of natural gas is shown in Table 62.

Trade. Imports of natural gas, including liquefied natural gas from Algeria, amounted to about 861 billion cubic feet during 1984, down 6.4 percent from 1983. Exports continued at the relatively constant volume of about 55 billion cubic feet per year (Table 60).

Prices. Natural gas has many price categories resulting from the different rate structures authorized by State and Federal Government ratemaking commissions. Estimated data indicate that the average wellhead price of natural gas in 1984 was $2.63 per thousand cubic feet, 1.5 percent higher than the 1983 average (Table 63). Estimated average wellhead prices by categories varied from $1.45 per thousand cubic feet for "old gas" to $5.38 per thousand cubic feet for "high-cost gas". In 1983 residential consumers paid an average of $6.06 per thousand cubic feet, an increase of 17 percent from the 1982 average. Commercial users paid $5.59 per thousand cubic feet, up 16 percent, while the price to industrial users rose 9 percent to $3.94 in 1983 (Table 64). Final data for consumer prices in 1984 are not yet available.

Diagram 3. Natural Gas Flow, 1984
(Trillion Cubic Feet)



*See Glossary.

Note: Sum of components may not equal totals due to independent rounding.

Figure 59. Natural Gas Production, 1949-1984

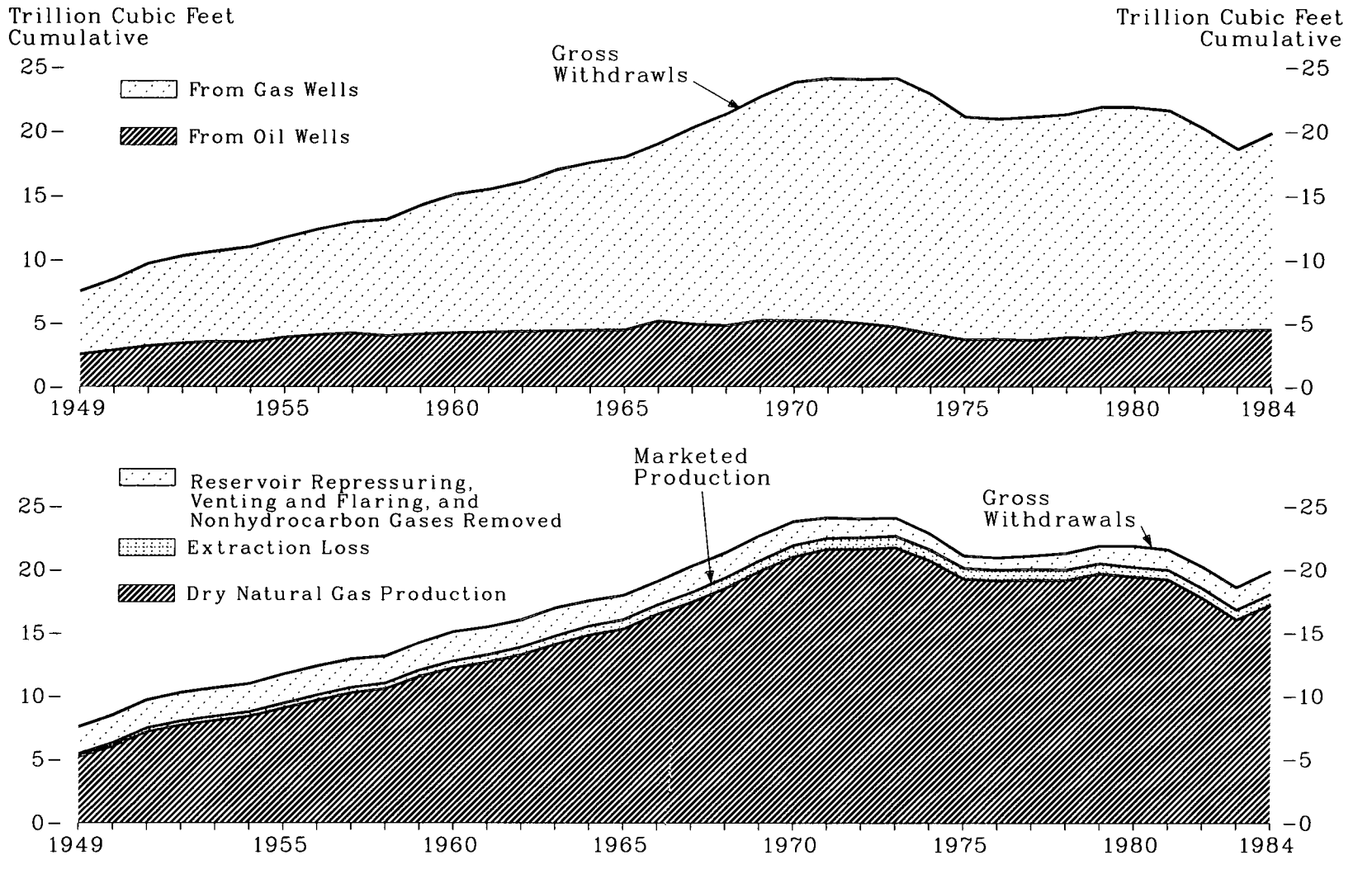


Table 59. Natural Gas Production, 1949-1984

(Trillion Cubic Feet)

Year	Gross Withdrawals			Reservoir Repressuring	Non-hydrocarbon Gases Removed	Vented and Flared	Marketed Production	Extraction Loss [1]	Dry Natural Gas Production
	From Gas Wells	From Oil Wells	Total						
1949	4.99	2.56	7.55	1.27	NA	0.85	5.42	0.22	5.20
1950	5.60	2.88	8.48	1.40	NA	0.80	6.28	0.26	6.02
1951	6.48	3.21	9.69	1.44	NA	0.79	7.46	0.29	7.16
1952	6.84	3.43	10.27	1.41	NA	0.85	8.01	0.32	7.69
1953	7.10	3.55	10.65	1.44	NA	0.81	8.40	0.34	8.06
1954	7.47	3.52	10.98	1.52	NA	0.72	8.74	0.35	8.39
1955	7.84	3.88	11.72	1.54	NA	0.77	9.41	0.38	9.03
1956	8.31	4.07	12.37	1.43	NA	0.86	10.08	0.42	9.66
1957	8.72	4.19	12.91	1.42	NA	0.81	10.68	0.43	10.25
1958	9.15	3.99	13.15	1.48	NA	0.63	11.03	0.46	10.57
1959	10.10	4.13	14.23	1.61	NA	0.57	12.05	0.50	11.55
1960	10.85	4.23	15.09	1.75	NA	0.56	12.77	0.54	12.23
1961	11.20	4.27	15.46	1.68	NA	0.52	13.25	0.59	12.66
1962	11.70	4.34	16.04	1.74	NA	0.43	13.88	0.62	13.25
1963	12.61	4.37	16.97	1.84	NA	0.38	14.75	0.67	14.08
1964	13.11	4.43	17.54	1.65	NA	0.34	15.55	0.72	14.82
1965	13.52	4.44	17.96	1.60	NA	0.32	16.04	0.75	15.29
1966	13.89	5.14	19.03	1.45	NA	0.38	17.21	0.74	16.47
1967	15.35	4.91	20.25	1.59	NA	0.49	18.17	0.78	17.39
1968	16.54	4.79	21.32	1.49	NA	0.52	19.32	0.83	18.49
1969	17.49	5.19	22.68	1.46	NA	0.53	20.70	0.87	19.83
1970	18.59	5.19	23.79	1.38	NA	0.49	21.92	0.91	21.01
1971	18.93	5.16	24.09	1.31	NA	0.28	22.49	0.88	21.61
1972	19.04	4.97	24.02	1.24	NA	0.25	22.53	0.91	21.62
1973	19.37	4.70	24.07	1.17	NA	0.25	22.65	0.92	21.73
1974	18.67	4.18	22.85	1.08	NA	0.17	21.60	0.89	20.71
1975	17.38	3.72	21.10	0.86	NA	0.13	20.11	0.87	19.24
1976	17.19	3.75	20.94	0.86	NA	0.13	19.95	0.85	19.10
1977	17.42	3.68	21.10	0.93	NA	0.14	20.03	0.86	19.16
1978	17.39	3.91	21.31	1.18	NA	0.15	19.97	0.85	19.12
1979	18.03	3.85	21.88	1.25	NA	0.17	20.47	0.81	19.66
1980	17.57	4.30	21.87	1.37	0.20	0.13	20.18	0.78	19.40
1981	17.34	4.25	21.59	1.31	0.22	0.10	19.96	0.77	19.18
1982	15.80	4.41	20.21	1.39	0.21	0.09	18.52	0.76	17.76
1983	14.15	4.45	18.60	1.46	0.22	0.09	16.82	0.79	16.03
1984[2]	15.36	4.50	19.86	1.48	0.23	0.09	18.07	0.85	17.22

[1] Volume reduction resulting from the removal of natural gas plant liquids. Natural gas plant liquids are transferred to petroleum supply.

[2] Preliminary.

Note: Sum of components may not equal total due to independent rounding.

Note: Beginning with 1965 data, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base is 14.65 p.s.i.a. at 60° F.

Sources: •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Natural Gas" chapter. •1976 through 1978—Energy Information Administration, Energy Data Reports, *Natural Gas, Annual.* •1979—Energy Information Administration, *Natural Gas Production and Consumption 1979* •1980 through 1983—Energy Information Administration, *Natural Gas Annual.* •1984—Energy Information Administration, *Natural Gas Monthly.*

Figure 60. Natural Gas Supply and Disposition, 1949, 1959, 1969, 1979, and 1984

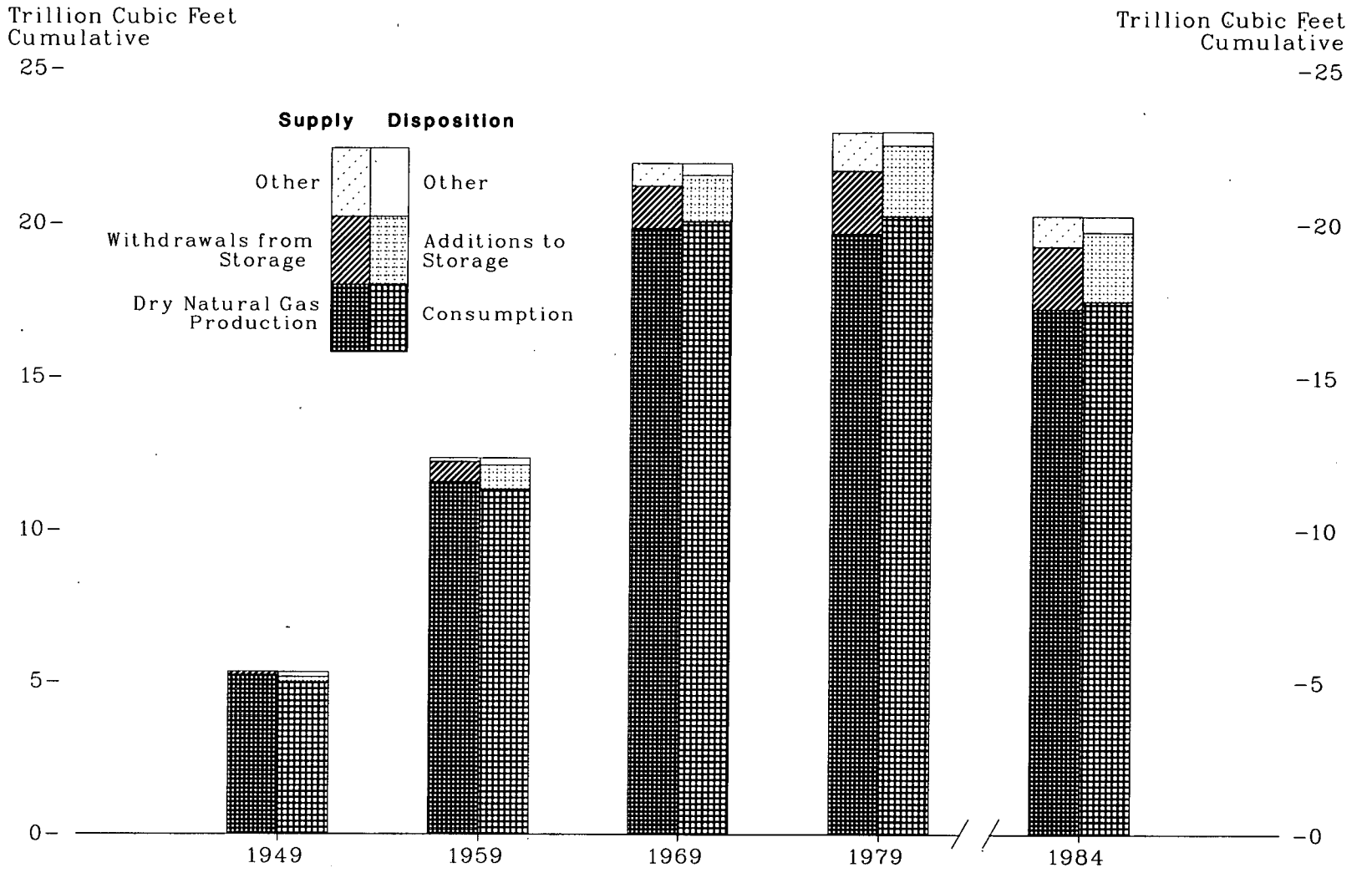


Table 60. Natural Gas [1] Supply and Disposition, 1949-1984

(Trillion Cubic Feet)

Year	Supply					Disposition				
	Dry Natural Gas Production	Withdrawals from Storage [2]	Supplemental Gaseous Fuels	Imports	Total	Additions to Storage [2]	Exports	Unaccounted For [3]	Consumption	Total
1949	5.20	0.11	NA	0	5.30	0.17	0.02	0.14	4.97	5.30
1950	6.02	0.18	NA	0	6.20	0.23	0.03	0.18	5.77	6.20
1951	7.16	0.21	NA	0	7.37	0.35	0.02	0.19	6.81	7.37
1952	7.69	0.22	NA	0.01	7.92	0.40	0.03	0.20	7.29	7.92
1953	8.06	0.25	NA	0.01	8.31	0.40	0.03	0.24	7.64	8.31
1954	8.39	0.33	NA	0.01	8.73	0.43	0.03	0.22	8.05	8.73
1955	9.03	0.44	NA	0.01	9.48	0.51	0.03	0.25	8.69	9.48
1956	9.66	0.45	NA	0.01	10.13	0.59	0.04	0.21	9.29	10.13
1957	10.25	0.48	NA	0.04	10.77	0.67	0.04	0.21	9.85	10.77
1958	10.57	0.62	NA	0.14	11.33	0.70	0.04	0.28	10.30	11.33
1959	11.55	0.67	NA	0.13	12.35	0.79	0.02	0.22	11.32	12.35
1960	12.23	0.71	NA	0.16	13.10	0.84	0.01	0.27	11.97	13.10
1961	12.66	0.70	NA	0.22	13.58	0.84	0.01	0.23	12.49	13.58
1962	13.25	0.85	NA	0.40	14.51	0.94	0.02	0.29	13.27	14.51
1963	14.08	0.92	NA	0.41	15.40	1.05	0.02	0.36	13.97	15.40
1964	14.82	0.89	NA	0.44	16.15	1.01	0.02	0.30	14.81	16.15
1965	15.29	0.96	NA	0.46	16.70	1.08	0.03	0.32	15.28	16.70
1966	16.47	1.14	NA	0.48	18.09	1.21	0.02	0.40	16.45	18.09
1967	17.39	1.13	NA	0.56	19.08	1.32	0.08	0.30	17.39	19.08
1968	18.49	1.33	NA	0.65	20.48	1.43	0.09	0.33	18.63	20.48
1969	19.83	1.38	NA	0.73	21.94	1.50	0.05	0.33	20.06	21.94
1970	21.01	1.46	NA	0.82	23.29	1.86	0.07	0.23	21.14	23.29
1971	21.61	1.51	NA	0.93	24.05	1.84	0.08	0.34	21.79	24.05
1972	21.62	1.76	NA	1.02	24.40	1.89	0.08	0.33	22.10	24.40
1973	21.73	1.53	NA	1.03	24.30	1.97	0.08	0.20	22,05	24.30
1974	20.71	1.70	NA	0.96	23.37	1.78	0.08	0.29	21.22	23.37
1975	19.24	1.76	NA	0.95	21.95	2.10	0.07	0.24	19.54	21.95
1976	19.10	1.92	NA	0.96	21.98	1.76	0.06	0.22	19.95	21.98
1977	19.16	1.75	NA	1.01	21.92	2.31	0.06	0.04	19.52	21.92
1978	19.12	2.16	NA	0.97	22.25	2.28	0.05	0.29	19.63	22.25
1979	19.66	2.05	NA	1.25	22.96	2.30	0.06	0.37	20.24	22.96
1980	19.40	1.97	0.15	0.98	22.51	1.95	0.05	0.64	19.88	22.51
1981	19.18	1.93	0.18	0.90	22.19	2.23	0.06	0.50	19.40	22.19
1982	17.76	2.16	0.14	0.93	21.00	2.47	0.05	0.47	18.00	21.00
1983	16.03	2.27	0.13	0.92	19.35	1.82	0.05	0.64	16.83	19.35
1984[4]	17.22	2.04	0.14	0.86	20.25	2.25	0.06	0.46	17.48	20.25

[1] Dry natural gas including supplemental gaseous fuels.
[2] Beginning with 1980, includes liquefied natural gas (LNG) storage in above ground tanks.
[3] Unaccounted for gas, including net intransit shipments for 1980 forward, is the imbalance between available supplies for consumption and actual consumption. It is derived by subtracting the sum of additions to storage, exports and consumption from total supply.
[4] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Note: Beginning with 1965, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base is 14.65 p.s.i.a. at 60° F.
Sources: •1949 through 1983—Energy Information Administration, *Natural Gas Annual, 1983*, Appendix B. •1984— Energy Information Administration, *Natural Gas Monthly*.

Figure 61. Consumption of Natural Gas by End-Use Sector, 1949-1984

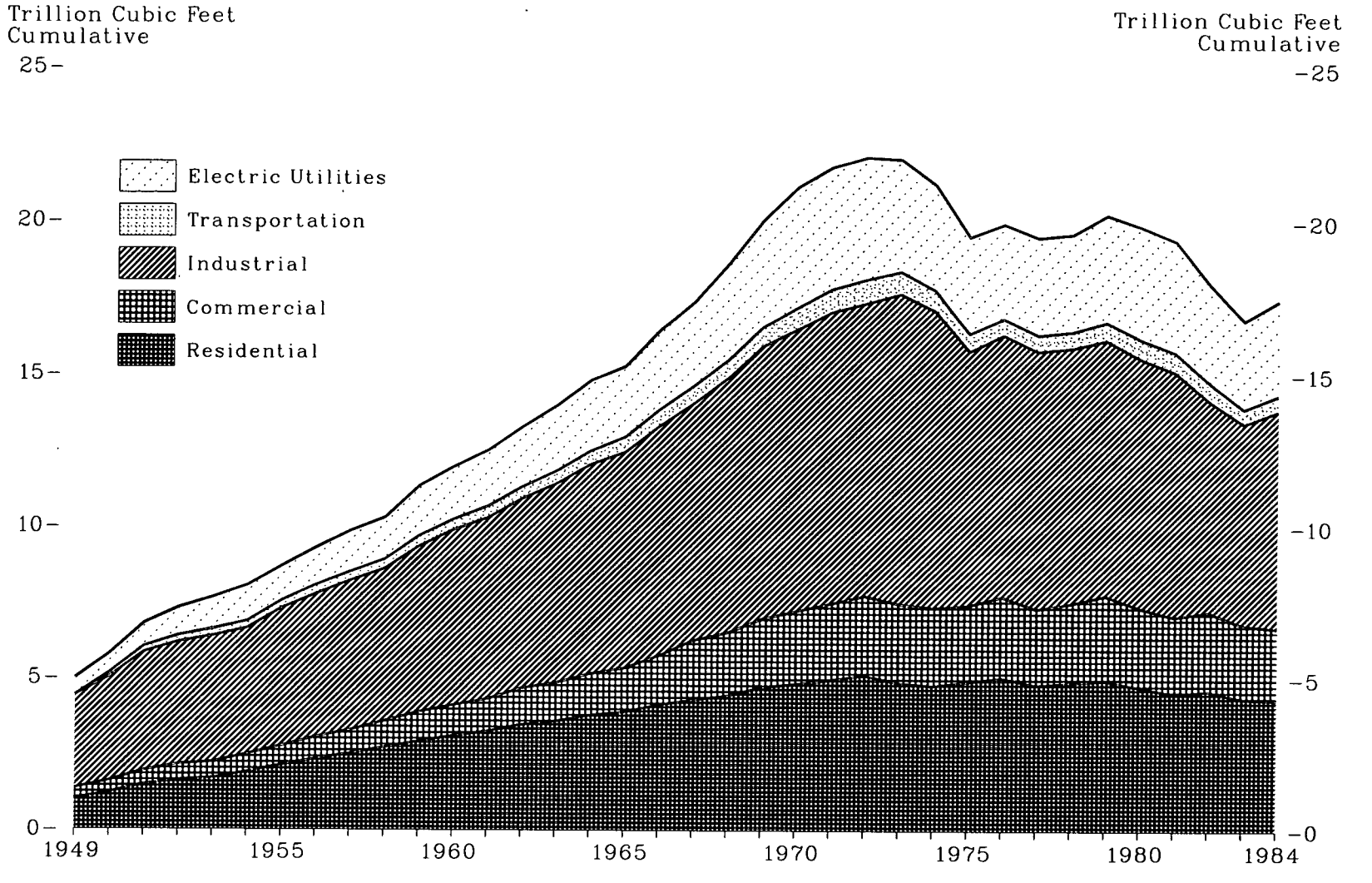


Table 61. Consumption of Natural Gas [1] by End-Use Sector, [2] 1949-1984

(Trillion Cubic Feet)

Year	Residential	Commercial [3]	Industrial			Electric Utilities	Transportation [4]	Total
			Lease and Plant Fuel	Other Industrial	Total Industrial			
1949	0.99	0.35	0.84	2.25	3.08	0.55	NA	4.97
1950	1.20	0.39	0.93	2.50	3.43	0.63	0.13	5.77
1951	1.47	0.46	1.15	2.77	3.91	0.76	0.19	6.81
1952	1.62	0.52	1.16	2.87	4.04	0.91	0.21	7.29
1953	1.69	0.53	1.13	3.03	4.16	1.03	0.23	7.64
1954	1.89	0.58	1.10	3.07	4.17	1.17	0.23	8.05
1955	2.12	0.63	1.13	3.41	4.54	1.15	0.25	8.69
1956	2.33	0.72	1.00	3.71	4.71	1.24	0.30	9.29
1957	2.50	0.78	1.05	3.89	4.93	1.34	0.30	9.85
1958	2.71	0.87	1.15	3.89	5.03	1.37	0.31	10.30
1959	2.91	0.98	1.24	4.22	5.46	1.63	0.35	11.32
1960	3.10	1.02	1.24	4.53	5.77	1.72	0.35	11.97
1961	3.25	1.08	1.29	4.67	5.96	1.83	0.38	12.49
1962	3.48	1.21	1.37	4.86	6.23	1.97	0.38	13.27
1963	3.59	1.27	1.41	5.13	6.55	2.14	0.42	13.97
1964	3.79	1.37	1.37	5.52	6.89	2.32	0.44	14.81
1965	3.90	1.44	1.16	5.96	7.11	2.32	0.50	15.28
1966	4.14	1.62	1.03	6.51	7.55	2.61	0.54	16.45
1967	4.31	1.96	1.14	6.65	7.79	2.75	0.58	17.39
1968	4.45	2.08	1.24	7.13	8.37	3.15	0.59	18.63
1969	4.73	2.25	1.35	7.61	8.96	3.49	0.63	20.06
1970	4.84	2.40	1.40	7.85	9.25	3.93	0.72	21.14
1971	4.97	2.51	1.41	8.18	9.59	3.98	0.74	21.79
1972	5.13	2.61	1.46	8.17	9.62	3.98	0.77	22.10
1973	4.88	2.60	1.50	8.69	10.18	3.66	0.73	22.05
1974	4.79	2.56	1.48	8.29	9.77	3.44	0.67	21.22
1975	4.92	2.51	1.40	6.97	8.36	3.16	0.58	19.54
1976	5.05	2.67	1.63	6.96	8.60	3.08	0.55	19.95
1977	4.82	2.50	1.66	6.82	8.47	3.19	0.53	19.52
1978	4.90	2.60	1.65	6.76	8.40	3.19	0.53	19.63
1979	4.97	2.79	1.50	6.90	8.40	3.49	0.60	20.24
1980	4.75	2.61	1.03	7.17	8.20	3.68	0.63	19.88
1981	4.55	2.52	0.93	7.13	8.06	3.64	0.64	19.40
1982	4.63	2.61	1.11	5.83	6.94	3.23	0.60	18.00
1983	4.38	2.43	0.98	5.64	6.62	2.91	0.49	16.83
1984[5]	4.33	2.37	1.05	6.11	7.16	3.11	0.51	17.48

[1] Dry natural gas including supplemental gaseous fuels.
[2] See Explanatory Note 9.
[3] Includes deliveries to municipalities and public authorities for institutional heating and other purposes.
[4] Pipeline fuel.
[5] Preliminary.

Note: Sum of components may not equal total due to independent rounding. Beginning with 1965, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base is 14.65 p.s.i.a. at 60° F.

Sources: **Electric Utilities:** •1949 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 through 1984—Energy Information Administration—Form EIA-759, "Monthly Power Plant Report." **All Other Data:** •1949 through 1983—Energy Information Administration, *Natural Gas Annual, 1983*, Appendix B. •1984—Energy Information Administration, *Natural Gas Monthly*.

Figure 62. Underground Storage of Natural Gas, Yearend 1954-1984

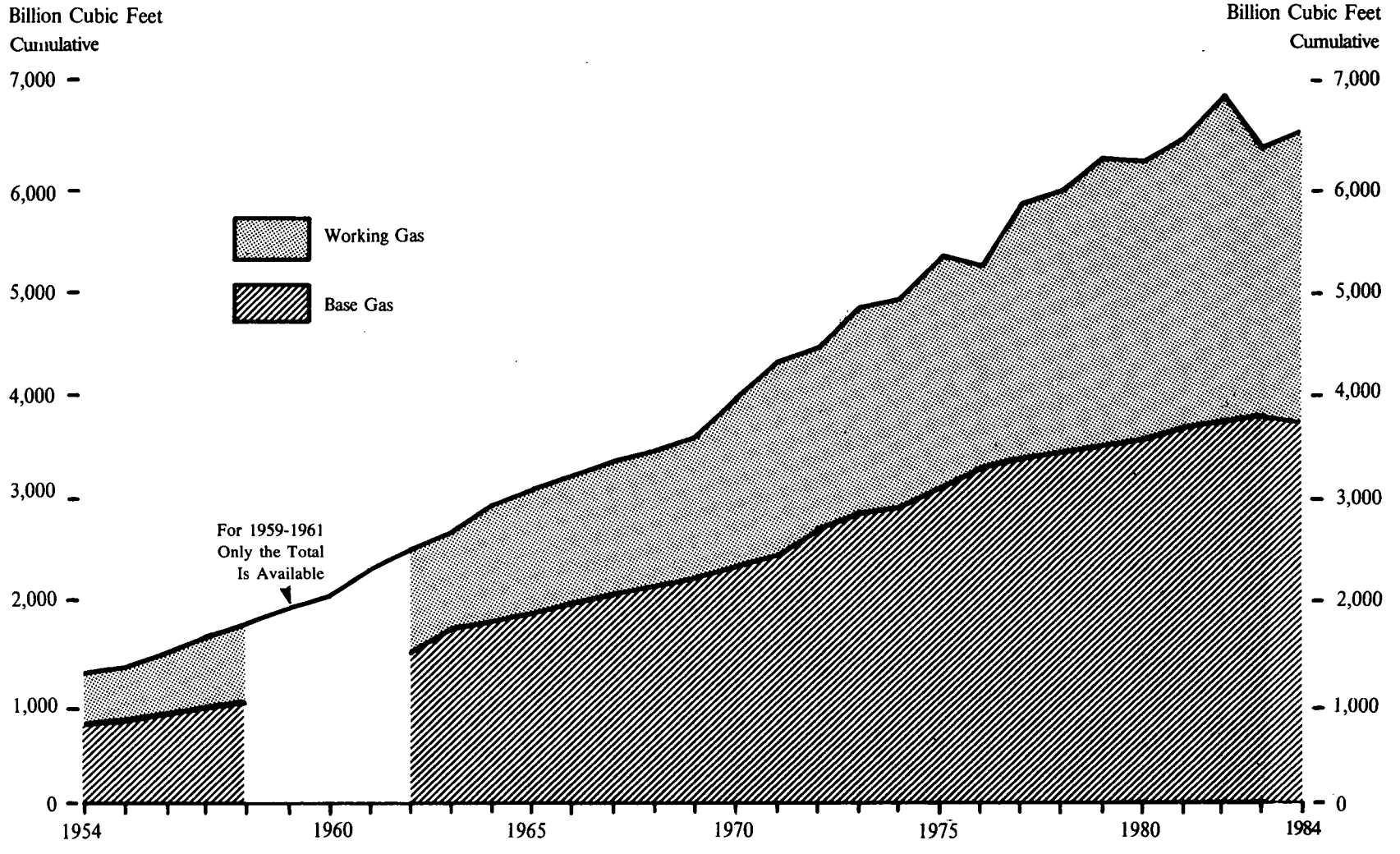


Table 62. Underground Storage of Natural Gas, Yearend 1954-1984
(Billion Cubic Feet)

Year	Base Gas [1]	Working Gas	Total Gas in Storage [1]
1954	817	465	1,281
1955	863	505	1,368
1956	919	583	1,502
1957	1,001	673	1,674
1958	1,056	708	1,764
1959	NA	NA	1,901
1960	NA	NA	2,184
1961	NA	NA	2,344
1962	1,571	933	2,504
1963	1,738	1,007	2,745
1964	1,781	1,159	2,940
1965	1,848	1,242	3,090
1966	1,958	1,267	3,225
1967	2,058	1,318	3,376
1968	2,128	1,366	3,495
1969	2,181	1,421	3,602
1970	2,326	1,678	4,004
1971	2,485	1,840	4,325
1972	2,751	1,729	4,480
1973	2,864	2,034	4,898
1974	2,912	2,050	4,962
1975	3,162	2,212	5,374
1976	3,323	1,926	5,250
1977	3,391	2,475	5,866
1978	3,473	2,547	6,020
1979	3,553	2,753	6,306
1980	3,642	2,655	6,297
1981	3,752	2,817	6,569
1982	3,808	3,071	6,879
1983	3,847	2,595	6,442
1984	3,774	2,877	6,651

[1] Includes native gas.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Note: Beginning with 1965 data, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base is 14.65 p.s.i.a. at 60° F.
Sources: •1954 through 1974—American Gas Association, *Gas Facts*. •1975 and 1976—Federal Energy Administration, Form G 318-M-O and Federal Power Commission, Form 8, "Underground Gas Storage Report." •1977 through 1978— Energy Information Administration, and Federal Energy Administration, Form G 318-M-O and Federal Power Commission, Form 8, "Underground Gas Storage Report." •1979 through 1984—Energy Information Administration, EIA Form 191 and Federal Energy Regulatory Commission, FPC Form 8, "Underground Gas Storage Report."

Figure 63. Natural Gas Wellhead and Import Prices, 1949-1984

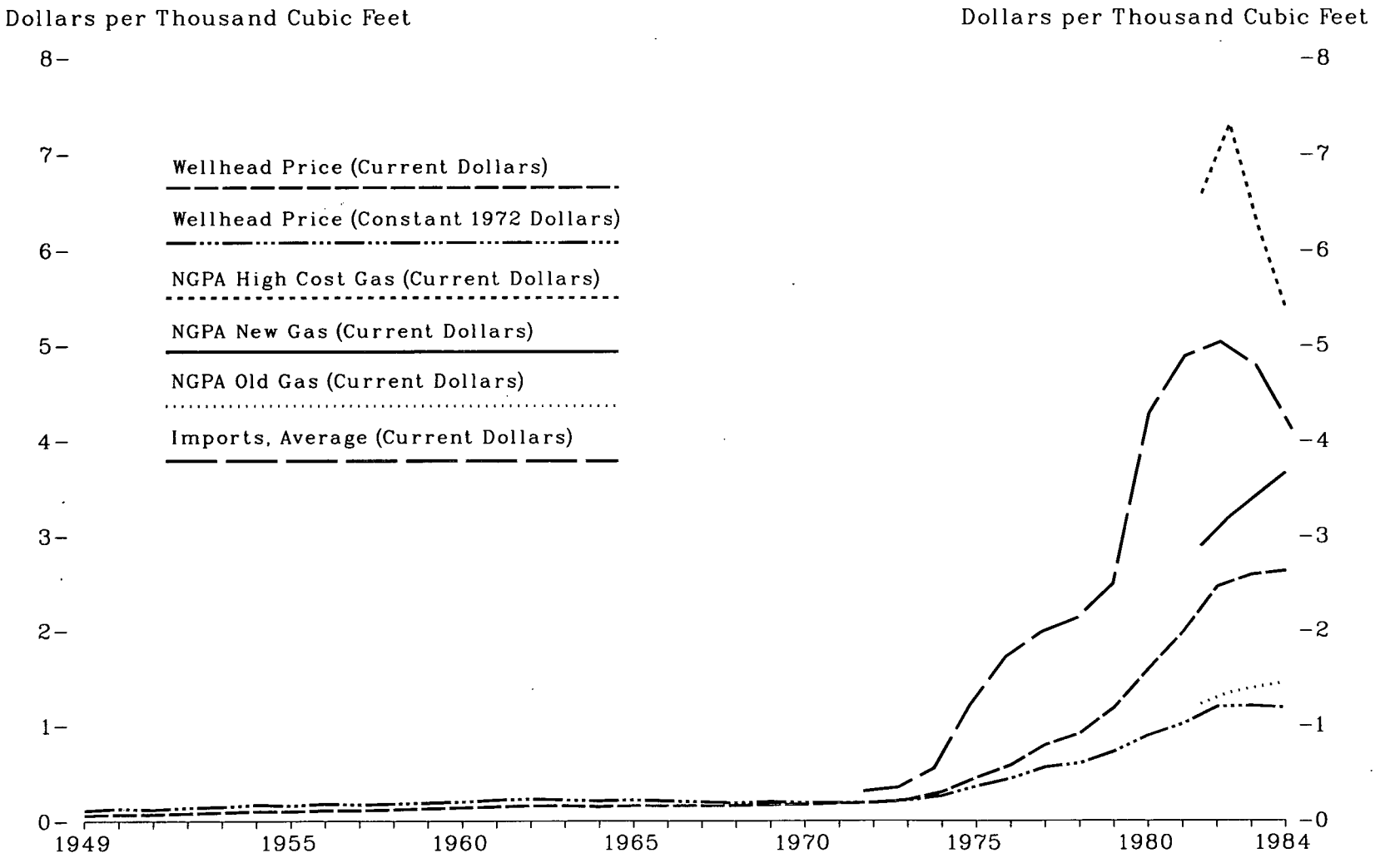


Table 63. Natural Gas Wellhead and Import Prices, 1949-1984

(Dollars per Thousand Cubic Feet)

Year	Wellhead [2]		Purchases by NGPA Categories [1]			Imports		
			Old Gas	New Gas	High-Cost Gas	Pipeline	Other [3]	Average
	Current	Constant [4]	Current	Current	Current	Current	Current	Current
1949	0.06	0.11	—	—	—	NA	NA	NA
1950	0.07	0.13	—	—	—	NA	NA	NA
1951	0.07	0.12	—	—	—	NA	NA	NA
1952	0.08	0.14	—	—	—	NA	NA	NA
1953	0.09	0.15	—	—	—	NA	NA	NA
1954	0.10	0.17	—	—	—	NA	NA	NA
1955	0.10	0.16	—	—	—	NA	NA	NA
1956	0.11	0.18	—	—	—	NA	NA	NA
1957	0.11	0.17	—	—	—	NA	NA	NA
1958	0.12	0.18	—	—	—	NA	NA	NA
1959	0.13	0.19	—	—	—	NA	NA	NA
1960	0.14	0.20	—	—	—	NA	NA	NA
1961	0.15	0.22	—	—	—	NA	NA	NA
1962	0.16	0.23	—	—	—	NA	NA	NA
1963	0.16	0.22	—	—	—	NA	NA	NA
1964	0.15	0.21	—	—	—	NA	NA	NA
1965	0.16	0.22	—	—	—	NA	NA	NA
1966	0.16	0.21	—	—	—	NA	NA	NA
1967	0.16	0.20	—	—	—	NA	NA	NA
1968	0.16	0.19	—	—	—	NA	NA	NA
1969	0.17	0.20	—	—	—	NA	NA	NA
1970	0.17	0.19	—	—	—	NA	NA	NA
1971	0.18	0.19	—	—	—	NA	NA	NA
1972	0.19	0.19	—	—	—	0.31	1.38	0.31
1973	0.22	0.21	—	—	—	0.35	1.05	0.35
1974	0.30	0.26	—	—	—	0.55	[5]	0.55
1975	0.45	0.36	—	—	—	1.21	0.74	1.21
1976	0.58	0.44	—	—	—	1.73	0.77	1.72
1977	0.79	0.56	—	—	—	1.99	1.07	1.98
1978	0.91	0.60	—	—	—	2.19	1.53	2.13
1979	1.18	0.72	—	—	—	2.61	2.03	2.49
1980	1.59	0.89	—	—	—	4.33	3.77	4.28
1981	1.98	1.01	1.22	2.89	6.58	4.85	5.54	4.88
1982	2.46	1.19	1.34	3.19	7.31	4.98	5.82	5.03
1983	2.59	1.20	1.40	3.43	6.25	4.51	6.41	4.78
1984[6]	2.63	1.18	1.45	3.66	5.38	4.07	5.00	4.11

[1] Projected natural gas wellhead purchase prices by major interstate pipeline companies by National Gas Policy Act of 1978 categories (see Explanatory Note 14).
[2] See Glossary for definition of Natural Gas Wellhead Price.
[3] Primarily liquefied natural gas from Algeria.
[4] Constant 1972 prices calculated using the GNP implicit price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section.
[5] Not applicable. All imports were by pipeline.
[6] Estimated.
— = Not applicable.
NA = Not available.

Sources: **Wellhead:** •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Natural Gas" chapter. •1976 through 1978—Energy Information Administration, Energy Data Reports, *Natural Gas, Annual.* •1979—Energy Information Administration, *Natural Gas Production and Consumption 1979.* •1980 through 1983—Energy Information Administration, *Natural Gas Annual.* •1984—Energy Information Administration, *Natural Gas Monthly.* **Purchases by NGPA Categories:** • 1981 through 1984—Energy Information Administration, *Natural Gas Monthly.* **Imports:** • 1972 and 1973—Federal Power Commission, *Pipeline Imports and Exports of Natural Gas - Imports and Exports of LNG.* •1974 through 1977—Federal Power Commission, *United States Imports and Exports of Natural Gas,* annual. •1978 through 1981—Energy Information Administration, *U.S. Imports and Exports of Natural Gas,* annual. •1982 and 1983—Energy Information Administration, *Natural Gas Monthly,* May 1984 issue. •1984—EIA estimate.

Figure 64. Average Price of Natural Gas Consumed by End-Use Sector, 1967-1983

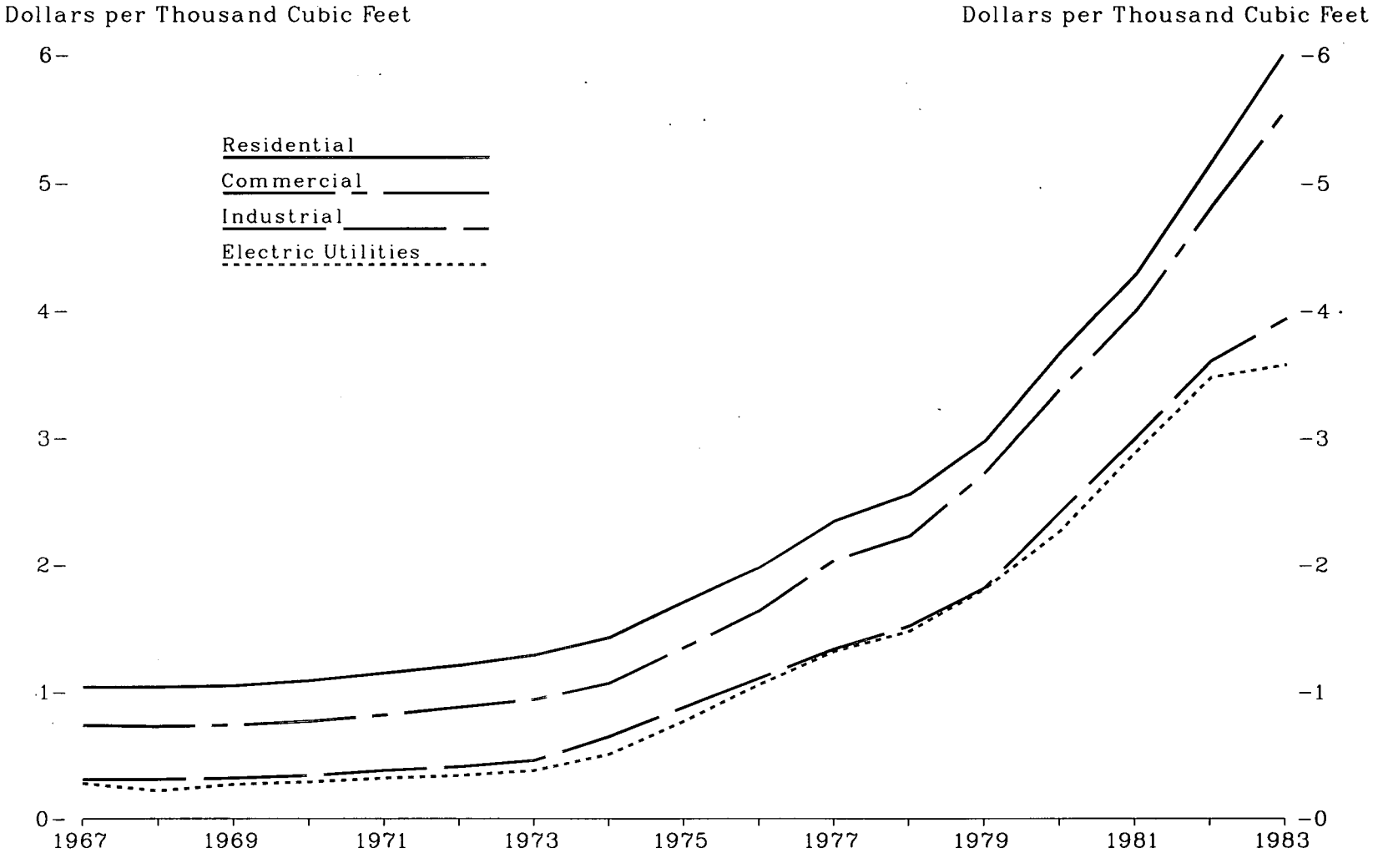


Table 64. Average Price of Natural Gas [1] Consumed by End-Use Sector, 1967-1983

(Dollars per Thousand Cubic Feet)

Year	Residential	Commercial [2]	Industrial			Electric Utilities	Transportation [3]	Total
			Lease and Plant Fuel	Other Industrial	Total Industrial			
1967	1.04	0.74	0.15	0.34	0.31	0.28	0.20	0.53
1968	1.04	0.73	0.16	0.34	0.31	0.22	0.20	0.51
1969	1.05	0.74	0.18	0.35	0.32	0.27	0.21	0.53
1970	1.09	0.77	0.18	0.37	0.34	0.29	0.21	0.55
1971	1.15	0.82	0.19	0.41	0.38	0.32	0.22	0.59
1972	1.21	0.88	0.20	0.45	0.41	0.34	0.23	0.63
1973	1.29	0.94	0.21	0.50	0.46	0.38	0.25	0.68
1974	1.43	1.07	0.51	0.67	0.65	0.51	0.30	0.84
1975	1.71	1.35	0.47	0.96	0.88	0.77	0.40	1.12
1976	1.98	1.64	0.57	1.24	1.11	1.06	0.51	1.38
1977	2.35	2.04	0.71	1.50	1.34	1.32	0.77	1.66
1978	2.56	2.23	0.79	1.70	1.52	1.48	0.90	1.85
1979	2.98	2.73	1.06	1.99	1.82	1.81	1.32	2.21
1980	3.68	3.39	1.43	2.56	2.42	2.27	1.85	2.80
1981	4.29	4.00	1.93	3.14	3.00	2.89	2.39	3.39
1982	5.17	4.82	2.23	3.87	3.61	3.48	2.97	4.15
1983	6.06	5.59	2.54	4.18	3.94	3.58	3.15	4.64

[1] Dry natural gas including supplemental gaseous fuels.
[2] Includes deliveries to municipalities and public authorities for institutional heating and other purposes.
[3] Pipeline fuel.

Note: The average for each end-use sector is calculated by dividing the total value of the gas consumed by each sector by the total quantity consumed. See Explanatory Note 9.

Sources: **Electric Utilities:** •1967 through 1972 —Federal Power Commission, Form 4, "Monthly Power Plant Report." •1973 through 1976—Federal Power Commission, FPC Form 4, "Monthly Power Plant Report" and FPC Form 423, " Monthly Report of Cost and Quality of Fuels for Electric Plants." •1977—Federal Energy Regulatory Commission, FPC Form 4, "Monthly Power Plant Report" and FPC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." •1978 through 1982—Energy Information Administration, FPC Form 4, "Monthly Power Plant Report" and FPC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." •1983—Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Utilities." **All Other Data:** •1967 through 1975—Bureau of Mines, *Minerals Yearbook*, "Natural Gas" chapter. •1976 through 1978—Energy Information Administration, Energy Data Reports, *Natural Gas, Annual.* •1979—Energy Information Administration, *Natural Gas Production and Consumption 1979.* • 1980 through 1983—Energy Information Administration, *Natural Gas Annual.*

Section 6. Coal Supply and Disposition

Production. In 1984, U.S. coal production reached a record high of 890 million short tons, an increase of nearly 14 percent from the 1983 level. This 1983 to 1984 increase of 108 million short tons was the second largest increase in the post-World War II period. Most of the 1984 production was in the form of bituminous coal, which accounted for 73 percent of the total. Subbituminous coal contributed 19 percent to the total, with lignite (7 percent) and anthracite (less than 1 percent) accounting for the remainder. Anthracite production declined again in 1984, continuing a 35-year trend that saw anthracite's contribution to total coal production fall from 9 percent in 1949 to less than one-half of 1 percent in 1984 (Table 66).

Geographically, nearly two-thirds of all 1984 coal production was mined east of the Mississippi River and 34 percent west of the Mississippi. This, too, continued a long trend. The geographic composition of the coal supply has been steadily shifting westward where open pit mining of low sulfur coal is concentrated. In 1949, eastern-mined coal accounted for 92 percent of the total and coal mined west of the Mississippi accounted for only 8 percent (Table 66).

Surface mining continued to grow in relative importance in 1984, accounting for 59 percent of all coal produced, while underground mining made up 41 percent of the total (Table 66).

Productivity. Average output per man-hour, which declined markedly during the early 1970's, began to increase near the end of that decade. By 1983, the average had risen to 2.50 short tons per man-hour, from 1.77 short tons per man-hour in 1978. Much of the increase reflected the growing importance of surface coal production, for which productivity is the highest (Table 71).

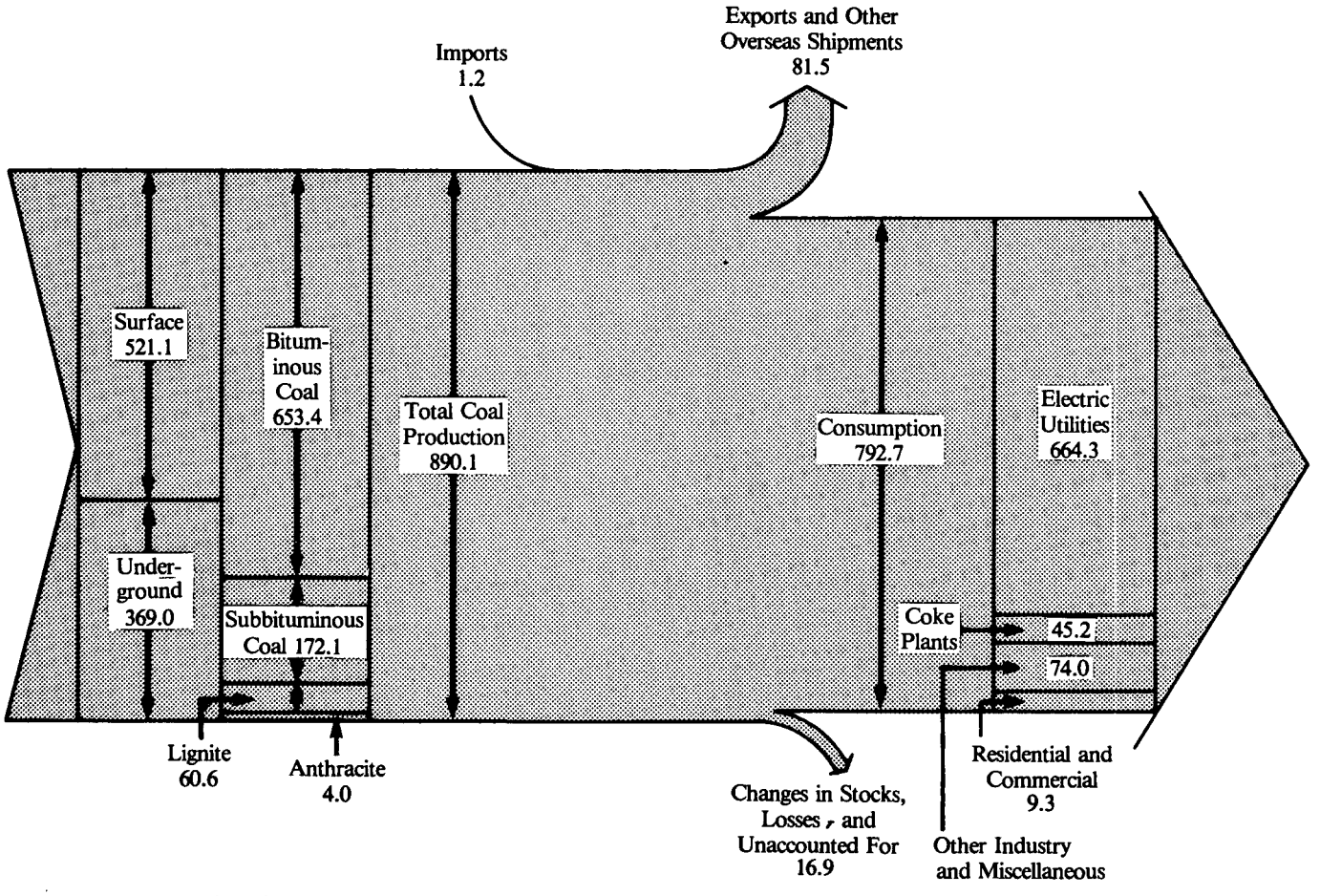
Exports. Coal exports rose to over 81 million short tons in 1984. This reversed a 2-year trend of declines but still left exports considerably below the 1982 all-time high of 113 million short tons. Canada surpassed Japan as the leading importer of U.S. coal in 1984; Japan fell to second place. Together Canada and Japan accounted for 45 percent of all U.S. coal exports by importing 20 million short tons and 16 million short tons, respectively. Italy (8 million short tons) and the Netherlands (5 million short tons) were the next leading importers of U.S. coal (Table 68).

Consumption. Domestic consumption of coal during 1984 rose to a record 793 million short tons, 7.6 percent above the 1983 level. The leading consumers of coal continued to be the electric utilities. In 1984 coal consumption by electric utilities rose to 664 million short tons, 84 percent of all coal consumed. The industrial sector consumed 119 million short tons (15 percent of total), while the remaining 1 percent of total consumption was used by the transportation sector and the residential and commercial sector (Table 67).

There is little seasonal variation in the use of coal. There are, however, considerable variations in the supply of coal. Therefore, large stockpiles are usually maintained at power plants and coke plants to compensate for production losses due to strikes, bad weather, and other emergencies. For example, during the 1981 coal miners' strike, which ended in June 1981, 50 million short tons of coal, approximately 30 percent of total stocks available, were drawn from inventories. By yearend 1981, 24 million short tons of coal had been added to the depleted inventories. The especially high yearend 1982 stocks of 232 million short tons were drawn down by over 30 million short tons in 1983. In 1984, 20 million short tons were added to inventories, bringing total coal stocks at yearend to 222 million short tons (Table 69).

Prices. Domestic coal prices were mixed in 1984, breaking a long-term upward trend. The price of bituminous coal and lignite at the mine-mouth averaged $27 per short ton, up from $25.85 in 1983. The price per short ton for the same ranks of coal delivered CIF (cost, insurance, and freight paid) to electric utility power plants dropped slightly in 1984 from $35.50 to $35.20. Anthracite prices continued to rise, reaching an all-time high of $55 per short ton in 1984. The price of coal coke at blast furnaces decreased significantly from $113.55 per short ton in 1983 to $105 per short ton in 1984. This was the first significant decrease in the price of coal coke since 1977 (Table 72).

Diagram 4. Coal Flow, 1984
(Million Short Tons)



Note: Sum of components may not equal totals due to independent rounding.

Figure 65. Coal Supply and Disposition, 1949-1984

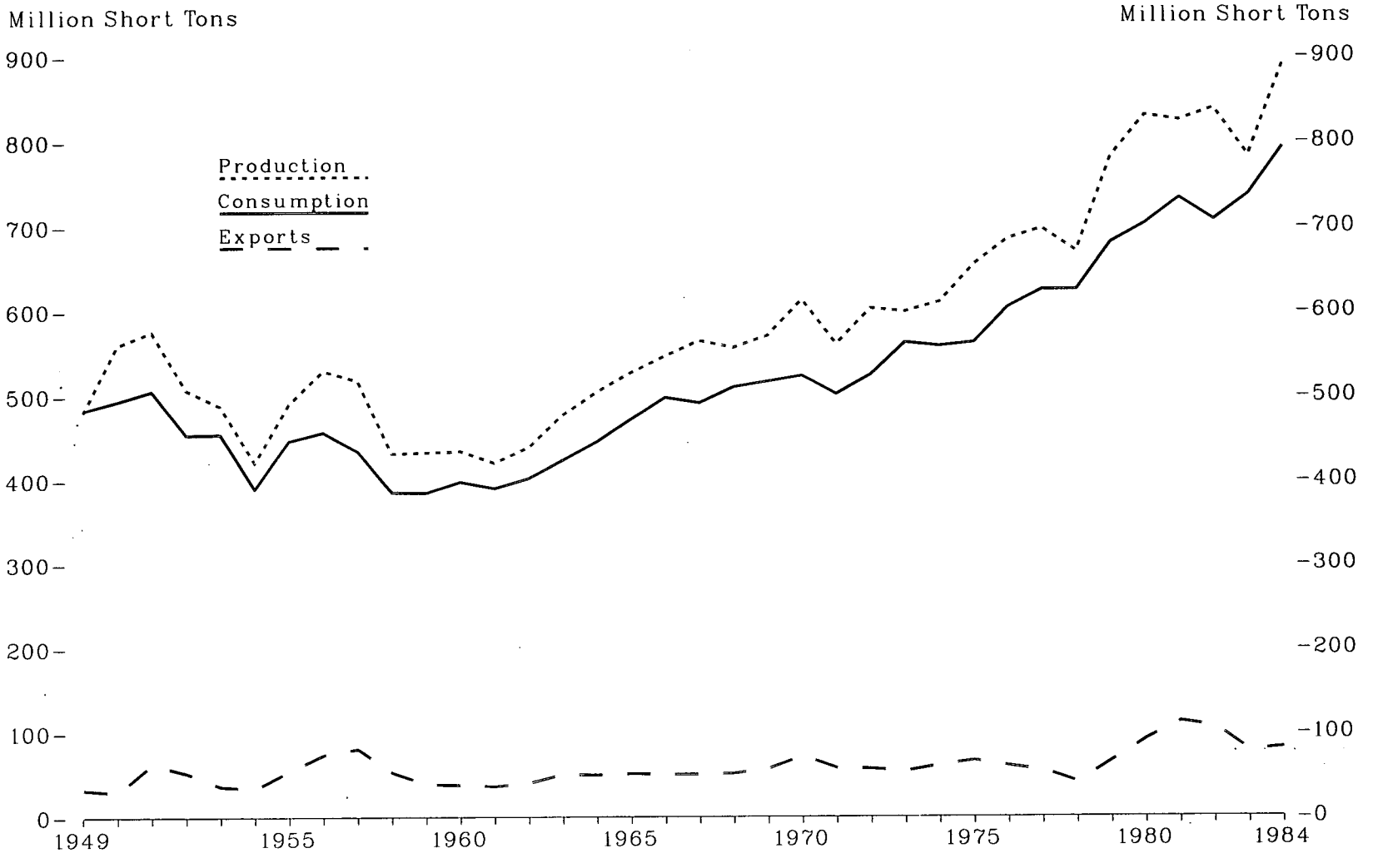


Table 65. Coal Supply and Disposition, 1949-1984

(Million Short Tons)

Year	Supply				Disposition			
	Production	Imports	Change in Stocks, Losses, and Unaccounted for [1]	Total	Exports	Anthracite Shipped Overseas to U.S. Armed Forces	Consumption	Total
1949	480.6	0.3	35.1	516.0	32.8	0	483.2	516.0
1950	560.4	0.4	-37.3	523.5	29.4	0	494.1	523.5
1951	576.3	0.3	-8.1	568.6	62.7	0	505.9	568.6
1952	507.4	0.3	-1.4	506.3	52.2	0	454.1	506.3
1953	488.2	0.3	2.8	491.3	36.5	0	454.8	491.3
1954	420.8	0.2	2.8	423.8	33.9	0	389.9	423.8
1955	490.8	0.3	10.3	501.4	54.4	0	447.0	501.4
1956	529.8	0.4	0.5	530.7	73.8	0	456.9	530.7
1957	518.0	0.4	-3.2	515.3	80.8	0	434.5	515.3
1958	431.6	0.3	6.4	438.3	52.6	0	385.7	438.3
1959	432.7	0.4	-9.0	424.1	39.0	0	385.1	424.1
1960	434.3	0.3	1.5	436.1	38.0	0	398.1	436.1
1961	420.4	0.2	6.2	426.8	36.4	0	390.4	426.8
1962	439.0	0.2	4.1	443.4	40.2	0.95	402.3	443.4
1963	477.2	0.3	-2.7	474.8	50.4	0.86	423.5	474.8
1964	504.2	0.3	-7.9	496.6	49.5	1.36	445.7	496.6
1965	527.0	0.2	-3.0	524.1	51.0	1.13	472.0	524.1
1966	546.8	0.2	1.6	548.6	50.1	0.77	497.7	548.6
1967	564.9	0.2	-22.7	542.4	50.1	0.83	491.4	542.4
1968	556.7	0.2	4.9	561.8	51.2	0.82	509.8	561.8
1969	571.0	0.1	3.2	574.3	56.9	1.04	516.4	574.3
1970	612.7	(2)	-17.0	595.6	71.7	0.69	523.2	595.6
1971	560.9	0.1	-1.4	559.6	57.3	0.72	501.6	559.6
1972	602.5	(2)	-21.1	581.5	56.7	0.45	524.3	581.5
1973	598.6	0.1	17.9	616.6	53.6	0.44	562.6	616.6
1974	610.0	2.1	7.4	619.5	60.7	0.43	558.4	619.5
1975	654.6	0.9	-26.2	629.4	66.3	0.46	562.6	629.4
1976	684.9	1.2	-21.7	664.4	60.0	0.57	603.8	664.4
1977	697.2	1.6	-18.8	680.0	54.3	0.40	625.3	680.0
1978	670.2	3.0	-6.9	666.2	40.7	0.28	625.2	666.2
1979	781.1	2.1	-36.3	746.9	66.0	0.37	680.5	746.9
1980	829.7	1.2	-36.1	794.8	91.7	0.34	702.7	794.8
1981	823.8	1.0	20.7	845.5	112.5	0.37	732.6	845.5
1982	838.1	0.7	-25.3	813.5	106.3	0.35	706.9	813.5
1983	782.1	1.3	31.4	814.8	77.8	0.34	736.7	814.8
1984[3]	890.1	1.2	-16.9	874.5	81.5	0.30	792.7	874.5

[1] Includes changes in stocks at electric utilities, coke plants, other industries, retail dealers, and producers/distributors and the balancing item of losses and unaccounted for. Net additions to stocks are considered as negative numbers. Net withdrawals from stocks are considered as positive numbers.

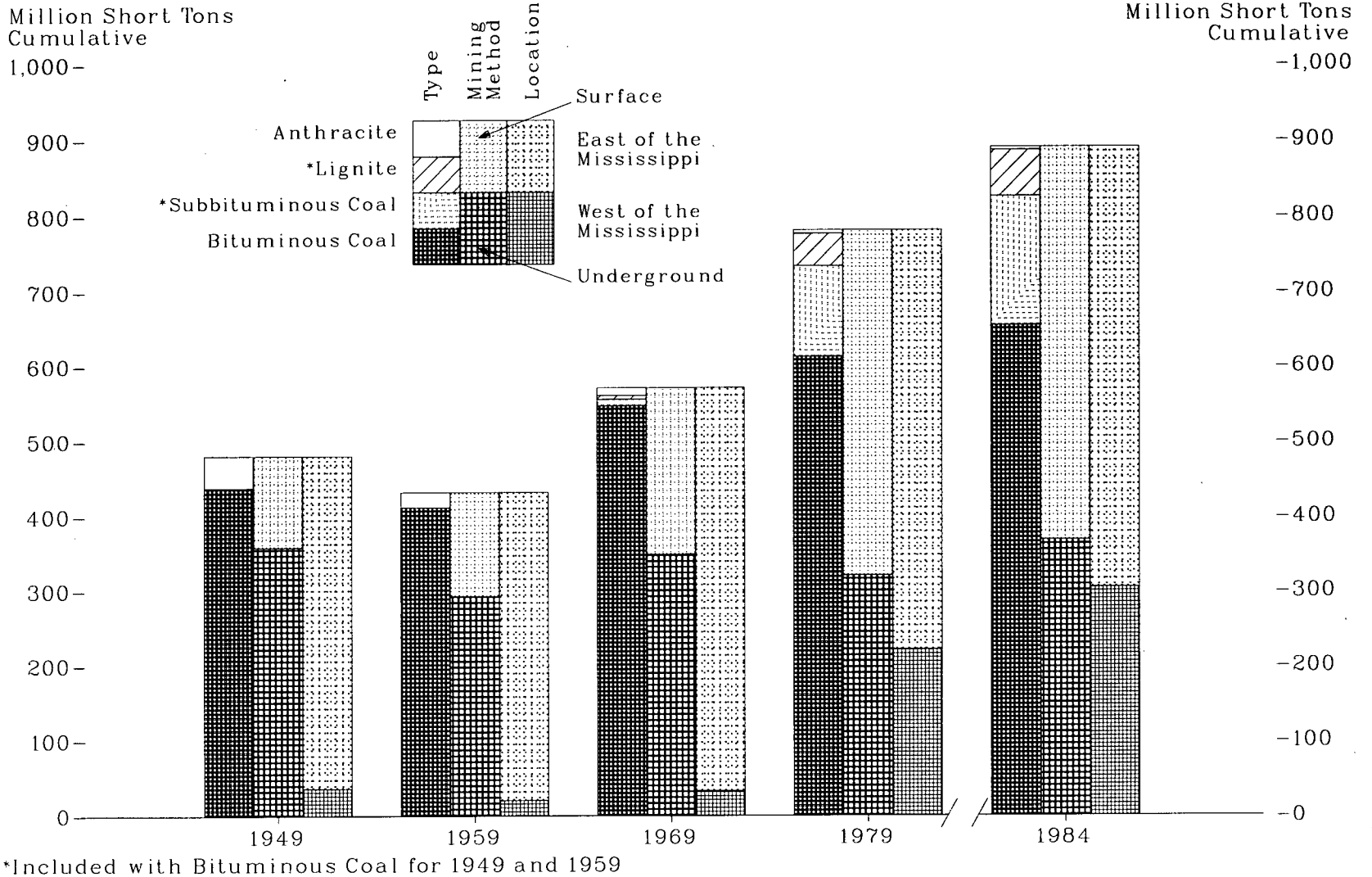
[2] Less than 0.05 million short tons.

[3] Preliminary.

Note: Sum of components may not equal total due to independent rounding.

Sources: **Anthracite Shipped Overseas to U.S. Armed Forces:** Defense Fuel Supply Center unpublished data. **All Other Data:** •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. •1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976*. •1977 and 1978—Energy Information Administration, Energy Data Reports, *Bituminous Coal and Lignite Production and Mine Operations-1977;....1978* and *Coal-Pennsylvania Anthracite 1977;....1978*. • 1979 through 1980—Energy Information Administration, Energy Data Report, *Weekly Coal Report*. •1981 through 1984—Energy Information Administration, *Weekly Coal Production*.

Figure 66. Coal Production, 1949, 1959, 1969, 1979, and 1984



*Included with Bituminous Coal for 1949 and 1959

Table 66. Coal Production, 1949-1984

(Million Short Tons)

Year	Rank				Method of Mining		Location		Total
	Bituminous Coal	Subbituminous Coal	Lignite	Anthracite	Underground	Surface	West of the Mississippi	East of the Mississippi	
1949	437.9	[1]	[1]	42.7	358.9	121.7	36.4	444.2	480.6
1950	516.3	[1]	[1]	44.1	421.0	139.4	36.0	524.4	560.4
1951	533.7	[1]	[1]	42.7	442.2	134.2	34.6	541.7	576.3
1952	466.8	[1]	[1]	40.6	381.2	126.3	32.7	474.8	507.4
1953	457.3	[1]	[1]	30.9	367.4	120.8	30.6	457.7	488.2
1954	391.7	[1]	[1]	29.1	306.0	114.8	25.4	395.4	420.8
1955	464.6	[1]	[1]	26.2	358.0	132.9	26.6	464.2	490.8
1956	500.9	[1]	[1]	28.9	380.8	148.9	25.8	504.0	529.8
1957	492.7	[1]	[1]	25.3	373.6	144.5	24.7	493.4	518.0
1958	410.4	[1]	[1]	21.2	297.6	134.0	20.3	411.3	431.6
1959	412.0	[1]	[1]	20.6	292.8	139.8	20.3	412.4	432.7
1960	415.5	[1]	[1]	18.8	292.6	141.7	21.3	413.0	434.3
1961	403.0	[1]	[1]	17.4	279.6	140.9	21.8	398.6	420.4
1962	422.1	[1]	[1]	16.9	287.9	151.1	21.4	417.6	439.0
1963	458.9	[1]	[1]	18.3	309.0	168.2	23.7	453.5	477.2
1964	487.0	[1]	[1]	17.2	327.7	176.5	25.7	478.5	504.2
1965	512.1	[1]	[1]	14.9	338.0	189.0	27.4	499.5	527.0
1966	533.9	[1]	[1]	12.9	342.6	204.2	28.0	518.8	546.8
1967	552.6	[1]	[1]	12.3	352.4	212.5	28.9	536.0	564.9
1968	545.2	[1]	[1]	11.5	346.6	210.1	29.7	527.0	556.7
1969	547.2	8.3	5.0	10.5	349.2	221.7	33.3	537.7	571.0
1970	578.5	16.4	8.0	9.7	340.5	272.1	44.9	567.8	612.7
1971	521.3	22.2	8.7	8.7	277.2	283.7	51.0	509.9	560.9
1972	556.8	27.5	11.0	7.1	305.0	297.4	64.3	538.2	602.5
1973	543.5	33.9	14.3	6.8	300.1	298.5	76.4	522.1	598.6
1974	545.7	42.2	15.5	6.6	278.0	332.1	91.9	518.1	610.0
1975	577.5	51.1	19.8	6.2	293.5	361.2	110.9	543.7	654.6
1976	588.4	64.8	25.5	6.2	295.5	389.4	136.1	548.8	684.9
1977	581.0	82.1	28.2	5.9	266.6	430.6	163.9	533.3	697.2
1978	534.0	96.8	34.4	5.0	242.8	427.4	183.0	487.2	670.2
1979	612.3	121.5	42.5	4.8	320.9	460.2	221.4	559.7	781.1
1980	628.8	147.7	47.2	6.1	337.5	492.2	251.0	578.7	829.7
1981	608.0	159.7	50.7	5.4	316.5	507.3	269.9	553.9	823.8
1982	620.2	160.9	52.4	4.6	339.2	499.0	273.9	564.3	838.1
1983	568.6	151.0	58.3	4.1	300.4	481.7	274.7	507.4	782.1
1984[2]	653.4	172.1	60.6	4.0	369.0	521.1	304.4	585.7	890.1

[1] Included in bituminous coal.
[2] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. •1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976*. •1977 and 1978—Energy Information Administration, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations-1977;....1978, Coal-Pennsylvania Anthracite 1977; ...1978*, and *Coal Production* (annual). •1979 through 1980—Energy Information Administration, Energy Data Report, *Weekly Coal Report* and *Coal Production* (annual). •1981 through 1984—Energy Information Administration, *Weekly Coal Production* and *Coal Production* (annual).

Figure 67. Coal Consumption by End-Use Sector, 1949-1984

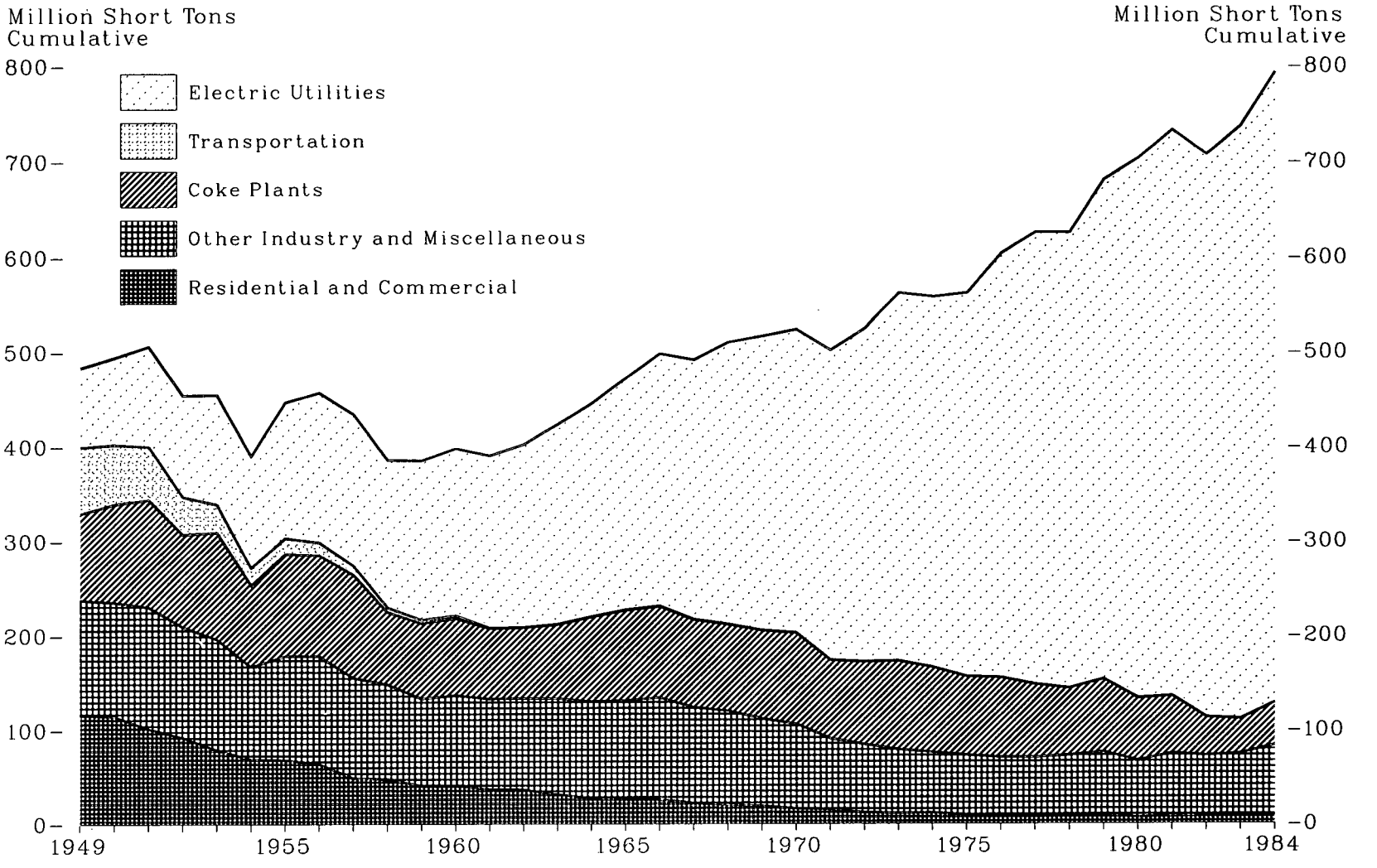


Table 67. Coal Consumption by End-Use Sector,[1] 1949-1984
(Million Short Tons)

Year	Electric Utilities	Industry and Miscellaneous			Transportation	Residential and Commercial	Total
		Coke Plants	Other Industry and Miscellaneous	Total			
1949	84.0	91.4	121.2	212.6	70.2	116.5	483.2
1950	91.9	104.0	120.6	224.6	63.0	114.6	494.1
1951	105.8	113.7	128.7	242.4	56.2	101.5	505.9
1952	107.1	97.8	117.1	214.9	39.8	92.3	454.1
1953	115.9	113.1	117.0	230.1	29.6	79.2	454.8
1954	118.4	85.6	98.2	183.9	18.6	69.1	389.9
1955	143.8	107.7	110.1	217.8	17.0	68.4	447.0
1956	158.3	106.3	114.3	220.6	13.8	64.2	456.9
1957	160.8	108.4	106.5	214.9	9.8	49.0	434.5
1958	155.7	76.8	100.5	177.4	4.7	47.9	385.7
1959	168.4	79.6	92.7	172.3	3.6	40.8	385.1
1960	176.7	81.4	96.0	177.4	3.0	40.9	398.1
1961	182.2	74.2	95.9	170.1	0.8	37.3	390.4
1962	193.3	74.7	97.1	171.7	0.7	36.5	402.3
1963	211.3	78.1	101.9	180.0	0.7	31.5	423.5
1964	225.4	89.2	103.1	192.4	0.7	27.2	445.7
1965	244.8	95.3	105.6	200.8	0.7	25.7	472.0
1966	266.5	96.4	108.7	205.1	0.6	25.6	497.7
1967	274.2	92.8	101.8	194.6	0.5	22.1	491.4
1968	297.8	91.3	100.4	191.6	0.4	20.0	509.8
1969	310.6	93.4	93.1	186.6	0.3	18.9	516.4
1970	320.2	96.5	90.2	186.6	0.3	16.1	523.2
1971	327.3	83.2	75.6	158.9	0.2	15.2	501.6
1972	351.8	87.7	72.9	160.6	0.2	11.7	524.3
1973	389.2	94.1	68.0	162.1	0.1	11.1	562.6
1974	391.8	90.2	64.9	155.1	0.1	11.4	558.4
1975	406.0	83.6	63.6	147.2	(2)	9.4	562.6
1976	448.4	84.7	61.8	146.5	(2)	8.9	603.8
1977	477.1	77.7	61.5	139.2	(2)	9.0	625.3
1978	481.2	71.4	63.1	134.5	(2)	9.5	625.2
1979	527.1	77.4	67.7	145.1	(2)	8.4	680.5
1980	569.3	66.7	60.3	127.0	(2)	6.5	702.7
1981	596.8	61.0	67.4	128.4	(2)	7.4	732.6
1982	593.7	40.9	64.1	105.0	(2)	8.2	706.9
1983	625.2	37.0	66.0	103.0	(2)	8.4	736.7
1984[3]	664.3	45.2	74.0	119.2	(2)	9.3	792.7

[1] See Explanatory Note 10.
[2] Less than 0.05 million short tons. Quantities are included in the Other Industry and Miscellaneous category.
[3] Preliminary, except for electric utilities which is final.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. •1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976*. •1977 and 1978—Energy Information Administration, Energy Data Report, *Coal-Pennsylvania Anthracite 1977;...1978* and *Weekly Coal Report*. • 1979 through 1980—Energy Information Administration, Energy Data Report, *Weekly Coal Report*. •1981—Energy Information Administration, *Weekly Coal Production*. •1982 through 1984— Energy Information Administration, *Quarterly Coal Report*.

Figure 68. Coal Exports by Country of Destination, 1960-1984

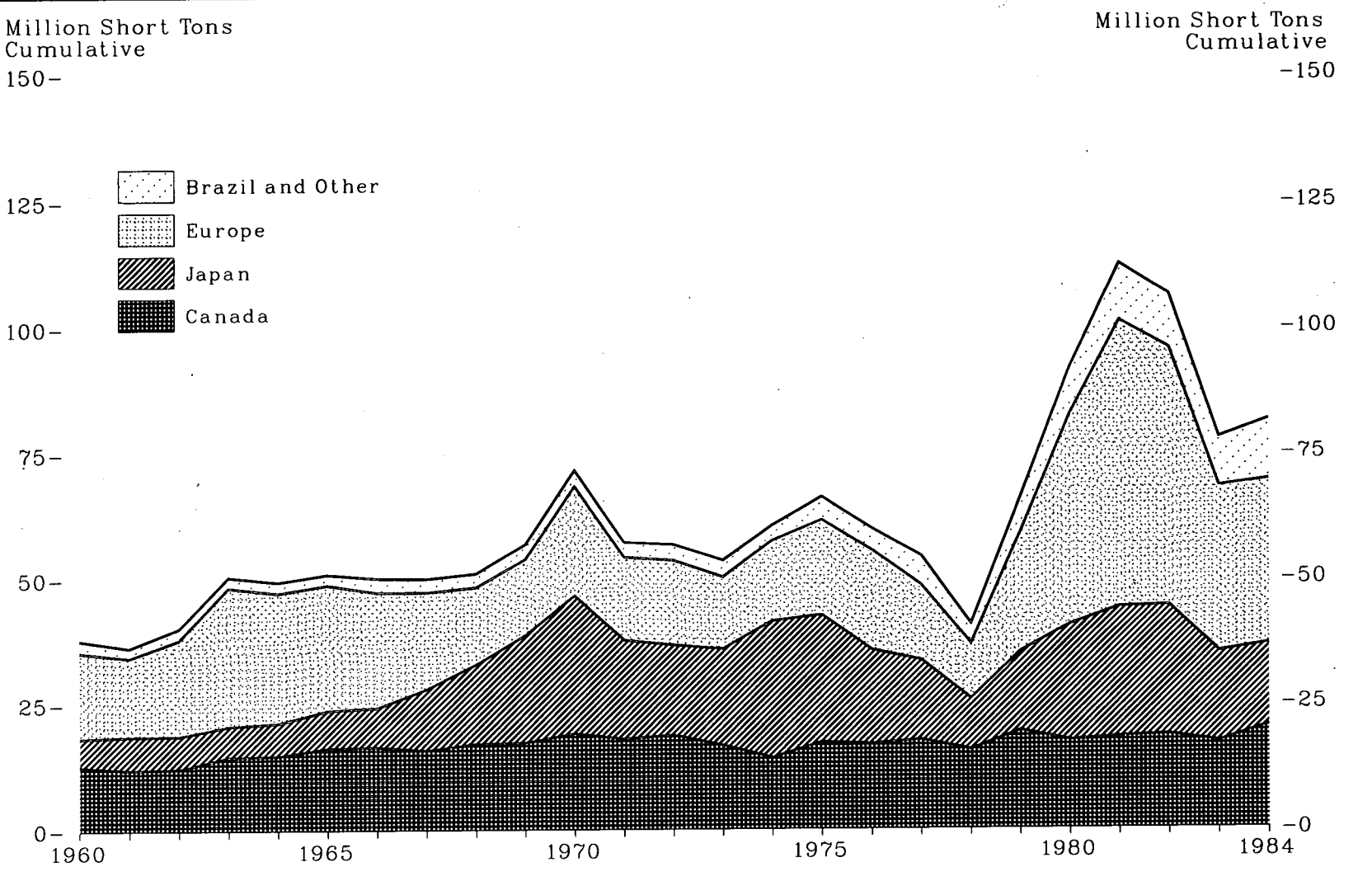


Table 68. Coal Exports[1] by Country of Destination, 1960-1984
(Million Short Tons)

Year	Canada	Brazil	Europe										Japan	Other	Total
			Belgium/ Luxem-bourg	Denmark	France	West Germany	Italy	Nether-lands	Spain	United Kingdom	Other	Total			
1960	12.8	1.1	1.1	0.1	0.8	4.6	4.9	2.8	0.3	0	2.4	17.1	5.6	1.3	38.0
1961	12.1	1.0	1.0	0.1	0.7	4.3	4.8	2.6	0.2	0	2.0	15.7	6.6	1.0	36.4
1962	12.3	1.3	1.3	(2)	0.9	5.1	6.0	3.3	0.8	(2)	1.8	19.1	6.5	1.0	40.2
1963	14.6	1.2	2.7	(2)	2.7	5.6	7.9	5.0	1.5	(2)	2.4	27.7	6.1	0.9	50.4
1964	14.8	1.1	2.3	(2)	2.2	5.2	8.1	4.2	1.4	(2)	2.6	26.0	6.5	1.1	49.5
1965	16.3	1.2	2.2	(2)	2.1	4.7	9.0	3.4	1.4	(2)	2.3	25.1	7.5	0.9	51.0
1966	16.5	1.7	1.8	(2)	1.6	4.9	7.8	3.2	1.2	(2)	2.5	23.1	7.8	1.0	50.1
1967	15.8	1.7	1.4	0	2.1	4.7	5.9	2.2	1.0	0	2.1	19.4	12.2	1.0	50.1
1968	17.1	1.8	1.1	(2)	1.5	3.8	4.3	1.5	1.5	(2)	1.9	15.5	15.8	0.9	51.2
1969	17.3	1.8	0.9	0	2.3	3.5	3.7	1.6	1.8	(2)	1.3	15.2	21.4	1.2	56.9
1970	19.1	2.0	1.9	(2)	3.6	5.0	4.3	2.1	3.2	(2)	1.8	21.8	27.6	1.2	71.7
1971	18.0	1.9	0.8	0	3.2	2.9	2.7	1.6	2.6	1.7	1.1	16.6	19.7	1.1	57.3
1972	18.7	1.9	1.1	(2)	1.7	2.4	3.7	2.3	2.1	2.4	1.1	16.9	18.0	1.2	56.7
1973	16.7	1.6	1.2	0	2.0	1.6	3.3	1.8	2.2	0.9	1.3	14.4	19.2	1.6	53.6
1974	14.2	1.3	1.1	0	2.7	1.5	3.9	2.6	2.0	1.4	0.9	16.1	27.3	1.8	60.7
1975	17.3	2.0	0.6	0	3.6	2.0	4.5	2.1	2.7	1.9	1.6	19.0	25.4	2.6	66.3
1976	16.9	2.2	2.2	(2)	3.5	1.0	4.2	3.5	2.5	0.8	2.1	19.9	18.8	2.1	60.0
1977	17.7	2.3	1.5	0.1	2.1	0.9	4.1	2.0	1.6	0.6	2.1	15.0	15.9	3.5	54.3
1978	15.7	1.5	1.1	0	1.7	0.6	3.2	1.1	0.8	0.4	2.2	11.0	10.1	2.5	40.7
1979	19.5	2.8	3.2	0.2	3.9	2.6	5.0	2.0	1.4	1.4	4.4	23.9	15.7	4.1	66.0
1980	17.5	3.3	4.6	1.6	7.8	2.5	7.1	4.7	3.4	4.1	6.0	41.9	23.1	6.0	91.7
1981	18.2	2.7	4.3	3.9	9.7	4.3	10.5	6.8	6.4	2.3	8.8	57.0	25.9	8.7	112.5
1982	18.6	3.1	4.8	2.8	9.0	2.3	11.3	5.9	5.6	2.0	7.6	51.3	25.8	7.5	106.3
1983	17.2	3.6	2.5	1.7	4.2	1.5	8.1	4.2	3.3	1.2	6.4	33.1	17.9	6.1	77.8
1984	20.4	4.7	3.9	0.6	3.8	0.9	7.6	5.5	2.3	2.9	5.3	32.8	16.3	7.2	81.5

[1] Excludes overseas shipments of anthracite to U.S. Armed Forces.
[2] Less than 50,000 tons.
Note: Sum of components may not equal total due to independent rounding.
Source: Bureau of the Census, *U.S. Exports by Schedule B Commodities*, EM 522.

Figure 69. Coal Stocks, Yearend 1949-1984

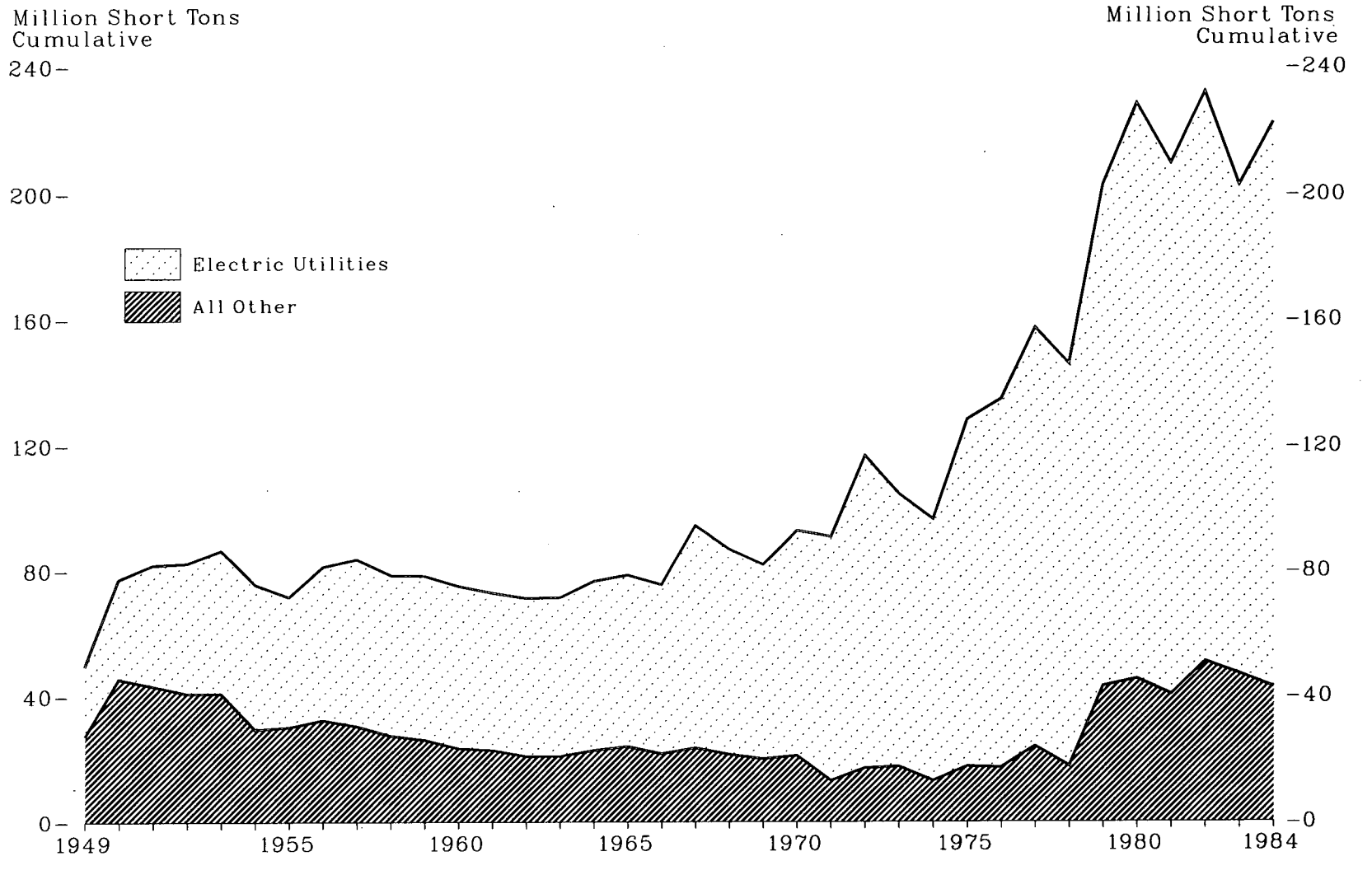


Table 69. Coal Stocks, Yearend 1949-1984

(Million Short Tons)

Year	Coal Consumers					Coal Producers and Distributors	Total
	Electric Utilities	Coke Plants	Other Industry [1]	Residential [2] and Commercial	Total		
1949	22.1	10.0	16.1	1.4	49.5	NA	49.5
1950	31.8	16.8	26.2	2.5	77.3	NA	77.3
1951	38.5	15.3	26.2	1.8	81.8	NA	81.8
1952	41.5	14.5	24.7	1.7	82.4	NA	82.4
1953	45.6	16.6	22.8	1.5	86.6	NA	86.6
1954	46.1	12.4	16.4	0.8	75.7	NA	75.7
1955	41.4	13.4	15.9	1.0	71.7	NA	71.7
1956	48.8	14.0	17.4	1.1	81.3	NA	81.3
1957	53.1	14.2	15.5	0.9	83.7	NA	83.7
1958	51.0	13.1	13.7	0.9	78.7	NA	78.6
1959	52.1	11.6	13.6	1.0	78.4	NA	78.4
1960	51.7	11.1	11.6	0.7	75.2	NA	75.2
1961	50.1	10.5	11.9	0.5	73.0	NA	73.0
1962	50.4	8.4	12.0	0.5	71.3	NA	71.3
1963	50.6	8.1	12.3	0.5	71.5	NA	71.5
1964	53.9	10.2	12.2	0.4	76.7	NA	76.7
1965	54.5	10.6	13.1	0.4	78.6	NA	78.6
1966	53.9	9.3	12.2	0.2	75.6	NA	75.6
1967	71.0	11.1	12.3	0.2	94.6	NA	94.6
1968	65.5	9.7	11.7	0.2	87.0	NA	87.0
1969	61.9	9.1	10.8	0.2	81.9	NA	81.9
1970	71.9	9.0	11.8	0.3	93.0	NA	93.0
1971	77.8	7.3	5.6	0.3	91.0	NA	91.0
1972	99.7	9.1	7.6	0.3	116.8	NA	116.8
1973	87.0	7.0	10.4	0.3	104.6	NA	104.6
1974	83.5	6.2	6.6	0.3	96.6	NA	96.6
1975	110.7	8.8	8.5	0.2	128.3	NA	128.3
1976	117.4	9.9	7.1	0.2	134.7	NA	134.7
1977	133.2	12.8	11.1	0.2	157.3	NA	157.3
1978	128.2	8.3	9.0	0.4	145.9	NA	145.9
1979	159.7	10.2	11.8	0.3	182.0	20.8	202.8
1980	183.0	9.1	12.0	NA	204.0	24.4	228.4
1981	168.9	6.5	9.9	NA	185.3	24.1	209.4
1982	181.1	4.6	9.5	NA	195.3	36.8	232.0
1983	155.6	4.3	8.7	NA	168.7	33.9	202.6
1984[3]	179.7	6.2	9.9	NA	195.8	26.6	222.4

[1] Includes transportation sector.
[2] Stocks at retail dealers.
[3] Estimated, except electric utilities which is final.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. •1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976*. •1977 and 1978—Energy Information Administration, Energy Data Report, *Coal-Pennsylvania Anthracite 1977;....1978* and *Weekly Coal Report*. •1979 through 1980—Energy Information Administration, Energy Data Report, *Weekly Coal Report*. •1981—Energy Information Administration, *Weekly Coal Production*. •1982 through 1984— Energy Information Administration, *Quarterly Coal Report*.

Figure 70. Coke Supply and Disposition, 1949-1984

Table 70. Coke Supply and Disposition, 1949-1984

(Million Short Tons)

Year	Supply				Disposition		
	Production	Imports	Stock Change [1]	Total	Exports	Consumption	Total
1949	63.64	0.28	-0.18	63.74	0.55	63.19	63.74
1950	72.72	0.44	0.66	73.82	0.40	73.42	73.82
1951	79.33	0.16	-0.37	79.12	1.03	78.09	79.12
1952	68.25	0.31	-0.42	68.15	0.79	67.36	68.15
1953	78.84	0.16	-0.78	78.22	0.52	77.70	78.22
1954	59.66	0.12	-0.27	59.51	0.39	59.12	59.51
1955	75.30	0.13	1.25	76.68	0.53	76.14	76.68
1956	74.48	0.13	-0.63	73.98	0.66	73.32	73.98
1957	75.95	0.12	-0.81	75.26	0.82	74.43	75.26
1958	53.60	0.12	-0.68	53.05	0.39	52.66	53.05
1959	55.86	0.12	-0.86	55.13	0.46	54.67	55.13
1960	57.23	0.13	-0.06	57.30	0.35	56.95	57.30
1961	51.71	0.13	0.70	52.53	0.44	52.09	52.53
1962	51.91	0.14	0.14	52.19	0.36	51.82	52.19
1963	54.28	0.15	1.02	55.45	0.45	55.00	55.45
1964	62.14	0.10	0.91	63.16	0.52	62.64	63.16
1965	66.85	0.09	-0.73	66.21	0.83	65.38	66.21
1966	67.40	0.10	-0.38	67.12	1.10	66.02	67.12
1967	64.58	0.09	-2.39	62.28	0.71	61.57	62.28
1968	63.65	0.09	-0.52	63.23	0.79	62.44	63.23
1969	64.76	0.17	2.86	67.80	1.63	66.17	67.80
1970	66.52	0.15	-0.99	65.68	2.48	63.21	65.68
1971	57.44	0.17	0.59	58.20	1.51	56.69	58.20
1972	60.51	0.18	0.59	61.28	1.23	60.05	61.28
1973	64.32	~~1.08~~ 1.09	1.76	67.16	1.40	65.76	67.16
1974	61.58	3.54	0.25	65.37	1.28	64.09	65.37
1975	57.21	1.82	-4.06	54.96	1.27	53.69	54.96
1976	58.33	1.31	-1.50	58.15	1.32	56.83	58.15
1977	53.51	1.83	0.05	55.38	1.24	54.14	55.38
1978	49.01	5.72	2.91	57.64	0.69	56.95	57.64
1979	52.94	3.97	-1.65	55.27	1.44	53.83	55.27
1980	46.13	0.66	-3.44	43.35	2.07	41.28	43.35
1981	42.79	0.53	1.90	45.22	1.17	44.05	45.22
1982	28.12	0.12	-1.47	26.77	0.99	25.78	26.77
1983	25.81	0.04	4.67	30.52	0.66	29.85	30.52
1984[2]	23.45	0.58	0.34	24.37	1.04	23.32	24.37

[1] Negative numbers denote a net addition to stocks or a reduction in supply. Positive numbers denote a net withdrawal from stocks or an addition to supply.

[2] Preliminary, except imports and exports which are final.

Note: Sum of components may not equal total due to independent rounding.

Sources: •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coke and Coal Chemicals" chapter. •1976 through 1980—Energy Information Administration, Energy Data Report, *Coke and Coal Chemicals*, annual. •1981—Energy Information Administration, Energy Data Report, *Coke Plant Report*, quarterly. •1982 through 1984—Energy Information Administration, *Quarterly Coal Report*.

Figure 71. Labor Productivity in Coal Mining, 1949-1983

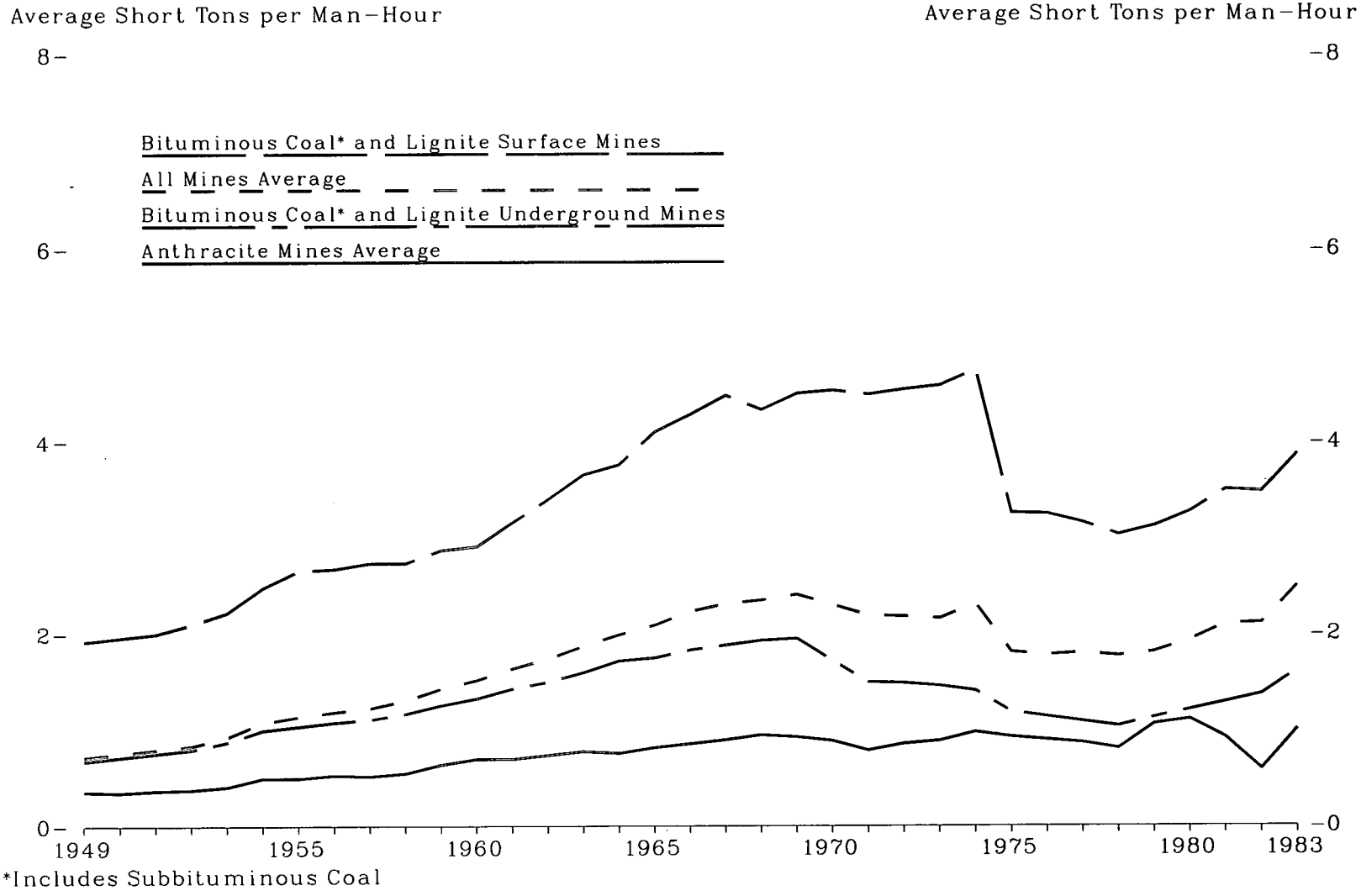


Table 71. Labor Productivity in Coal Mining, 1949-1983

(Average Short Tons per Man-Hour)

Year	Bituminous Coal [1] and Lignite Mines			Anthracite Mines Average	All Mines Average
	Underground	Surface	Average		
1949	0.68	1.92	0.80	0.36	0.72
1950	0.72	1.96	0.85	0.35	0.76
1951	0.76	2.00	0.88	0.37	0.80
1952	0.80	2.10	0.93	0.38	0.84
1953	0.88	2.22	1.02	0.41	0.93
1954	1.00	2.48	1.18	0.50	1.08
1955	1.04	2.65	1.23	0.50	1.14
1956	1.08	2.67	1.29	0.53	1.19
1957	1.11	2.73	1.32	0.52	1.23
1958	1.17	2.73	1.42	0.55	1.31
1959	1.26	2.87	1.53	0.64	1.43
1960	1.33	2.91	1.60	0.70	1.52
1961	1.43	3.16	1.73	0.70	1.64
1962	1.50	3.40	1.84	0.74	1.74
1963	1.60	3.66	1.98	0.78	1.87
1964	1.72	3.76	2.11	0.76	1.99
1965	1.75	4.10	2.19	0.82	2.09
1966	1.83	4.28	2.32	0.86	2.23
1967	1.88	4.48	2.40	0.90	2.31
1968	1.93	4.33	2.42	0.95	2.35
1969	1.95	4.50	2.49	0.93	2.41
1970	1.72	4.53	2.36	0.89	2.30
1971	1.50	4.49	2.25	0.79	2.19
1972	1.49	4.54	2.22	0.86	2.18
1973	1.46	4.58	2.20	0.89	2.16
1974	1.41	4.74	2.35	0.98	2.31
1975	1.19	3.26	1.83	0.93	1.81
1976	1.14	3.25	1.80	0.90	1.78
1977	1.09	3.16	1.82	0.87	1.80
1978	1.04	3.03	1.79	0.81	1.77
1979	1.13	3.12	1.82	1.06	1.81
1980	1.21	3.27	1.94	1.11	1.93
1981	1.29	3.50	2.11	0.92	2.10
1982	1.37	3.48	2.14	0.59	2.11
1983	1.62	3.87	2.52	1.01	2.50

[1] Includes subbituminous coal.

Note: Data for bituminous coal and lignite mines 1949 through 1973 and anthracite mines 1949 through 1978 were originally reported in short tons per man-day. These data have been converted to short-tons per man-hour by assuming an eight-hour day. All remaining data were calculated by dividing total production by total labor hours worked by all mine employees except office workers.

Sources: •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. •1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976*. •1977 and 1978—Energy Information Administration, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations-1977; ....1978* and *Coal-Pennsylvania Anthracite 1977; ....1978*. •1979—Energy Information Administration, Energy Data Report, *Coal Production-1979*. •1980 through 1983—Energy Information Administration, *Coal Production* (annual).

Figure 72. Coal and Coal Coke Prices, 1949-1984

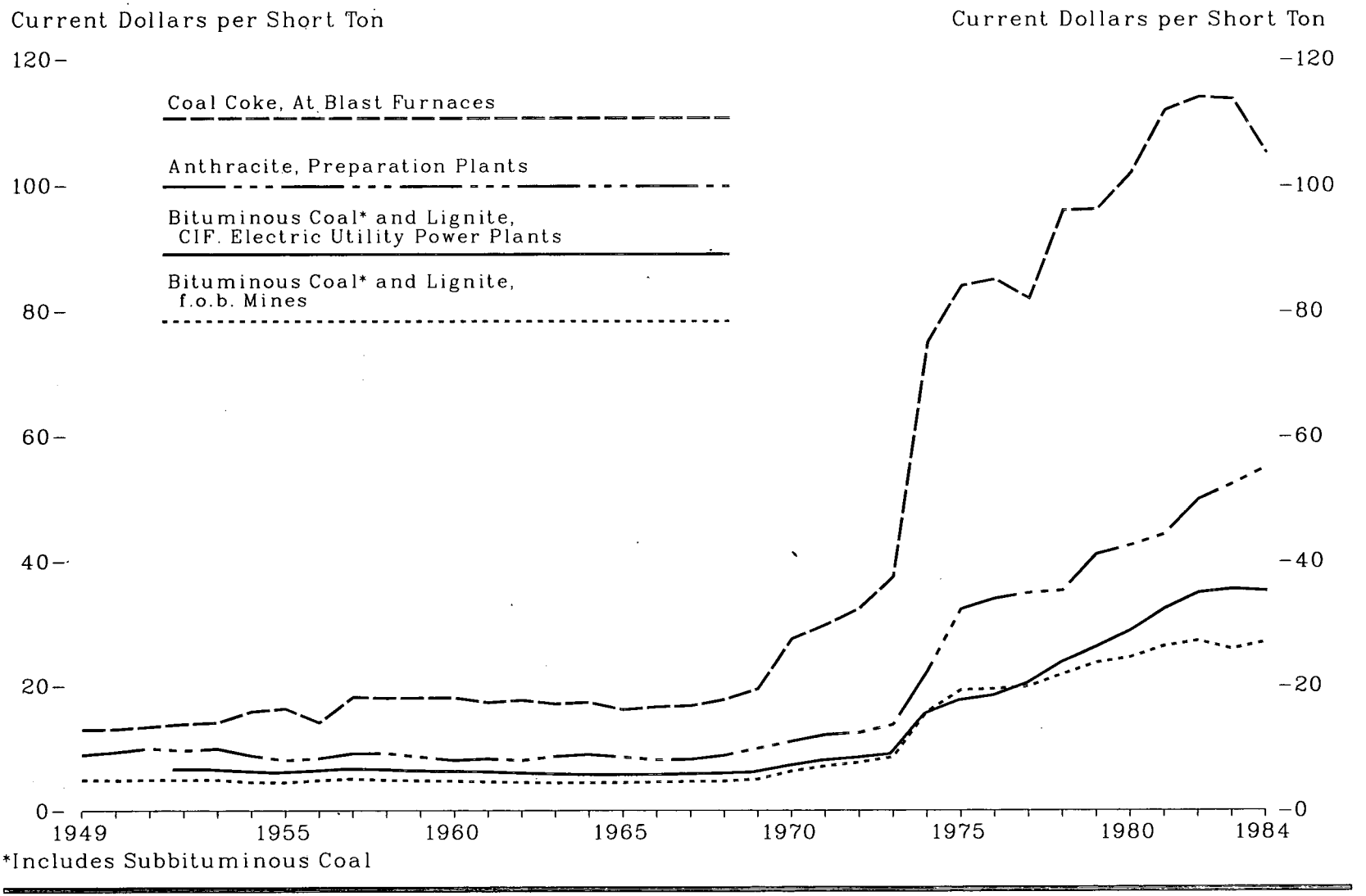


Table 72. Coal and Coal Coke Prices, 1949-1984

(Dollars per Short Ton)

Year	Bituminous Coal [1] and Lignite				Anthracite		Coal Coke	
	F.O.B. [2] Mines		CIF [3] Electric Utility Power Plants		At Preparation Plants		At Blast Furnaces	
	Current	Constant [4]	Current	Constant [4]	Current	Constant [4]	Current	Constant [4]
1949	4.88	9.30	NA	NA	8.90	16.96	12.90	24.58
1950	4.84	9.04	NA	NA	9.34	17.44	12.96	24.20
1951	4.92	8.62	NA	NA	9.94	17.41	13.36	23.40
1952	4.90	8.46	6.61	11.41	9.58	16.54	13.81	23.84
1953	4.92	8.36	6.61	11.24	9.87	16.78	14.03	23.85
1954	4.52	7.59	6.31	10.60	8.76	14.71	15.82	26.57
1955	4.50	7.40	6.07	9.98	8.00	13.15	16.29	26.78
1956	4.82	7.68	6.32	10.07	8.33	13.27	14.03	22.34
1957	5.08	7.82	6.64	10.23	9.11	14.03	18.15	27.95
1958	4.86	7.36	6.58	9.96	9.14	13.84	17.98	27.23
1959	4.77	7.06	6.37	9.42	8.55	12.65	18.01	26.64
1960	4.69	6.83	6.26	9.11	8.01	11.66	18.02	26.23
1961	4.58	6.61	6.20	8.94	8.26	11.91	17.27	24.91
1962	4.48	6.34	6.02	8.53	7.99	11.32	17.64	24.98
1963	4.39	6.13	5.86	8.18	8.64	12.06	17.06	23.80
1964	4.45	6.12	5.74	7.89	8.93	12.27	17.30	23.77
1965	4.44	5.97	5.71	7.68	8.51	11.44	16.11	21.66
1966	4.54	5.91	5.76	7.50	8.08	10.53	16.56	21.57
1967	4.62	5.84	5.85	7.40	8.15	10.31	16.74	21.17
1968	4.67	5.66	5.93	7.18	8.78	10.64	17.72	21.47
1969	4.99	5.75	6.13	7.06	9.91	11.42	19.42	22.38
1970	6.26	6.85	7.13	7.80	11.03	12.06	27.43	29.99
1971	7.07	7.36	8.00	8.33	12.08	12.58	29.73	30.97
1972	7.66	7.66	8.44	8.44	12.40	12.40	32.33	32.33
1973	8.53	8.07	9.01	8.52	13.65	12.91	37.42	35.39
1974	15.75	13.69	15.46	13.43	22.19	19.28	75.00	65.17
1975	19.23	15.29	17.63	14.02	32.26	25.65	84.03	66.80
1976	19.43	14.68	18.38	13.89	33.92	25.63	85.09	64.30
1977	19.82	14.15	20.37	14.54	34.86	24.89	81.91	58.49
1978	21.78	14.48	23.75	15.79	35.25	23.43	95.95	63.79
1979	23.65	14.47	26.15	16.00	41.06	25.13	96.11	58.81
1980	24.52	13.74	28.76	16.12	42.51	23.83	101.93	57.13
1981	26.29	13.44	32.31	16.52	44.28	22.64	111.79	57.15
1982	27.14	13.09	34.90	16.83	49.85	24.04	113.91	54.93
1983	25.85	12.00	35.50	16.49	52.29	24.28	113.55	52.73
1984 [5]	27.00	12.08	35.20	15.75	55.00	24.62	105.00	46.99

[1] Includes subbituminous coal. [2] Free on board (see Glossary). [3] Cost, Insurance, and Freight (see Glossary). [4] Constant 1972 prices calculated using GNP implicit price deflators, 1972 = 100. See Energy Equivalents and Price Deflators section. [5] Preliminary. NA = Not available. Note: During certain years, the average F.O.B. mine price exceeded the average CIF electric utility price. This reflected long-term contract buying and occurred during a period of rapid and steep F.O.B. mine price increases. Sources: **Bituminous Coal and Lignite, F.O.B. Mines** •1949 through 1975—Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite" chapter. •1976—Energy Information Administration, Energy Data Report, *Coal-Bituminous and Lignite in 1976*. •1977 and 1978—Energy Information Administration, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations-1977; ....1978*. •1979 through 1981—Energy Information Administration, Energy Data Report, *Weekly Coal Reports*. •1982 through 1984—Energy Information Administration, *Weekly Coal Production*. **Bituminous Coal and Lignite, CIF Electric Utility Power Plants** •1949 through 1972—National Coal Association, *Steam Electric Plant Factors*. •1973 through 1982—Federal Power Commission, FPC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." •1983 and 1984—Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuel for Electric Utilities." **Anthracite** •1949 through 1976—Bureau of Mines, *Minerals Yearbook*, "Coal-Pennsylvania Anthracite" chapter. •1977 and 1978—Energy Information Administration, Energy Data Report, *Coal-Pennsylvania Anthracite 1977; ....1978*. •1979—Energy Information Administration, Energy Data Report, *Coal Production-1979*. •1980—Energy Information Administration, *Coal Production-1980*. •1981 through 1984—Energy Information Administration, *Weekly Coal Production*. **Coal Coke** •1949 through 1975— Bureau of Mines, *Minerals Yearbook*, "Coke and Coal Chemicals" chapter. •1976 through 1980—Energy Information Administration, Energy Data Report, *Coke and Coal Chemicals*, annual. •1981—Energy Information Administration, Energy Data Report, *Coke Plant Report*, quarterly. •1982 through 1984— Energy Information Administration, *Quarterly Coal Report*.

Section 7. Electricity Supply and Disposition

Electricity output (generation) is measured in watthours and for convenience is recorded in kilowatthours (1,000 watthours). For example, a 1,000-kilowatt generator running at full load for an entire year would produce 8,760,000 kilowatthours of electricity (1,000 times 24 hours per day times 365 days per year). All generators must operate less than 100 percent of the time during a year, if only to allow for routine maintenance. The load curve for electricity is variable throughout the day and year. Utilities develop a mix of generating capacity to satisfy steady or "baseload" demand, as well as variable or "peaking" demand.

Usually, conventional steam plants, nuclear plants, and large hydroelectric power plants in Northwestern States are used for baseload electricity requirements. Gas turbine plants, internal combustion plants, and most hydroelectric power plants are generally used for peaking (short periods of high demand) purposes and are operated less than baseload plants.

Capacity. From 1949 through 1984, installed generating capacity at electric utilities in the United States increased each year to meet the growing demand for electricity. The 1984 yearend capacity of 672 million kilowatts was 2.1 percent greater than that for 1983. Conventional steam generating plants in 1984 accounted for 69 percent of the total electric utility capacity; hydroelectric power plants, 12 percent; and nuclear plants, 11 percent (Table 79).

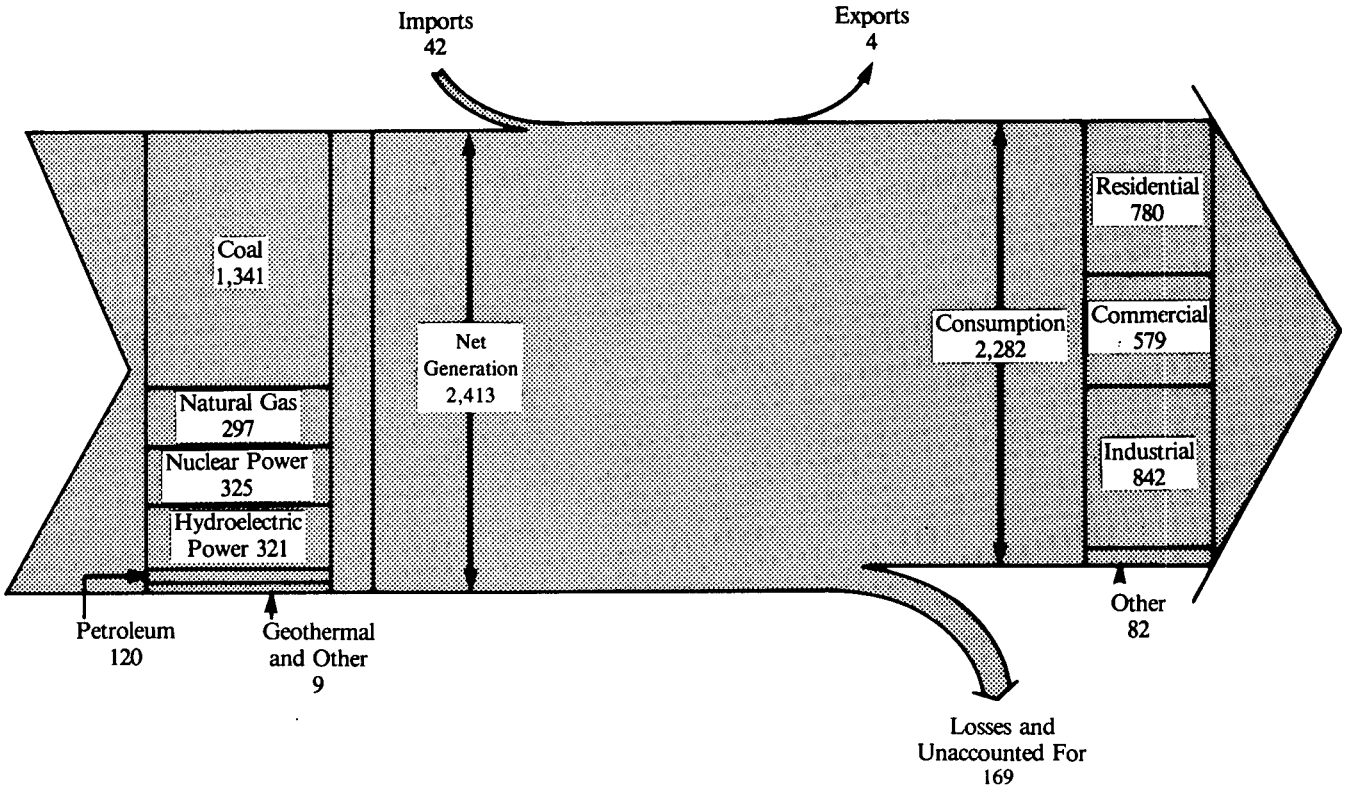
Domestic Generation. After declining in 1982 for the first time since World War II, electricity generation increased in 1983 and again in 1984 to a record high of 2.41 trillion kilowatthours. Conventional steam generation, consistently the major source of electricity, accounted for 72.2 percent of the total output in 1984. Generation by nuclear power reached a record level in 1984 and accounted for 13.5 percent of production. Generation by hydroelectric power plants declined slightly in 1984 but still accounted for 13.3 percent of total electricity generation (Table 75).

Fossil Fuel Consumption. The mix of fossil fuels used to produce electricity shifted over the past 35 years. During the 1950's and 1960's, petroleum and natural gas fueled increasing shares of electricity generation. However, from 1972 through 1984, the combined petroleum and natural gas share fell from 37 percent to 17 percent of total generation, while the coal portion rose from 44 percent to 56 percent (Table 74).

Sales. Electricity sales, after having declined in 1982 for the first time since 1974, rose in 1983 and again in 1984 to a record 2,282 billion kilowatthours. Of the three major end-use sectors, the industrial sector accounted for 36.9 percent of total sales in 1984, with the residential sector and commercial sector accounting for 34.2 percent and 25.4 percent, respectively (Table 78).

Prices. During 1984, weighted average monthly electric bills increased for each consumer group. The average monthly electric bill for residential consumers who consume 750 kilowatthours increased from $52.74 in 1983 to $54.76 in 1984 (Table 81). The weighted average price of the electricity sold by electric utilities to all consumers reached 6.52 cents per kilowatthour in 1984, 3.7 percent more than the 1983 price.

Diagram 5. Electric Utility Electricity Flow, 1984
(Billion Kilowatthours)



Note: Sum of components may not equal totals due to independent rounding.

Figure 73. Electric Utility Industry Supply and Disposition, 1949, 1959, 1969, 1979, and 1984

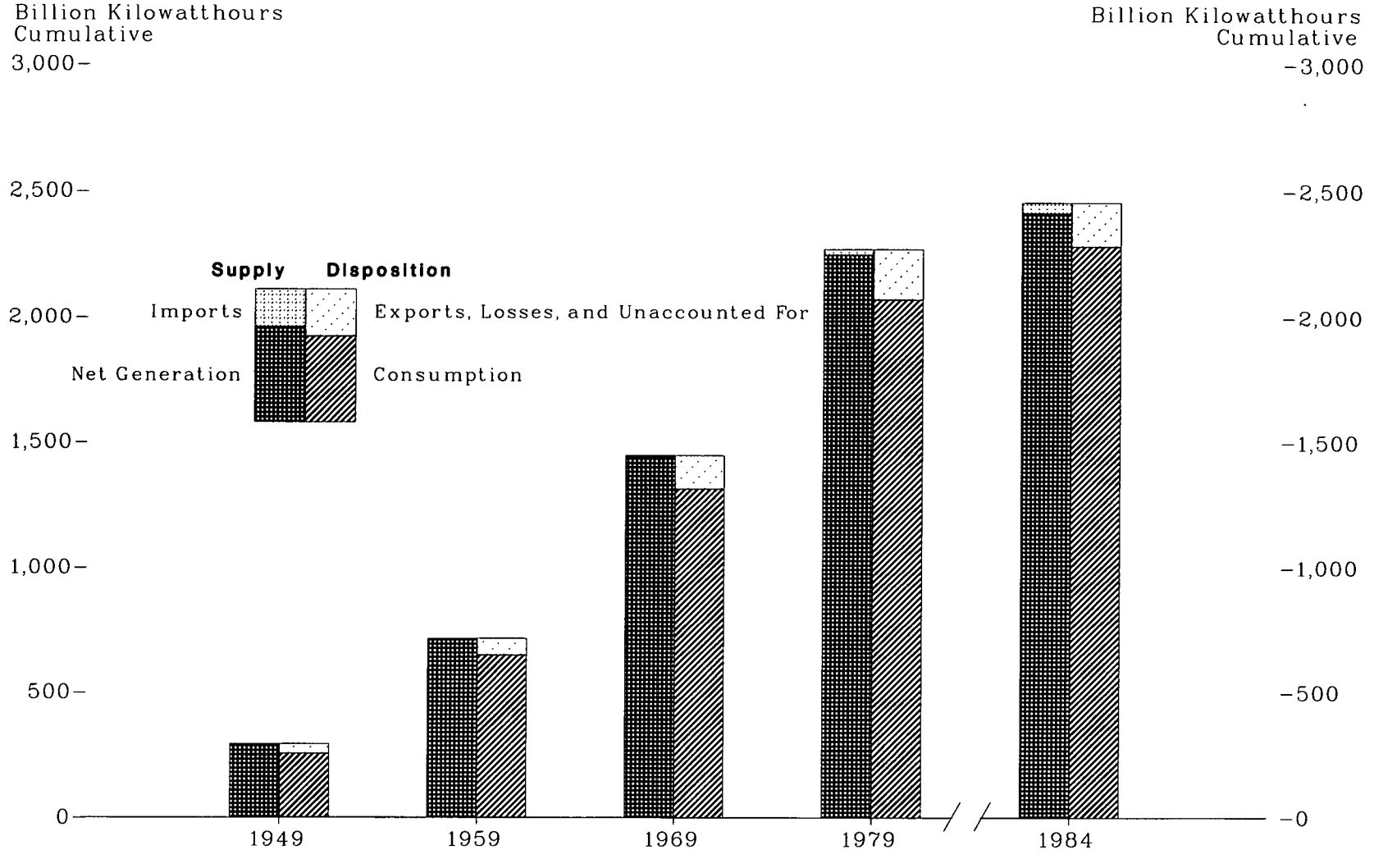


Table 73. Electric Utility Industry Supply and Disposition, 1949-1984

(Billion Kilowatthours)

Year	Supply			Disposition			
	Net Generation [1]	Imports [2]	Total	Exports [2]	Consumption	Losses and Unaccounted For [3]	Total
1949	291	2	293	(4)	255	38	293
1950	329	2	331	(4)	291	39	331
1951	371	2	373	(4)	330	43	373
1952	399	3	402	(4)	356	45	402
1953	443	2	445	(4)	396	48	445
1954	472	3	474	(4)	424	50	474
1955	547	5	552	(4)	497	54	552
1956	601	5	606	1	546	59	606
1957	632	5	636	1	576	59	636
1958	645	4	649	1	588	61	649
1959	710	4	714	1	647	67	714
1960	756	5	761	1	688	72	761
1961	794	3	797	1	722	74	797
1962	855	2	857	2	778	77	857
1963	917	2	919	2	833	84	919
1964	984	6	990	4	896	90	990
1965	1,055	4	1,059	4	954	101	1,059
1966	1,144	4	1,149	3	1,035	110	1,149
1967	1,214	4	1,218	4	1,099	115	1,218
1968	1,329	4	1,333	4	1,203	126	1,333
1969	1,442	5	1,447	4	1,314	129	1,447
1970	1,532	6	1,538	4	1,392	142	1,538
1971	1,613	7	1,620	4	1,470	147	1,620
1972	1,750	10	1,760	3	1,595	162	1,760
1973	1,861	17	1,878	3	1,713	162	1,878
1974	1,867	15	1,883	3	1,706	174	1,883
1975	1,918	11	1,929	5	1,747	177	1,929
1976	2,038	11	2,049	2	1,855	191	2,049
1977	2,124	20	2,144	3	1,948	193	2,144
1978	2,206	21	2,228	1	2,018	208	2,228
1979	2,247	23	2,270	2	2,071	197	2,270
1980	2,286	25	2,311	4	2,094	213	2,311
1981	2,295	36	2,331	3	2,147	181	2,331
1982	2,241	33	2,274	4	2,086	184	2,274
1983	2,310	39	2,349	3	2,151	195	2,349
1984[5]	2,413	42	2,455	4	2,282	169	2,455

[1] See Explanatory Note 1.
[2] Small amounts of electricity are transmitted across U.S. borders with Canada and Mexico.
[3] Balancing item, mainly transmission losses.
[4] Less than 0.5 billion kilowatthours.
[5] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: **Net Generation:** •1949 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report." **Consumption:** •1949 through September 1977—Federal Power Commission, Form 5, "Monthly Statement of Electric Operating Revenue and Income." •October 1977 through February 1980—Federal Energy Regulatory 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 and 1984—Energy Information Administration, Form EIA-826, "Electric Utility Company Monthly Statement." **Imports and Exports:** •1949 through September 1977—unpublished Federal Power Commission data; •October 1977 through 1984—unpublished Economic Regulatory Administration data.

Figure 74. Net Generation of Electricity by the Electric Utility Industry by Type of Energy Source, 1949-1984

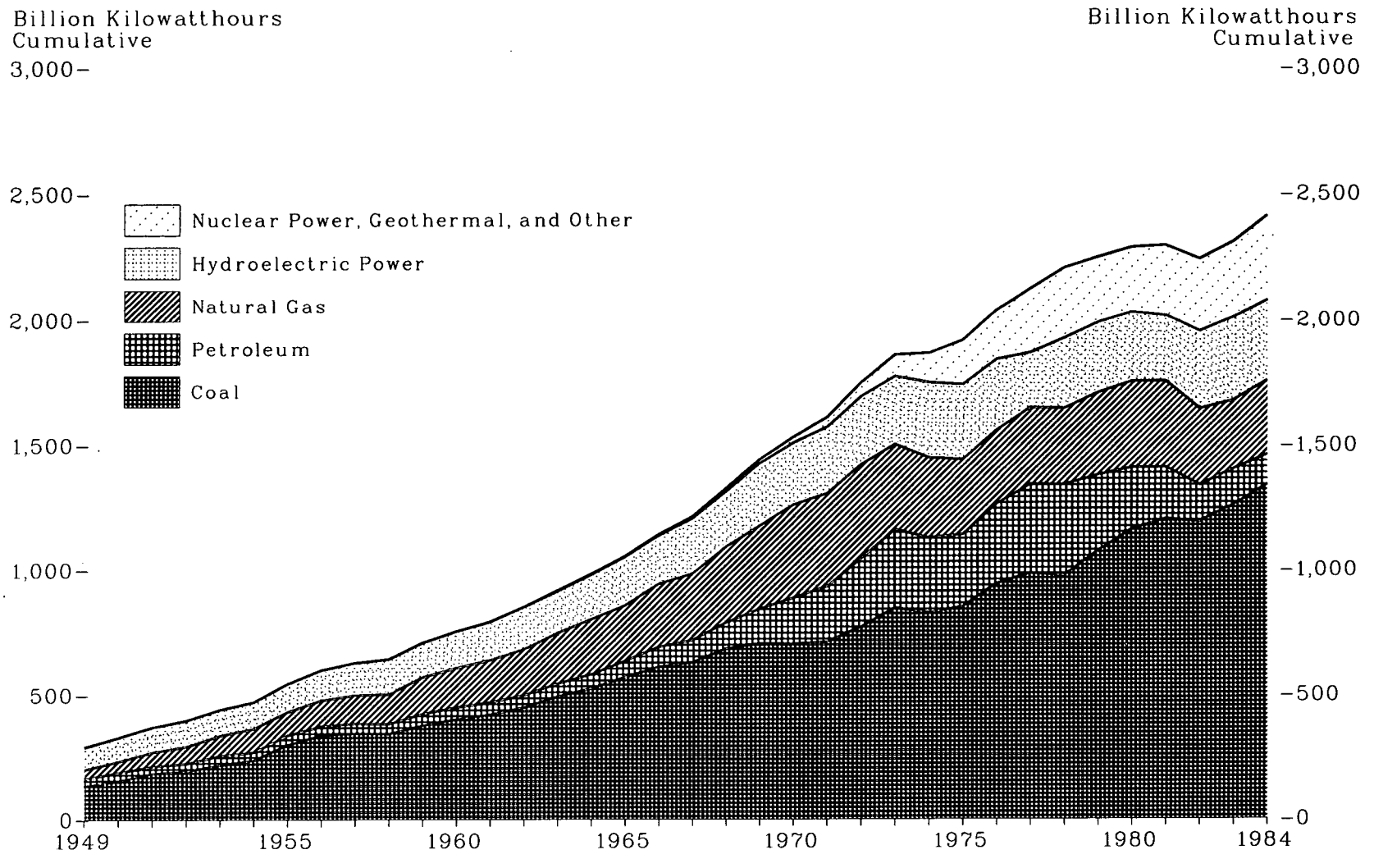


Table 74. Net Generation of Electricity[1] by the Electric Utility Industry by Type of Energy Source, 1949-1984

(Billion Kilowatthours)

Year	Coal	Petroleum [2]	Natural Gas	Nuclear Power	Hydroelectric Power	Geothermal and Other [3]	Total
1949	135	29	37	0	90	(4)	291
1950	155	34	45	0	96	(4)	329
1951	185	29	57	0	100	(4)	371
1952	195	30	68	0	105	(4)	399
1953	219	38	80	0	105	(4)	443
1954	239	32	94	0	107	(4)	472
1955	301	37	95	0	113	(4)	547
1956	339	36	104	0	122	(4)	601
1957	346	40	114	(4)	130	(4)	632
1958	344	40	120	(4)	140	(4)	645
1959	378	47	147	(4)	138	(4)	710
1960	403	48	158	1	146	(4)	756
1961	422	49	169	2	152	(4)	794
1962	450	49	184	2	169	(4)	855
1963	494	52	202	3	166	(4)	917
1964	526	57	220	3	177	(4)	984
1965	571	65	222	4	194	(4)	1,055
1966	613	79	251	6	195	1	1,144
1967	630	89	265	8	222	1	1,214
1968	685	104	304	13	222	1	1,329
1969	706	138	333	14	250	1	1,442
1970	704	184	373	22	248	1	1,532
1971	713	220	374	38	266	1	1,613
1972	771	274	376	54	273	2	1,750
1973	848	314	341	83	272	2	1,861
1974	828	301	320	114	301	3	1,867
1975	853	289	300	173	300	3	1,918
1976	944	320	295	191	284	4	2,038
1977	985	358	306	251	220	4	2,124
1978	976	365	305	276	280	3	2,206
1979	1,075	304	329	255	280	4	2,247
1980	1,162	246	346	251	276	6	2,286
1981	1,203	206	346	273	261	6	2,295
1982	1,192	147	305	283	309	5	2,241
1983	1,259	144	274	294	332	6	2,310
1984[5]	1,341	120	297	325	321	9	2,413

[1] See Explanatory Note 1.
[2] Includes distillate fuel oil, residual fuel oil (including crude oil burned as fuel), jet fuel, and petroleum coke.
[3] Includes generation from electric utilities which use wood, refuse, other vegetal fuels, wind, and solar energy.
[4] Less than 0.5 billion kilowatthours.
[5] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 75. Net Generation of Electricity by the Electric Utility Industry by Prime Mover, 1949-1984

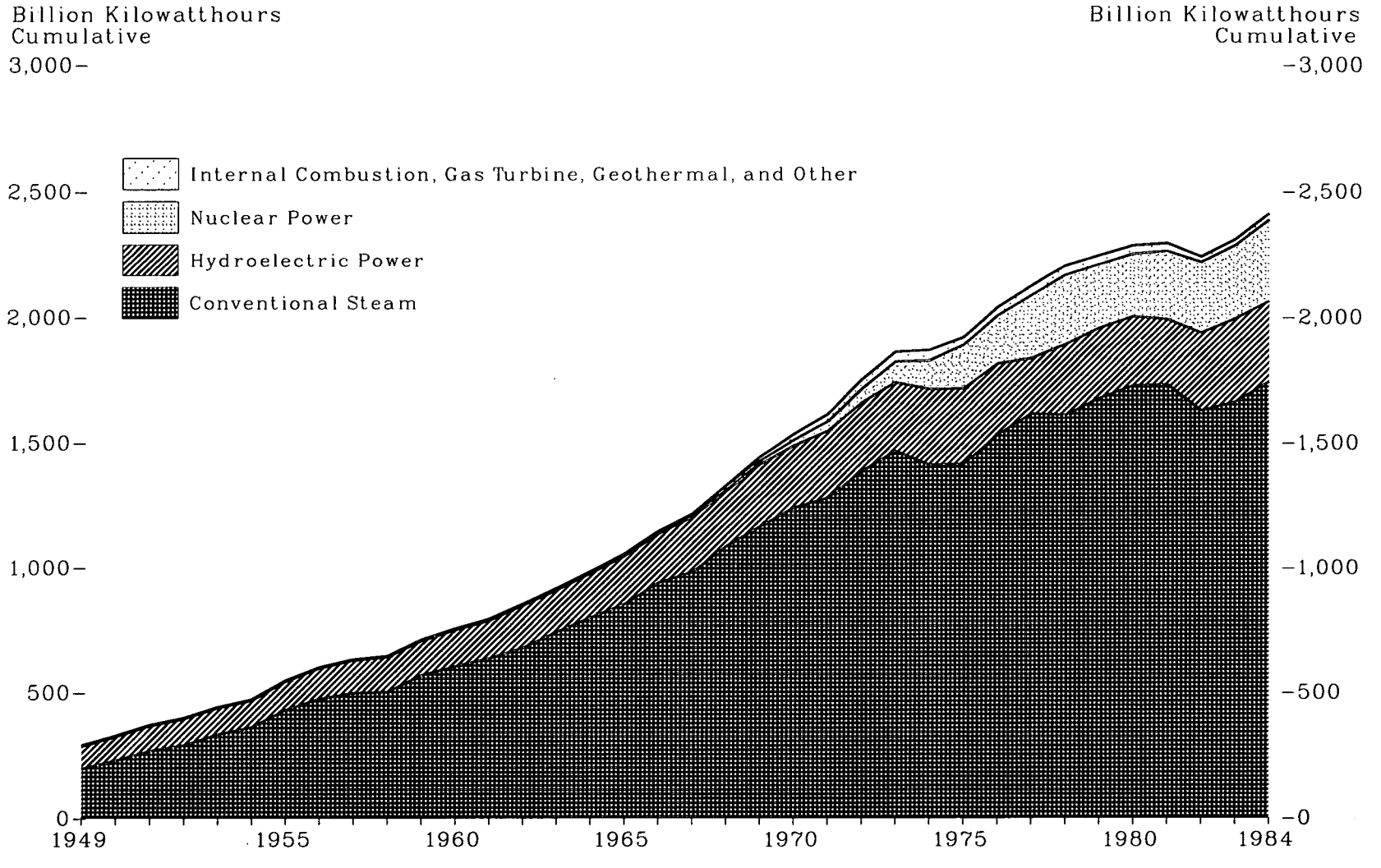


Table 75. Net Generation of Electricity[1] by the Electric Utility Industry by Prime Mover, 1949-1984
(Billion Kilowatthours)

Year	Conventional Steam [2]	Internal Combustion	Gas Turbine	Nuclear Power	Hydroelectric Power	Geothermal and Other [3]	Total
1949	197	3	0	0	90	(4)	291
1950	229	4	0	0	96	(4)	329
1951	267	4	0	0	100	(4)	371
1952	290	4	0	0	105	(4)	399
1953	333	4	0	0	105	(4)	443
1954	361	4	0	0	107	(4)	472
1955	430	4	0	0	113	(4)	547
1956	474	4	0	0	122	(4)	601
1957	497	4	0	(4)	130	(4)	632
1958	500	4	0	(4)	140	(4)	645
1959	567	4	0	(4)	138	(4)	710
1960	603	4	0	1	146	(4)	756
1961	634	5	0	2	152	(4)	794
1962	677	5	0	2	169	(4)	855
1963	742	5	(4)	3	166	(4)	917
1964	798	5	1	3	177	(4)	984
1965	851	5	1	4	194	(4)	1,055
1966	938	5	NA	6	195	1	1,144
1967	980	5	NA	8	222	1	1,214
1968	1,084	5	4	13	222	1	1,329
1969	1,163	6	8	14	250	1	1,442
1970	1,240	6	16	22	248	1	1,532
1971	1,279	6	22	38	266	1	1,613
1972	1,385	7	29	54	273	2	1,750
1973	1,467	7	30	83	272	2	1,861
1974	1,411	6	32	114	301	3	1,867
1975	1,414	6	22	173	300	3	1,918
1976	1,530	5	24	191	284	4	2,038
1977	1,615	5	29	251	220	4	2,124
1978	1,610	5	31	276	280	3	2,206
1979	1,676	4	28	255	280	4	2,247
1980	1,726	4	24	251	276	6	2,286
1981	1,730	3	22	273	261	6	2,295
1982	1,628	2	14	283	309	5	2,241
1983	1,661	2	14	294	332	6	2,310
1984[5]	1,742	2	15	325	321	9	2,413

[1] See Explanatory Note 1.
[2] Excludes geothermal and other.
[3] Includes generation from electric utilities which use wood, refuse, other vegetal fuels, wind, and solar energy.
[4] Less than 0.5 billion kilowatthours.
[5] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 76. Energy Input by Electric Utilities and Electricity Sales, 1949–1984

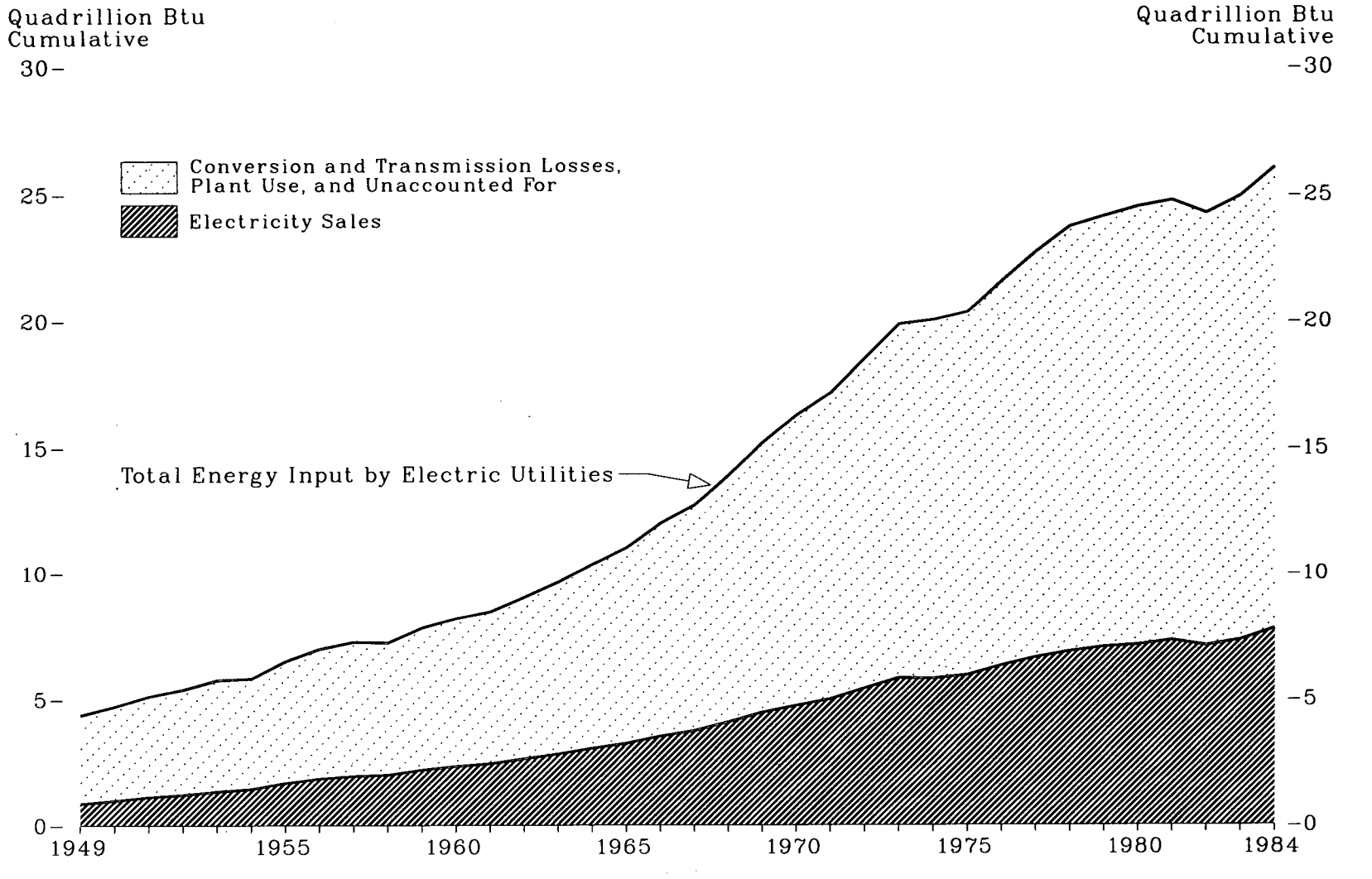


Table 76. Energy Input by Electric Utilities and Electricity Sales, 1949-1984

(Quadrillion Btu)

Year	Input/Generation													Losses and Other [2]		Electricity Sales
	Coal	Natural Gas	Petroleum	Hydroelectric Power [1]		Nuclear Power		Geothermal, Wood, Waste, and Wind		Total						
				Fossil Fuel Equivalent [3]	Electricity Equivalent [4]	Heat Equivalent [5]	Electricity Equivalent [4]	Heat Equivalent [6]	Electricity Equivalent [4]	Fossil Fuel/Heat Equivalent [7]	Electricity Equivalent [8]	Fossil Fuel/Heat Equivalent [9]	Electricity Equivalent [10]	
1949	2.02	0.57	0.41	1.37	0.31	0	0	(11)	(11)	4.38	3.32	3.51	2.45	0.87
1950	2.23	0.65	0.47	1.37	0.33	0	0	(11)	(11)	4.72	3.68	3.73	2.69	0.99
1951	2.53	0.79	0.40	1.39	0.35	0	0	(11)	(11)	5.12	4.07	3.99	2.95	1.13
1952	2.58	0.94	0.42	1.43	0.37	0	0	(11)	(11)	5.39	4.31	4.17	3.10	1.22
1953	2.80	1.07	0.51	1.38	0.37	0	0	(11)	(11)	5.77	4.75	4.42	3.40	1.35
1954	2.86	1.21	0.42	1.33	0.37	0	0	(11)	(11)	5.82	4.86	4.38	3.41	1.45
1955	3.48	1.19	0.47	1.37	0.40	0	0	(11)	(11)	6.52	5.55	4.82	3.85	1.69
1956	3.81	1.28	0.45	1.45	0.43	0	0	(11)	(11)	7.00	5.98	5.14	4.12	1.86
1957	3.88	1.38	0.50	1.52	0.46	(11)	(11)	(11)	(11)	7.28	6.22	5.32	4.25	1.96
1958	3.74	1.42	0.49	1.59	0.49	(11)	(11)	(11)	(11)	7.24	6.14	5.24	4.13	2.01
1959	4.05	1.69	0.55	1.55	0.48	(11)	(11)	(11)	(11)	7.84	6.77	5.63	4.56	2.21
1960	4.25	1.79	0.55	1.62	0.51	0.01	(11)	(11)	(11)	8.21	7.10	5.86	4.75	2.35
1961	4.37	1.89	0.56	1.64	0.53	0.02	0.01	(11)	(11)	8.49	7.35	6.02	4.89	2.46
1962	4.64	2.03	0.56	1.79	0.58	0.03	0.01	(11)	(11)	9.05	7.82	6.39	5.16	2.65
1963	5.06	2.21	0.58	1.74	0.57	0.04	0.01	0.01	(11)	9.64	8.44	6.80	5.60	2.84
1964	5.39	2.40	0.63	1.87	0.61	0.04	0.01	0.01	(11)	10.34	9.05	7.29	5.99	3.06
1965	5.84	2.40	0.72	2.02	0.66	0.04	0.01	0.01	(11)	11.03	9.63	7.77	6.37	3.25
1966	6.32	2.70	0.88	2.04	0.67	0.06	0.02	0.01	(11)	12.01	10.58	8.47	7.05	3.53
1967	6.46	2.83	1.01	2.31	0.75	0.09	0.03	0.01	(11)	12.71	11.09	8.96	7.33	3.75
1968	7.01	3.25	1.18	2.31	0.76	0.14	0.04	0.01	(11)	13.89	12.24	9.79	8.13	4.10
1969	7.23	3.60	1.57	2.62	0.86	0.15	0.05	0.02	(11)	15.19	13.30	10.71	8.82	4.48
1970	7.24	4.05	2.12	2.62	0.85	0.24	0.07	0.02	(11)	16.28	14.34	11.53	9.59	4.75
1971	7.31	4.10	2.49	2.83	0.92	0.41	0.13	0.02	(11)	17.16	14.96	12.14	9.94	5.01
1972	7.82	4.08	3.10	2.91	0.96	0.58	0.18	0.03	0.01	18.53	16.15	13.09	10.71	5.44
1973	8.66	3.75	3.51	2.98	0.98	0.91	0.28	0.05	0.01	19.85	17.19	14.01	11.35	5.84
1974	8.53	3.52	3.36	3.28	1.07	1.27	0.39	0.06	0.01	20.02	16.89	14.20	11.07	5.82
1975	8.79	3.24	3.17	3.19	1.04	1.90	0.59	0.07	0.01	20.35	16.84	14.39	10.88	5.96
1976	9.72	3.15	3.48	3.03	1.00	2.11	0.65	0.08	0.01	21.57	18.01	15.24	11.68	6.33
1977	10.26	3.28	3.90	2.48	0.81	2.70	0.86	0.08	0.01	22.71	19.13	16.07	12.48	6.65
1978	10.24	3.30	3.99	3.11	1.02	3.02	0.94	0.07	0.01	23.72	19.50	16.84	12.62	6.89
1979	11.26	3.61	3.28	3.11	1.02	2.78	0.87	0.09	0.01	24.13	20.07	17.06	13.00	7.07
1980	12.12	3.81	2.63	3.08	1.01	2.74	0.86	0.11	0.02	24.50	20.46	17.36	13.31	7.15
1981	12.58	3.77	2.20	3.07	1.00	3.01	0.93	0.13	0.02	24.76	20.51	17.43	13.18	7.33
1982	12.58	3.34	1.57	3.53	1.16	3.13	0.96	0.11	0.02	24.26	19.63	17.14	12.51	7.12
1983	13.21	3.00	1.54	3.84	1.25	3.20	1.00	0.13	0.02	24.93	20.03	17.59	12.69	7.34
1984[12]	14.09	3.21	1.29	3.75	1.23	3.55	1.11	0.17	0.03	26.05	20.95	18.27	13.16	7.79

[1] Includes net imports of electricity. [2] Conversion and transmission losses, plant use, and unaccounted for. [3] The equivalent of fossil fuel energy required to generate the electricity distributed using the average fossil fuel steam electric plant thermal efficiency. See Units of Measure and Conversion Factors section for factors to convert physical unit data into Btu. [4] The equivalent amount of heat that could be produced by the electricity distributed using the conversion factor 3,412 Btu per kilowatthour. [5] The amount of heat released in reactors by fissioning uranium at electric utilities. [6] Includes for geothermal plants the heat content of the steam consumed and for wood, waste, wind and solar plants the fossil fuel equivalent using national average heat rate for fossil fuel steam electric plants. See Units of Measure and Conversion Factors section for factors to convert physical unit data into Btu. [7] Total of fossil fuels and the fossil fuel/heat equivalent of non-fossil fuel energy sources. [8] Total of fossil fuels and electricity equivalent of non-fossil fuel energy sources. [9] Balancing item, the difference between Total Fossil Fuel/Heat Equivalent and Electricity Sales, see Explanatory Note 17. [10] Balancing item, the difference between Total Electricity Equivalent and Electricity Sales. [11] Less than 0.005 quadrillion Btu. [12] Preliminary. Note: Sum of components may not equal total due to independent rounding. Source: See sources for Tables 75, 77, and 78 and conversion factors in the Units of Measure and Conversion Factors section.

Figure 77. Fossil Fuels Consumed by the Electric Utility Industry to Generate Electricity, 1949-1984

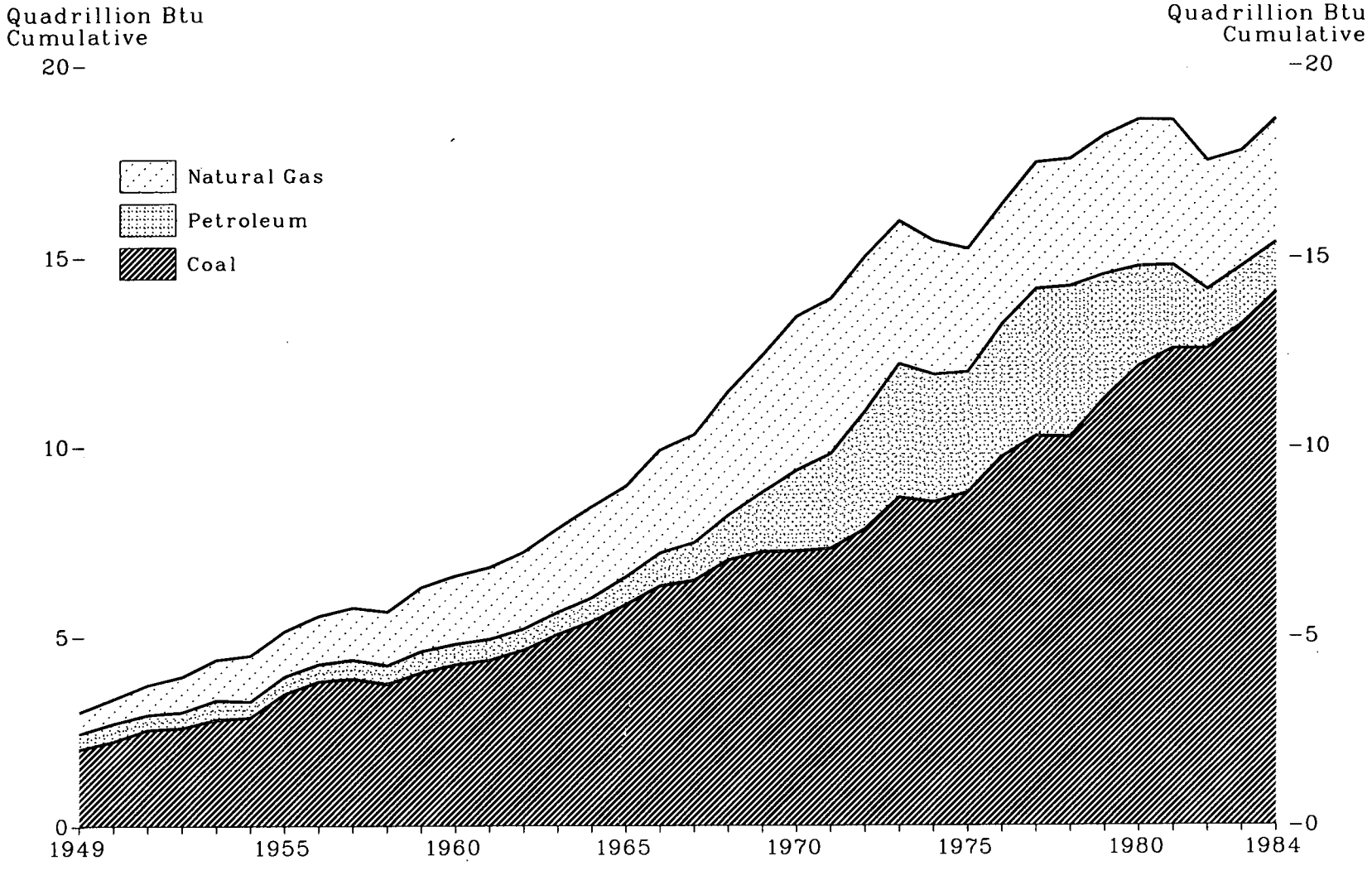


Table 77. Fossil Fuels Consumed by the Electric Utility Industry to Generate Electricity, 1949-1984

Year	Coal		Petroleum [1]		Natural Gas		Total
	(million short tons)	(quadrillion Btu)	(million barrels)	(quadrillion Btu)	(billion cubic feet)	(quadrillion Btu)	(quadrillion Btu)
1949	84.0	2.02	66.3	0.41	550	0.57	3.00
1950	91.9	2.23	75.4	0.47	629	0.65	3.35
1951	105.8	2.53	63.9	0.40	764	0.79	3.72
1952	107.1	2.58	67.2	0.42	910	0.94	3.95
1953	115.9	2.80	82.2	0.51	1,034	1.07	4.39
1954	118.4	2.86	66.7	0.42	1,165	1.21	4.49
1955	143.8	3.48	75.3	0.47	1,153	1.19	5.15
1956	158.3	3.81	72.7	0.45	1,239	1.28	5.55
1957	160.8	3.88	79.7	0.50	1,336	1.38	5.76
1958	155.7	3.74	77.7	0.49	1,373	1.42	5.65
1959	168.4	4.05	88.3	0.55	1,629	1.69	6.28
1960	176.7	4.25	88.2	0.55	1,725	1.79	6.58
1961	182.2	4.37	88.9	0.56	1,825	1.89	6.82
1962	193.3	4.64	89.3	0.56	1,966	2.03	7.23
1963	211.3	5.06	93.3	0.58	2,144	2.21	7.86
1964	225.4	5.39	101.1	0.63	2,323	2.40	8.42
1965	244.8	5.84	115.2	0.72	2,321	2.40	8.95
1966	266.5	6.32	140.9	0.88	2,610	2.70	9.89
1967	274.2	6.46	161.3	1.01	2,746	2.83	10.30
1968	297.8	7.01	188.6	1.18	3,148	3.25	11.43
1969	310.6	7.23	251.0	1.57	3,488	3.60	12.40
1970	320.2	7.24	338.7	2.12	3,932	4.05	13.41
1971	327.3	7.31	399.5	2.49	3,976	4.10	13.90
1972	351.8	7.82	496.9	3.10	3,977	4.08	15.00
1973	389.2	8.66	562.8	3.51	3,660	3.75	15.92
1974	391.8	8.53	539.4	3.36	3,443	3.52	15.42
1975	406.0	8.79	506.5	3.17	3,158	3.24	15.19
1976	448.4	9.72	556.3	3.48	3,081	3.15	16.35
1977	477.1	10.26	624.2	3.90	3,191	3.28	17.45
1978	481.2	10.24	637.8	3.99	3,188	3.30	17.52
1979	527.1	11.26	524.6	3.28	3,491	3.61	18.16
1980	569.3	12.12	421.1	2.63	3,682	3.81	18.57
1981	596.8	12.58	351.8	2.20	3,640	3.77	18.55
1982	593.7	12.58	250.5	1.57	3,226	3.34	17.49
1983	625.2	13.21	246.8	1.54	2,911	3.00	17.75
1984[2]	664.3	14.09	205.8	1.29	3,113	3.21	18.58

[1] These data are petroleum consumed by electric utilities and do not equate to petroleum supplied to (or delivered to) electric utilities. Included are residual fuel oil (including crude oil burned as fuel), distillate fuel oil, jet fuel, and petroleum coke, which is reported in short tons, and has been converted to barrels at a rate of 5 barrels per short ton.

[2] Preliminary.

Note: Sum of components may not equal total due to independent rounding.

Sources: •1949 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 78. Sales of Electric Utility Electricity to End-Use Sectors, 1949-1984

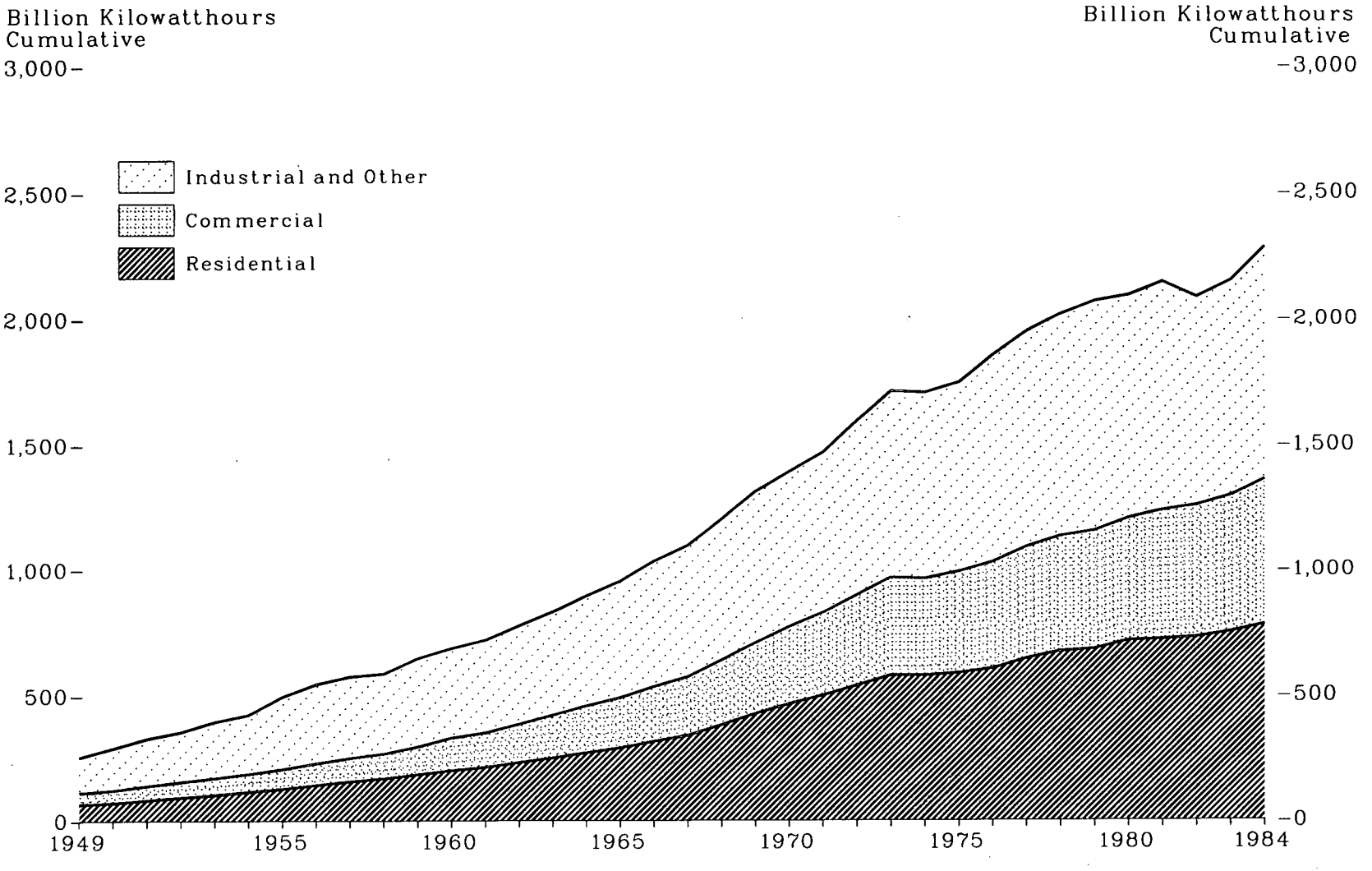


Table 78. Sales of Electric Utility Electricity to End-Use Sectors,[1] 1949-1984

(Billion Kilowatthours)

Year	Residential	Commercial	Industrial	Other	Total
1949	67	45	123	20	255
1950	72	51	146	22	291
1951	83	57	166	24	330
1952	94	62	176	24	356
1953	104	67	199	26	396
1954	116	72	208	27	424
1955	128	79	260	29	497
1956	143	87	286	30	546
1957	157	94	294	31	576
1958	169	100	287	32	588
1959	185	112	315	36	647
1960	201	131	324	32	688
1961	214	138	337	32	722
1962	233	153	360	32	778
1963	251	171	377	34	833
1964	272	187	405	32	896
1965	291	200	429	34	954
1966	317	218	464	37	1,035
1967	340	234	485	40	1,099
1968	382	258	521	42	1,203
1969	427	282	559	46	1,314
1970	466	307	571	48	1,392
1971	500	329	589	51	1,470
1972	539	359	641	56	1,595
1973	579	388	686	59	1,713
1974	578	385	685	58	1,706
1975	588	403	688	68	1,747
1976	606	425	754	70	1,855
1977	645	447	786	71	1,948
1978	674	461	809	73	2,018
1979	683	473	842	73	2,071
1980	717	488	815	74	2,094
1981	722	514	826	85	2,147
1982	730	526	745	86	2,086
1983	751	544	776	80	2,151
1984[2]	780	579	842	82	2,282

[1] See Explanatory Note 11.
[2] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 through September 1977—Federal Power Commission, FPC Form 5, "Monthly Statement of Electric Operating Revenue and Income." •October 1977 through February 1980—Federal Energy Regulatory Commission, FPC Form 5, "Monthly Statement of Electric Operating Revenue and Income." March 1980 through 1982—Federal Energy Regulatory Commission, FPC Form 5, "Electric Utility Company Monthly Statement." •1983 and 1984—Energy Information Administration, Form EIA-826, "Electric Utility Company Monthly Statement."

Figure 79. Installed Nameplate Capacity of the Electric Utility Industry, Yearend 1949-1984

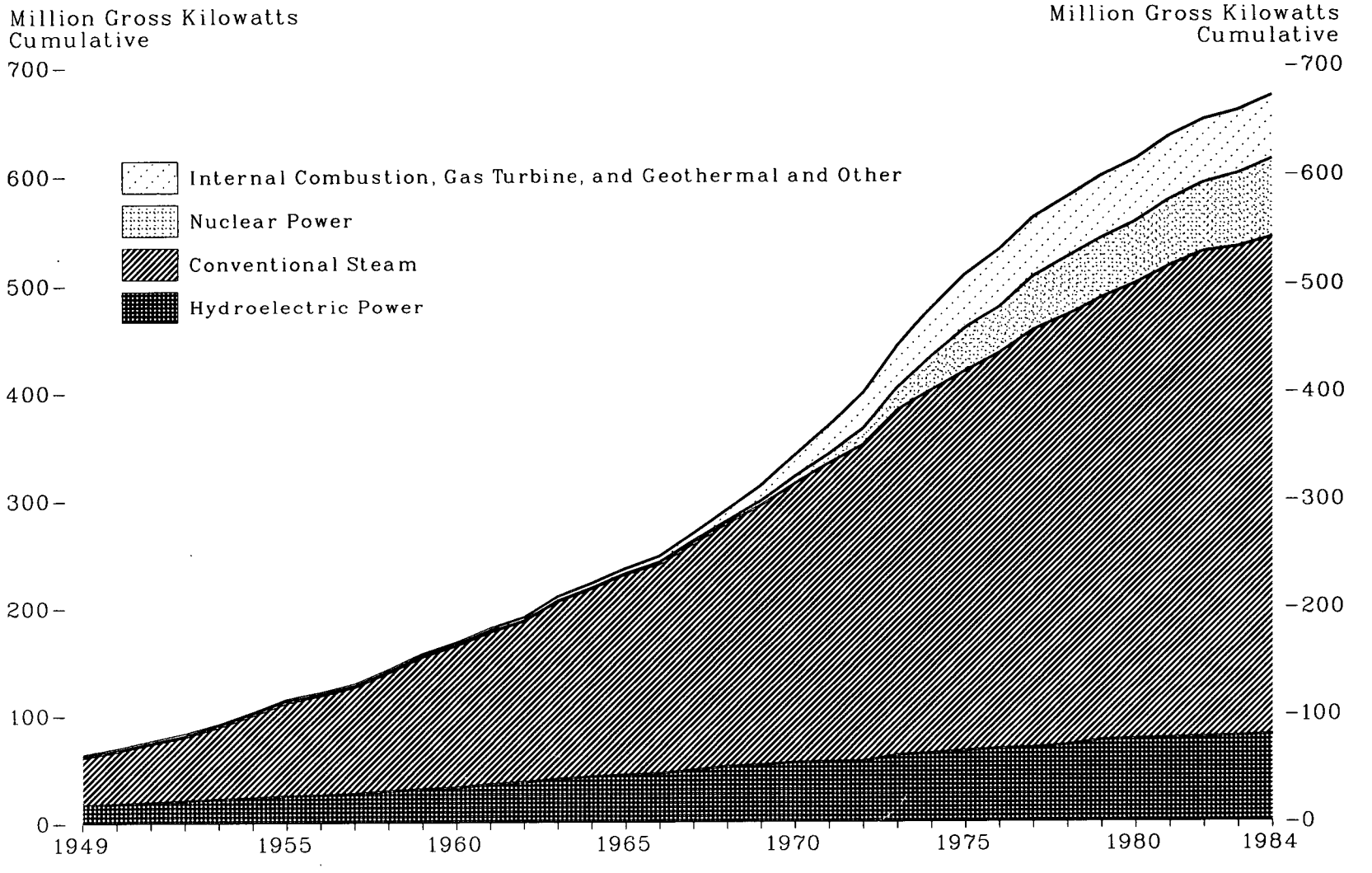


Table 79. Installed Nameplate Capacity of the Electric Utility Industry, Yearend 1949-1984

(Million Gross Kilowatts)

Year	Conventional Steam [1]	Internal Combustion	Gas Turbine	Nuclear Power	Hydroelectric Power	Geothermal and Other [2]	Total
1949	44.6	1.8	0	0	16.7	0	63.1
1950	49.3	1.9	0	0	17.7	0	68.9
1951	54.9	2.0	0	0	18.9	0	75.8
1952	59.7	2.1	0	0	20.4	0	82.2
1953	67.2	2.2	0	0	22.0	0	91.5
1954	77.1	2.3	0	0	23.2	0	102.6
1955	87.1	2.4	0	0	25.0	0	114.5
1956	92.6	2.5	0	0	25.7	0	120.7
1957	99.4	2.5	0	0.1	27.0	0	129.1
1958	110.5	2.6	0	0.1	29.4	0	142.6
1959	123.0	2.7	0	0.1	31.1	0	156.8
1960	132.1	2.8	0	0.3	32.4	[3]	168.0
1961	141.8	3.0	0	0.4	35.5	[3]	180.7
1962	150.0	3.0	0	0.7	37.3	[3]	191.1
1963	165.7	3.2	0.6	0.7	40.2	[3]	210.5
1964	175.0	3.3	0.9	0.9	42.2	[3]	222.3
1965	186.6	3.4	1.4	0.9	43.8	[3]	236.1
1966	195.4	3.5	2.0	1.9	45.0	[3]	247.8
1967	211.1	3.8	3.3	2.9	48.1	0.1	269.3
1968	226.8	4.0	6.2	2.8	51.2	0.1	291.1
1969	242.2	4.2	10.1	4.0	52.8	0.1	313.3
1970	260.0	4.4	15.5	6.5	55.1	0.1	341.6
1971	277.8	4.5	21.9	8.7	55.9	0.2	368.9
1972	294.1	4.8	27.7	15.3	56.4	0.3	398.6
1973	320.6	5.0	33.4	21.0	62.0	0.4	442.4
1974	337.3	5.0	39.6	31.6	63.6	0.4	477.6
1975	352.9	5.1	44.1	39.8	65.9	0.6	508.3
1976	367.9	5.3	46.6	42.9	67.7	0.6	531.0
1977	387.8	5.3	47.9	49.9	68.7	0.6	560.2
1978	399.5	5.5	49.0	53.5	71.0	0.6	579.2
1979	411.6	5.5	50.6	54.6	75.3	0.7	598.3
1980	423.5	5.5	50.6	56.5	76.4	1.0	613.5
1981	438.9	5.6	51.4	60.8	77.1	1.0	634.8
1982	450.9	5.1	51.8	63.0	78.1	1.1	650.1
1983	454.2	5.0	51.6	67.1	79.0	1.3	658.2
1984[4]	461.7	4.8	51.8	71.7	80.5	1.4	672.0

[1] Excludes capacity of geothermal and solar plants; includes capacity at plants that produce steam from coal, petroleum, natural gas, and biomass.
[2] Includes wind and solar energy.
[3] Less than 0.05 million kilowatts.
[4] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 80. Coal and Petroleum Stocks at Electric Utilities, Yearend 1949–1984

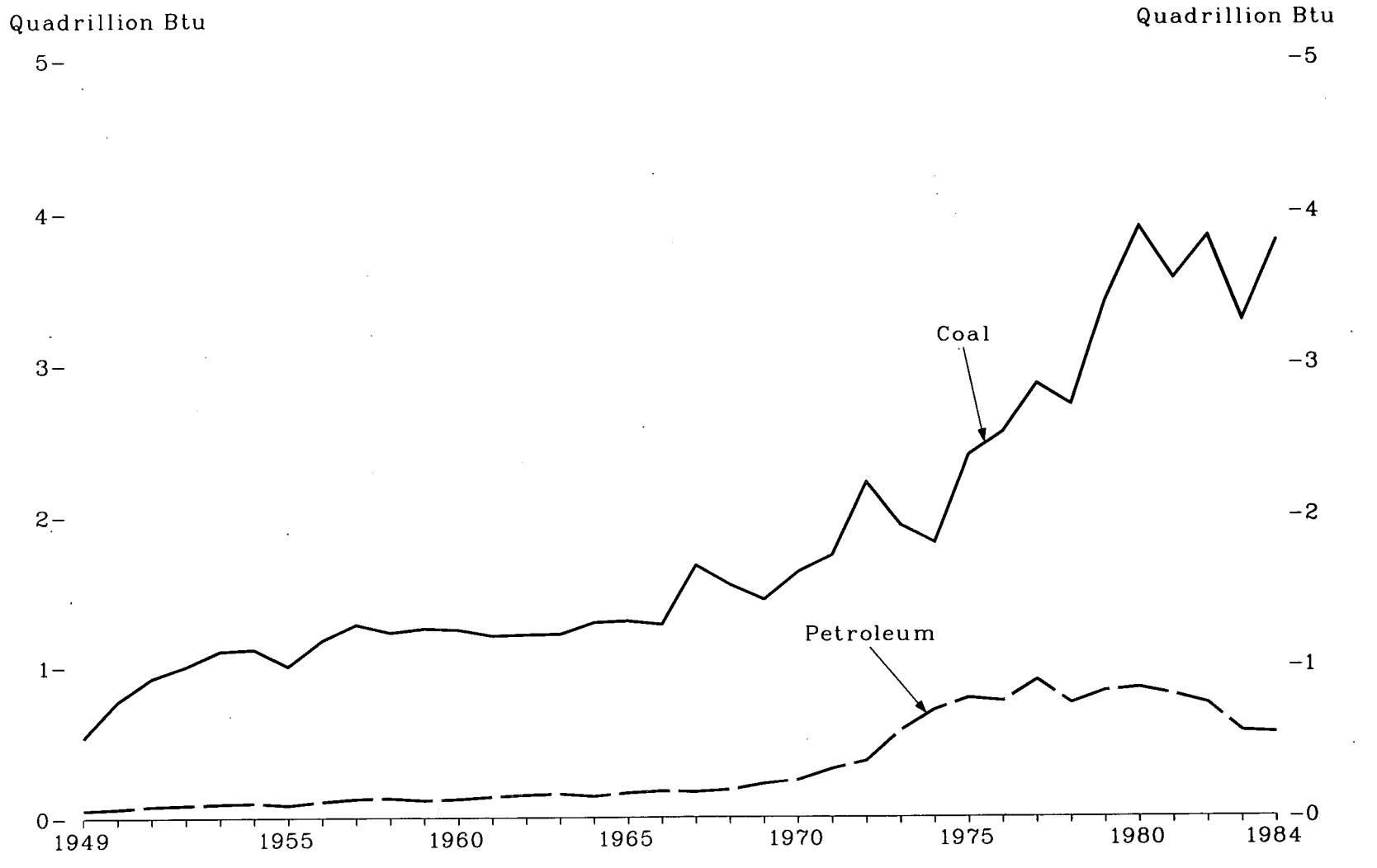


Table 80. Coal and Petroleum Stocks at Electric Utilities, Yearend 1949-1984

Year	Coal				Petroleum			
	Anthracite	Bituminous Coal [1] and Lignite	Total		Oil [2]	Petroleum Coke [3]	Total	
	(million short tons)		(million short tons)	(trillion Btu)	(million barrels)		(million barrels)	(trillion Btu)
1949	4.3	17.8	22.1	530	8.6	NA	8.6	54
1950	4.7	27.1	31.8	771	10.2	NA	10.2	64
1951	5.1	33.4	38.5	923	12.8	NA	12.8	80
1952	5.6	35.9	41.5	1,001	13.7	NA	13.7	86
1953	5.9	39.8	45.6	1,104	15.0	NA	15.0	94
1954	6.4	39.7	46.1	1,115	15.9	NA	15.9	99
1955	3.2	38.2	41.4	1,002	13.7	NA	13.7	85
1956	2.8	46.0	48.8	1,174	17.3	NA	17.3	108
1957	2.8	50.3	53.1	1,280	20.1	NA	20.1	126
1958	2.2	48.8	51.0	1,225	20.8	NA	20.8	130
1959	2.0	50.1	52.1	1,253	18.5	NA	18.5	116
1960	1.8	49.9	51.7	1,243	19.6	NA	19.6	123
1961	1.5	48.6	50.1	1,202	22.0	NA	22.0	138
1962	1.4	49.0	50.4	1,209	23.8	NA	23.8	149
1963	1.3	49.3	50.6	1,213	24.9	NA	24.9	156
1964	1.2	52.7	53.9	1,290	22.4	NA	22.4	140
1965	1.1	53.4	54.5	1,300	25.6	NA	25.6	161
1966	1.0	52.9	53.9	1,277	27.4	NA	27.4	172
1967	1.3	69.7	71.0	1,672	26.7	NA	26.7	167
1968	1.3	64.2	65.5	1,541	28.7	NA	28.7	180
1969	1.3	60.6	61.9	1,440	35.3	NA	35.3	221
1970	1.1	70.8	71.9	1,626	38.0	1.2	39.2	245
1971	1.1	76.7	77.8	1,737	49.6	1.5	51.1	319
1972	0.9	98.8	99.7	2,217	57.7	1.4	59.1	368
1973	1.1	85.9	87.0	1,935	89.2	1.6	90.8	567
1974	0.9	82.6	83.5	1,819	112.9	0.2	113.1	705
1975	1.0	109.7	110.7	2,396	125.3	0.2	125.4	784
1976	1.0	116.4	117.4	2,546	121.7	0.2	121.9	762
1977	2.3	130.9	133.2	2,865	144.0	0.2	144.3	901
1978	2.2	126.0	128.2	2,728	118.8	1.0	119.8	749
1979	3.3	156.4	159.7	3,412	131.4	0.9	132.3	828
1980	4.7	178.3	183.0	3,897	135.4	0.3	135.6	848
1981	5.5	163.4	168.9	3,561	128.1	0.2	128.3	803
1982	6.1	175.1	181.1	3,839	118.9	0.2	119.1	745
1983	6.5	149.1	155.6	3,288	89.4	0.3	89.7	561
1984[4]	6.7	173.0	179.7	3,812	87.5	0.3	87.8	549

[1] Includes subbituminous coal.
[2] Includes residual fuel oil (including crude oil burned as fuel), distillate fuel oil, and jet fuel.
[3] Petroleum coke, which is reported in short tons, has been converted to barrels at a rate of 5 barrels per short ton.
[4] Preliminary.
NA = Not available.
Note: Sum of components may not equal total due to independent rounding.
Sources: •1949 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 and forward—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 81. Residential Weighted Average Monthly Electric Bill, January 1, 1949–1984

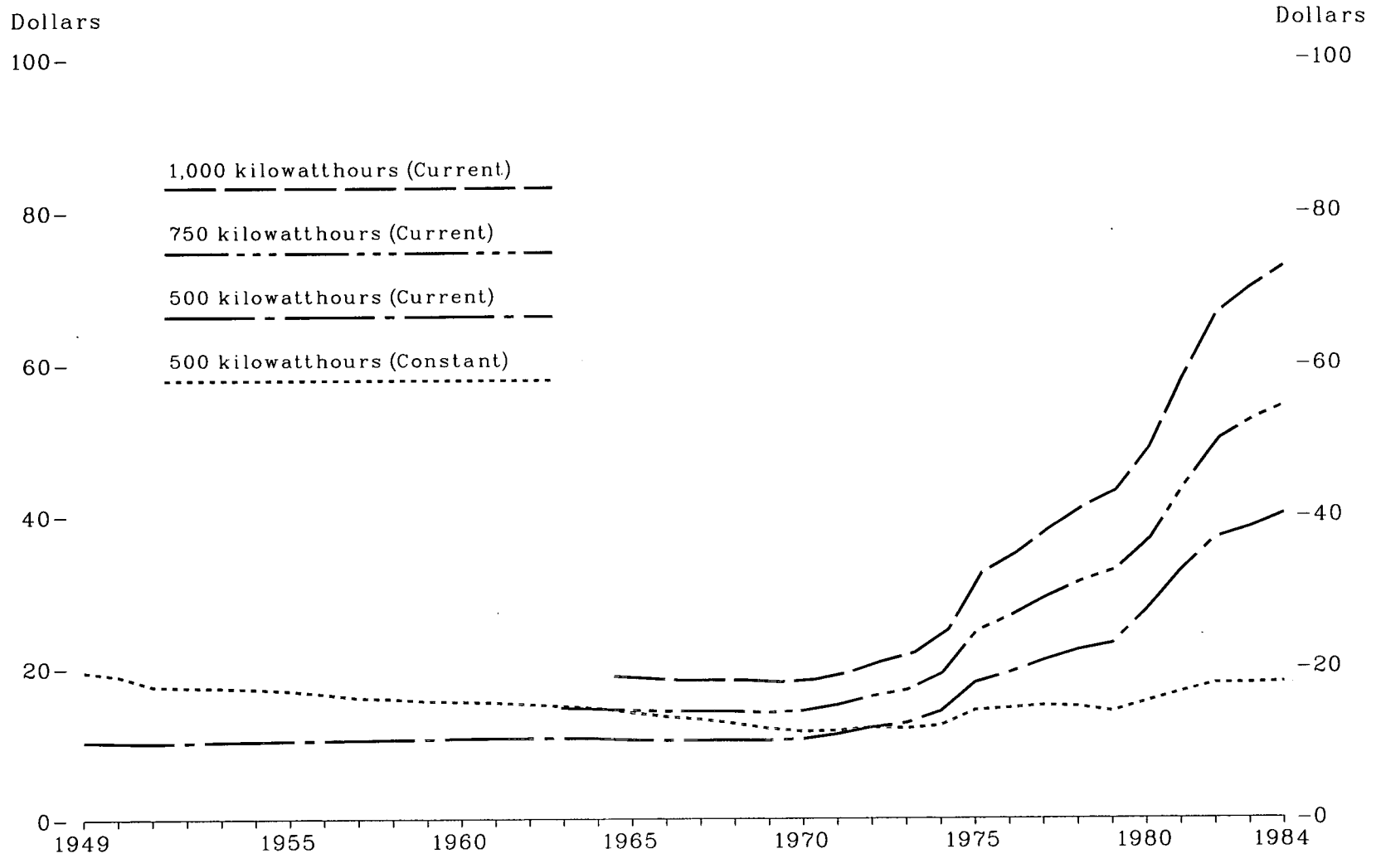


Table 81. Residential Weighted Average Monthly Electric Bill, January 1, 1949-1984

(Dollars)

Year	500 kWh [1]		750 kWh [2]		1,000 kWh [3]	
	Current	Constant [4]	Current	Constant [4]	Current	Constant [4]
1949	10.22	19.47	NA	NA	NA	NA
1950	10.11	18.88	NA	NA	NA	NA
1951	10.02	17.55	NA	NA	NA	NA
1952	10.08	17.40	NA	NA	NA	NA
1953	10.20	17.34	NA	NA	NA	NA
1954	10.23	17.18	NA	NA	NA	NA
1955	10.30	16.93	NA	NA	NA	NA
1956	10.36	16.50	NA	NA	NA	NA
1957	10.39	16.00	NA	NA	NA	NA
1958	10.47	15.85	NA	NA	NA	NA
1959	10.51	15.55	NA	NA	NA	NA
1960	10.62	15.46	NA	NA	NA	NA
1961	10.64	15.35	NA	NA	NA	NA
1962	10.66	15.10	NA	NA	NA	NA
1963	10.64	14.85	14.65	20.44	NA	NA
1964	10.61	14.58	14.51	19.94	18.86	25.92
1965	10.41	14.00	14.34	19.28	18.59	25.00
1966	10.34	13.47	14.19	18.49	18.32	23.87
1967	10.37	13.12	14.21	17.97	18.32	23.17
1968	10.37	12.56	14.16	17.16	18.27	22.13
1969	10.32	11.89	13.97	16.10	18.03	20.77
1970	10.51	11.49	14.22	15.55	18.31	20.02
1971	11.13	11.59	14.99	15.61	19.24	20.04
1972	11.99	11.99	16.14	16.14	20.70	20.70
1973	12.56	11.88	16.96	16.04	21.85	20.66
1974	14.10	12.25	19.14	16.63	24.85	21.59
1975	17.93	14.25	24.72	19.65	32.29	25.67
1976	19.26	14.55	26.78	20.24	34.85	26.33
1977	20.86	14.89	29.22	20.86	38.15	27.24
1978	22.19	14.75	31.23	20.76	40.98	27.24
1979	23.05	14.10	32.72	20.02	43.12	26.39
1980	27.50	15.41	36.93	20.70	48.79	27.35
1981	32.61	16.67	43.99	22.49	58.16	29.73
1982	36.96	17.82	50.07	24.14	66.39	32.01
1983	38.35	17.81	52.74	24.49	69.96	32.49
1984	40.18	17.98	54.76	24.51	72.77	32.57

[1] Weighted average monthly bill of residential consumers of 500 kilowatthours.
[2] Weighted average monthly bill of residential consumers of 750 kilowatthours.
[3] Weighted average monthly bill of residential consumers of 1,000 kilowatthours.
[4] Constant 1972 dollars calculated using GNP implicit price deflator, 1972 = 100. See Energy Equivalents and Price Deflators section.
NA = Not available.

Note: The U.S. average is calculated by multiplying the bill for each city included in the typical bill report by the city's population and dividing the sum of the products for all cities by the sum of their populations. Bills are based on rates, fuel adjustments, and taxes in effect January 1 of each year.

Sources: •1949 through September 1977—Federal Power Commission, Form 3, "Typical Net Monthly Bills." •October 1977 through June 1979—Federal Energy Regulatory Commission, FPC Form 3, "Typical Net Monthly Bills." •July 1979 through 1984—Energy Information Administration, Form 213, "Typical Net Monthly Bills."

Figure 82. Average Price of Electricity Sold by the Electric Utility Industry to End-Use Sectors, 1960-1984

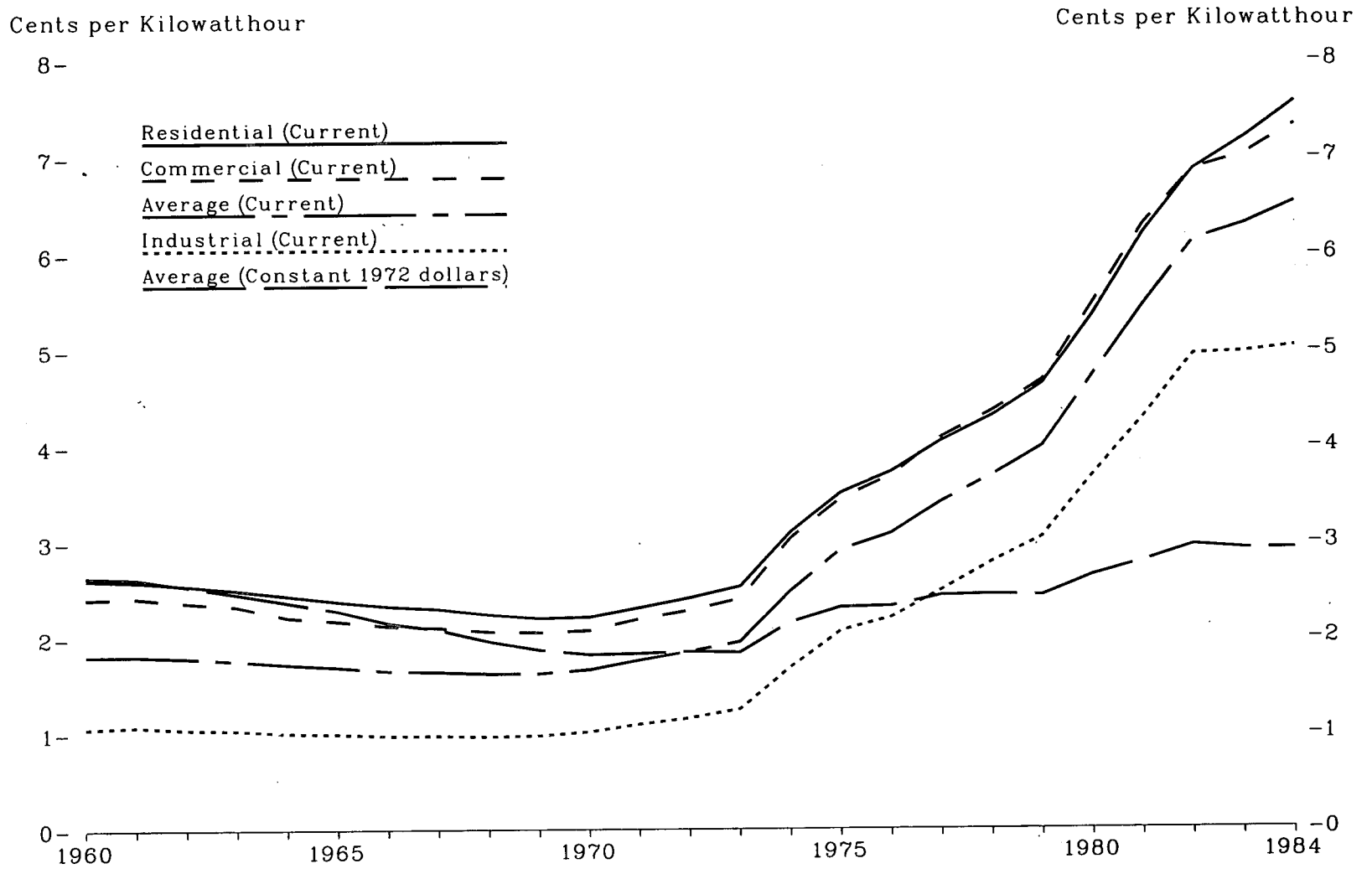


Table 82. Average Price of Electricity Sold by the Electric Utility Industry[1] to End-Use Sectors, 1960-1984

(Cents per Kilowatthour)

Year	Residential		Commercial		Industrial		Other		Weighted Average	
	Current	Constant[2]	Current	Constant[2]	Current	Constant[2]	Current	Constant[2]	Current	Constant[2]
1960	2.62	3.81	2.42	3.52	1.06	1.54	1.91	2.78	1.82	2.65
1961	2.60	3.75	2.43	3.50	1.08	1.56	1.83	2.64	1.82	2.63
1962	2.56	3.63	2.38	3.37	1.05	1.49	1.86	2.63	1.80	2.55
1963	2.51	3.50	2.34	3.26	1.04	1.45	1.83	2.55	1.77	2.47
1964	2.45	3.37	2.22	3.05	1.01	1.39	1.83	2.51	1.73	2.38
1965	2.39	3.21	2.18	2.93	1.00	1.34	1.82	2.45	1.70	2.29
1966	2.34	3.05	2.13	2.77	0.98	1.28	1.80	2.34	1.66	2.16
1967	2.31	2.92	2.11	2.67	0.98	1.24	1.76	2.23	1.65	2.09
1968	2.25	2.73	2.07	2.51	0.97	1.18	1.76	2.13	1.63	1.97
1969	2.21	2.55	2.06	2.37	0.98	1.13	1.74	2.00	1.63	1.88
1970	2.22	2.43	2.08	2.27	1.02	1.12	1.80	1.97	1.67	1.83
1971	2.32	2.42	2.20	2.29	1.10	1.15	1.91	1.99	1.77	1.84
1972	2.42	2.42	2.29	2.29	1.16	1.16	1.98	1.98	1.86	1.86
1973	2.54	2.40	2.41	2.28	1.25	1.18	2.10	1.99	1.96	1.85
1974	3.10	2.69	3.04	2.64	1.69	1.47	2.75	2.39	2.49	2.16
1975	3.51	2.79	3.45	2.74	2.07	1.65	3.08	2.45	2.92	2.32
1976	3.73	2.82	3.69	2.79	2.21	1.67	3.27	2.47	3.09	2.33
1977	4.05	2.89	4.09	2.92	2.50	1.79	3.51	2.51	3.42	2.44
1978	4.31	2.87	4.36	2.90	2.79	1.85	3.62	2.41	3.69	2.45
1979	4.64	2.84	4.68	2.86	3.05	1.87	3.96	2.42	3.99	2.44
1980	5.36	3.00	5.48	3.07	3.69	2.07	4.76	2.67	4.73	2.65
1981	6.20	3.17	6.29	3.22	4.29	2.19	5.28	2.70	5.46	2.79
1982	6.86	3.31	6.86	3.31	4.95	2.39	5.92	2.85	6.13	2.96
1983	7.18	3.33	7.01	3.26	4.97	2.31	6.36	2.95	6.29	2.92
1984[3]	7.56	3.38	7.32	3.28	5.03	2.25	6.77	3.03	6.52	2.92

[1] Data 1979 and earlier are for Classes A and B privately-owned electric utilities only. Data 1980 forward are for selected Class A utilities whose electric operating revenues were $100 million or more during the previous year.

[2] Constant 1972 dollars calculated using GNP implicit price deflator, 1972=100. See Energy Equivalents and Price Deflators section.

[3] Preliminary.

Sources: •1960 through September 1977—Federal Power Commission, Form 5, "Monthly Statement of Electric Operating Revenues and Income." •October 1977 through February 1980—Federal Energy Regulatory Commission, FPC Form 5, "Monthly Statement of Electric Operating Revenues and Income." •March 1980 through 1982—Federal Energy Regulatory Commission, Form 5, "Electric Utility Company Monthly Statement." •1983 and 1984—Energy Information Administration, Form EIA-826, "Electric Utility Company Monthly Statement."

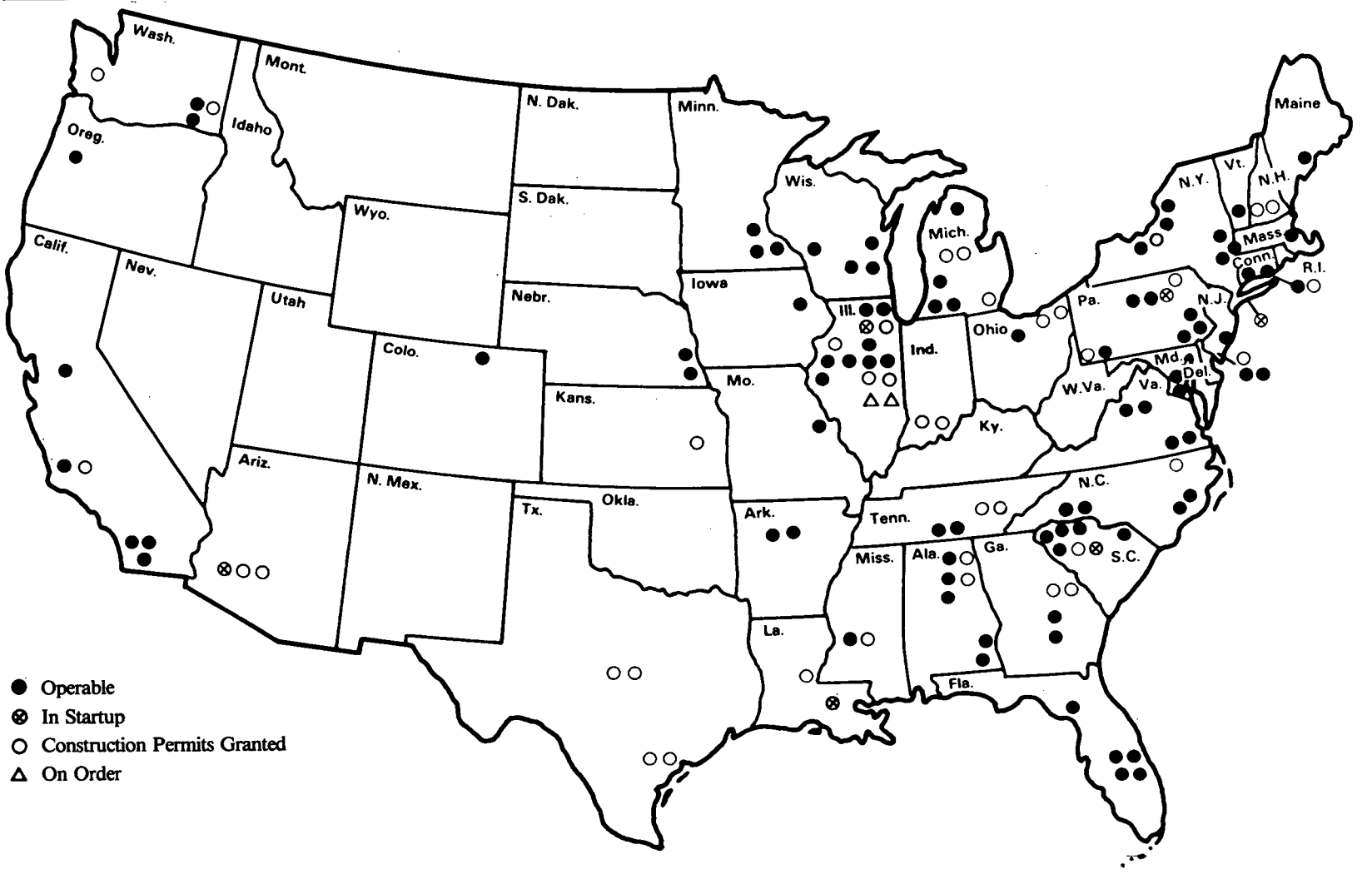
Section 8. Nuclear Energy Supply and Disposition

Nuclear Reactors. At the end of 1984 there were 86 nuclear reactors in operation in the United States. This included units in "full power" or "licensed for operation" but excluded previously licensed units that had been inoperative for at least 5 years. In addition to operable units, there were 6 units in "startup" status and another 38 with construction permits. Overall, in 1984, the total number of domestic reactors in all stages of planning, construction, and operation fell to 132 from a high of nearly 200 prior to the accident at Three Mile Island in 1979 (Table 83). Nevertheless the number of operating plants and electricity generated continued to rise. Yearend 1984 operating reactors had a net capacity of 69.5 million kilowatts, up 11 percent from 1983 (Table 84).

Nuclear Power Generation. During 1984, operable reactors generated a record 325 billion net kilowatthours of electricity, up 11 percent from the 1983 total. After falling during 1979 and 1980, the percent of total electricity generated by nuclear plants resumed an upward trend which has recently accelerated. The share rose from 12.7 percent of the total in 1983 to 13.5 percent in 1984, a new record (Table 84).

Uranium Supply. Uranium concentrate production in 1984 fell by more than 29 percent to 7,500 short tons of U_3O_8, the lowest level since 1956 (Table 85). This decrease reflected a softening of prices associated with an abundance of inventories at electric utilities and an increase in import competition.

Figure 83. Status of Nuclear Reactor Units, December 31, 1984



Due to space limitations, symbols do not represent actual locations.

Table 83. Status of Nuclear Reactor Units, December 31, 1984

Status	Number of Reactors			
	Boiling Water Reactors	Pressurized Water Reactors	Other [1]	Total
Operable [2]	30	54	2	86
In Startup	2	4	0	6
Construction Permits Granted	9	29	0	38
Construction Permits Pending	0	0	0	0
On Order	0	2	0	2
Total	41	89	2	132

[1] Includes one graphite-moderated and one gas-cooled reactor in full operation.
[2] Includes units with "full power" or "operating license" units (units in power ascension or in commercial operation). Excludes the following previously licensed units which have been inoperative for at least 5 years: Humboldt Bay; Dresden-1; and Three Mile Island-2. Three Mile Island-1 is considered operable although it has not been permitted to operate since March 1979.
Sources: Compiled by the Energy Information Administration from various sources, but primarily from the Nuclear Regulatory Commission Report, NUREG-0871, *Summary Information Report*, Quarterly.

Figure 84. Nuclear Power Plant Capacity and Net Generation of Electricity, 1957-1984

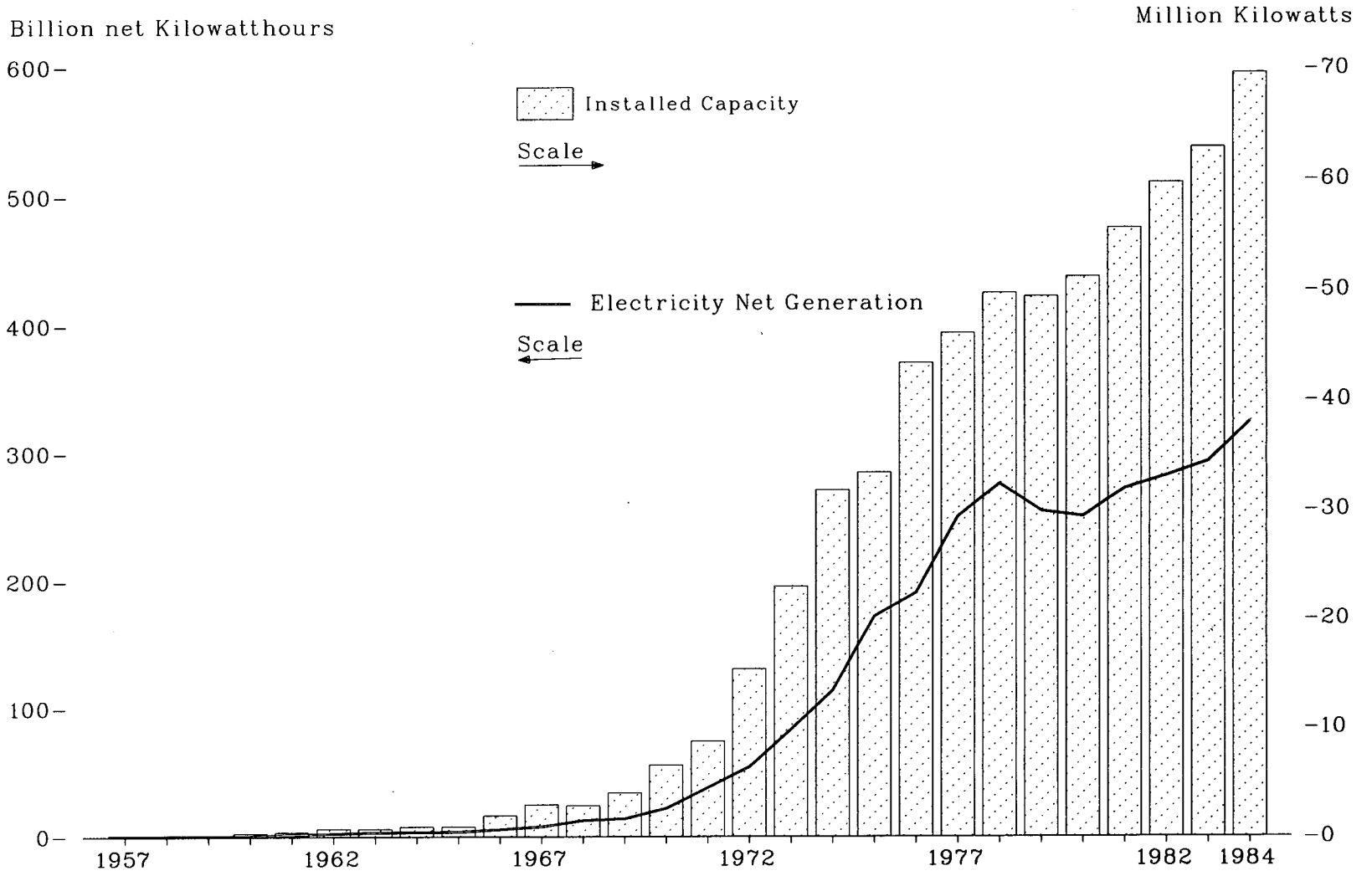


Table 84. Nuclear Power Plant Capacity and Net Generation of Electricity, 1957-1984

Year	Yearend Operable Reactors [1]	Yearend Operable Capacity (million kilowatts) [1]	Electricity Generation	
			(billion net kilowatthours)	(percent of total U.S. generation)
1957	1	0.1	[2]	[3]
1958	1	0.1	0.2	[3]
1959	1	0.1	0.2	[3]
1960	2	0.3	0.5	0.1
1961	3	0.4	1.7	0.2
1962	4	0.7	2.3	0.3
1963	7	0.7	3.2	0.4
1964	9	0.9	3.3	0.3
1965	10	0.9	3.7	0.4
1966	11	1.9	5.5	0.5
1967	10	2.9	7.7	0.6
1968	10	2.8	12.5	0.9
1969	13	4.0	13.9	1.0
1970	19	6.5	21.8	1.4
1971	21	8.7	38.1	2.4
1972	[1] 29	[1] 15.3	54.1	3.1
1973	[1] 39	[1] 22.9	83.5	4.5
1974	48	31.7	114.0	6.1
1975	54	33.3	172.5	9.0
1976	60	43.3	191.1	9.4
1977	65	46.0	250.9	11.8
1978	70	49.6	276.4	12.5
1979	68	49.3	255.2	11.4
1980	70	51.1	251.1	11.0
1981	74	55.5	272.7	11.9
1982	77	59.6	282.8	12.6
1983	80	62.8	293.7	12.7
1984[4]	86	69.5	325.2	13.5

[1] See Explanatory Note 12.
[2] Less than 0.05 billion kilowatthours.
[3] Less than 0.05 percent.
[4] Preliminary.

Sources: **Yearend Operable Reactors:** •1957 through 1972—Federal Power Commission, Form 4, "Monthly Power Plant Report." •1973 through 1984—Nuclear Regulatory Commission, Report NUREG-0020, *Licensed Operating Reactors*, monthly. **Yearend Operable Capacity:** •1957 through 1972—Federal Power Commission, Form 4, "Monthly Power Plant Report." •1973 through 1984 Nuclear Regulatory Commission, Report NUREG-0020, *Licensed Operating Reactors*. **Electricity Generation.** •1957 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Figure 85. Uranium Production, Exports, and Imports, 1949–1984

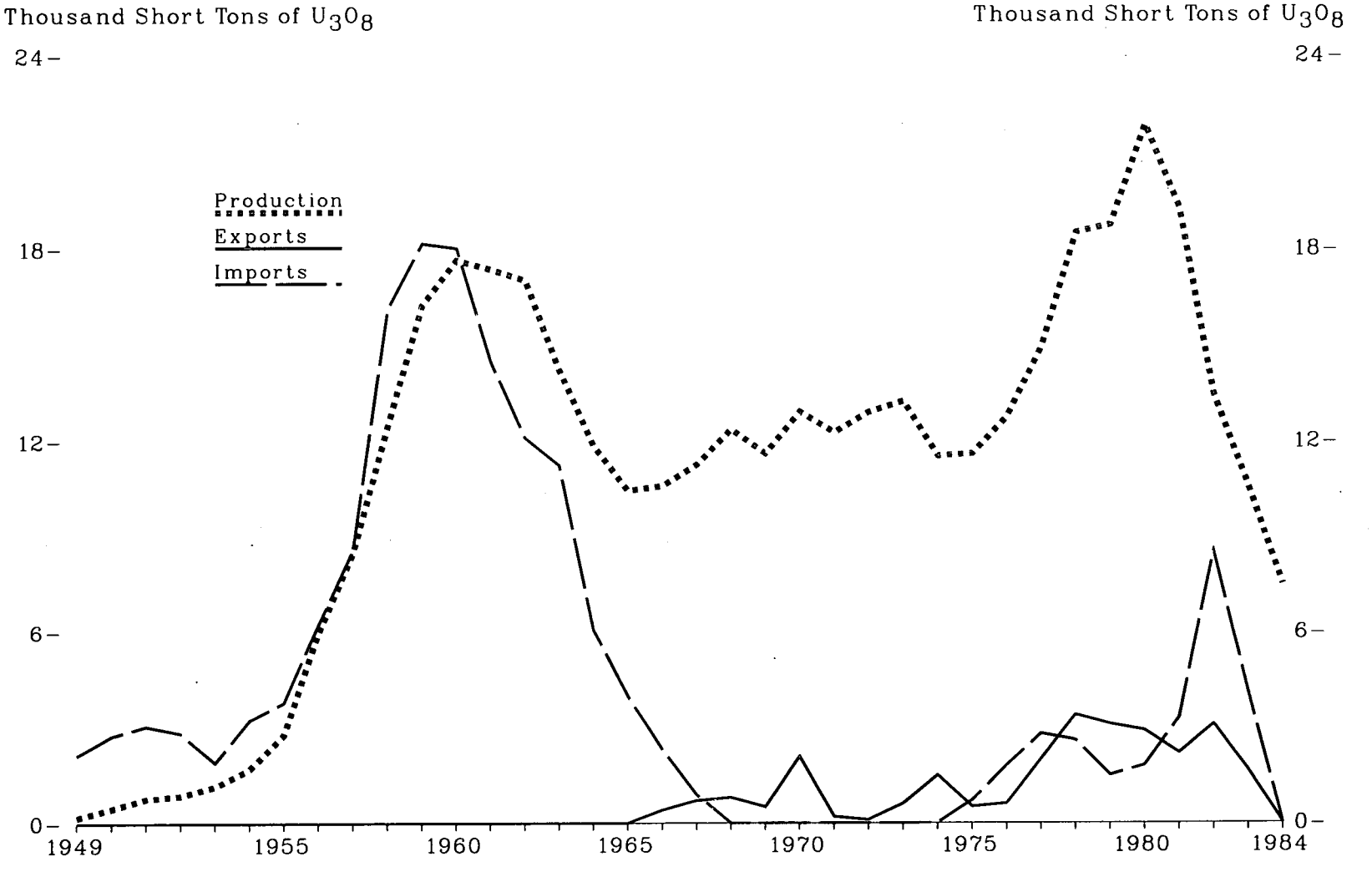


Table 85. Uranium Production, Exports, and Imports, 1949-1984

(Thousand Short Tons of U_3O_8)

Year	Domestic Production	Exports	Imports [1]
1949	0.18	0	2.13
1950	0.46	0	2.74
1951	0.77	0	3.05
1952	0.87	0	2.83
1953	1.16	0	1.90
1954	1.70	0	3.24
1955	2.78	0	3.80
1956	5.96	0	6.24
1957	8.48	0	8.57
1958	12.44	0	16.13
1959	16.24	0	18.16
1960	17.64	0	18.01
1961	17.35	0	14.50
1962	17.01	0	12.11
1963	14.22	0	11.22
1964	11.85	0	6.07
1965	10.44	0	4.00
1966	10.59	0.40	2.32
1967	11.25	0.70	0.88
1968	12.37	0.80	0
1969	11.61	0.50	0
1970	12.90	2.10	0
1971	12.27	0.20	0
1972	12.90	0.10	0
1973	13.24	0.60	0
1974	11.53	1.50	0
1975	11.60	0.50	0.70
1976	12.75	0.60	1.80
1977	14.94	2.00	2.80
1978	18.49	3.40	2.60
1979	18.74	3.10	1.50
1980	21.85	2.90	1.80
1981	19.24	2.20	3.30
1982	13.43	3.10	8.55
1983	10.58	1.65	4.10
1984[2]	7.50	NA	NA

[1] Import quantities through 1970 are reported for fiscal years. Prior to 1968 the Atomic Energy Commission was the sole purchaser of all imported U_3O_8.

[2] Preliminary.

NA = Not available.

Note: Import and export data prior to 1982 are for transactions conducted by uranium suppliers only. For 1982 forward, transactions by uranium buyers (consumers) are included. In 1983, buyer imports totalled 1,900 short tons of U_3O_8 and buyer exports totalled 500 short tons of U_3O_8. Buyer imports and exports prior to 1982 are believed to be small.

Sources: **Domestic Production:** •1949 through 1981—U.S. Department of Energy, Grand Junction Area Office, Colorado, *Statistical Data of the Uranium Industry*, Report No. GJO-100, annual. •1982 and 1983—Energy Information Administration, *1982 Survey of United States Uranium Marketing Activity*, September 1983. **Imports** and **Exports:** •1949 through 1981—U.S. Department of Energy, Grand Junction Area Office, Colorado, *Statistical Data of the Uranium Industry*, Report No. GJO-100, annual. •1982 through 1984—Energy Information Administration, *Survey of United States Uranium Marketing Activity 1983*, August 1984.

Section 9. Wood, Solar, and Geothermal Energy

The use of wood, solar, and geothermal energy in the United States has increased in recent years. In 1983, wood energy was used primarily in the industrial and residential sectors and accounted for over 2.6 quadrillion Btu of annual consumption. Solar and geothermal energy was used for space heating and to produce electricity.

Wood Energy. According to EIA's *Estimates of U.S. Wood Energy Consumption, 1980–1983*, recent increases in fossil fuel prices has led to a resurgence in the use of wood as a fuel, mostly in the residential and industrial sectors. In 1983, 9.6 percent of the end-use energy consumed by the residential sector was supplied by wood, while in the industrial sector the share was 7.9 percent. In specific industries, such as paper and allied products and the lumber and wood products industry, wood accounted for up to 50 to 75 percent of the total energy used. Total wood consumption in 1983 was estimated at 2.6 quadrillion Btu, 3.6 percent of total consumption (Table 86).

Solar Energy. Solar radiation is an inexhaustible source of energy. The Earth's share of solar radiation measures 2.4 million quadrillion (2.4×10^{21}) Btu per year (*The Coming Age of Solar Energy*, D.S. Halacy, 1973). If all of this extraordinarily large amount of energy could be harnessed, the energy obtained during 1 day could satisfy the world's energy needs, at current rates of consumption, for approximately 25 years (Table 93). Although solar radiation is universally available, it is a diffuse form of energy requiring a large collection area. The result is that only a small portion of the potential energy can be converted to useful energy.

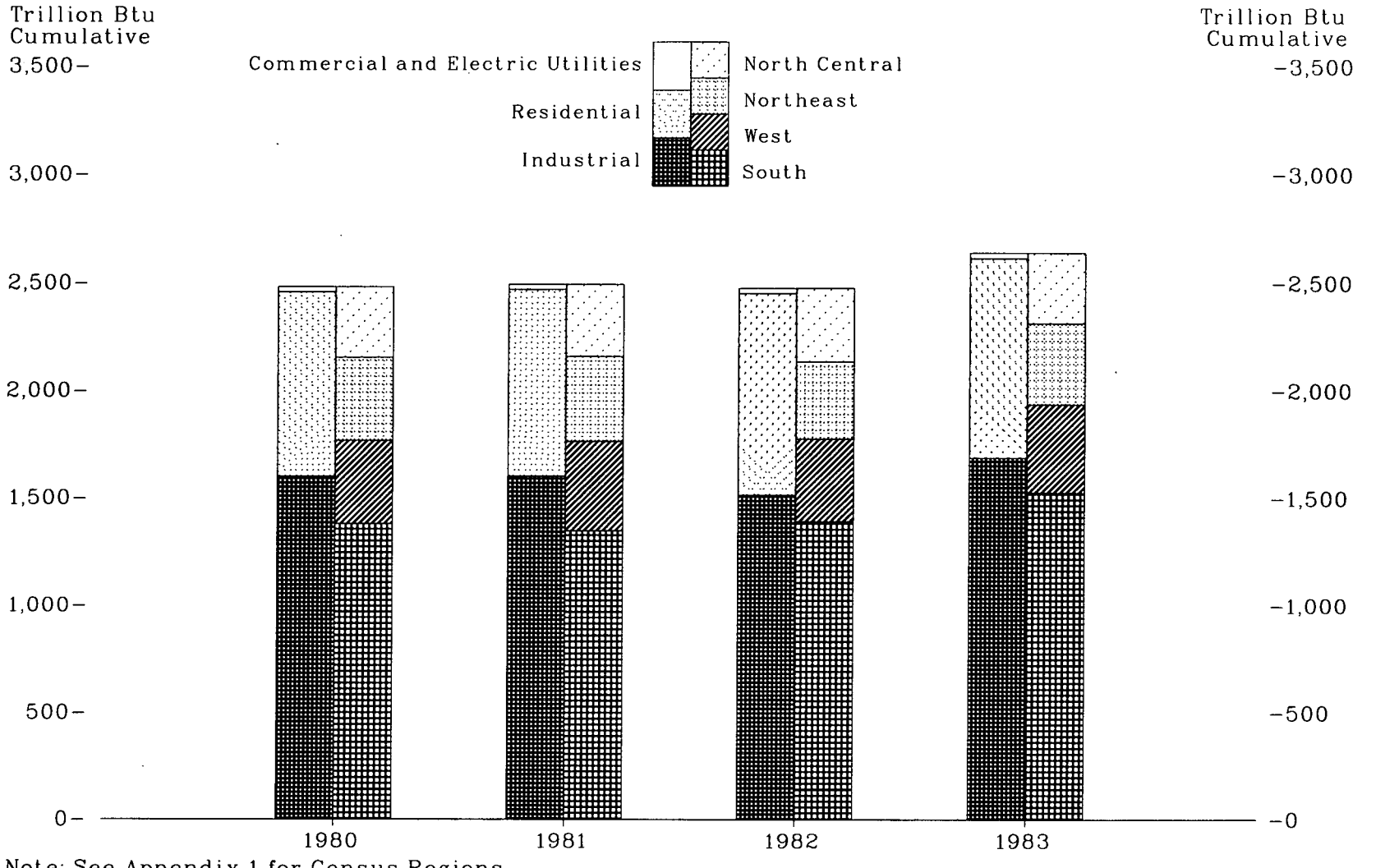
During 1983, 16.83 million square feet of solar collectors were shipped, a 9.6-percent decrease from the 1982 level (Table 89). The square footage of low-temperature collectors shipped fell to 29 percent of total collector area shipments in 1983, down from 63 percent in 1980. Shipments of medium-temperature, special, and other collectors accounted for the remaining 71 percent. Pool heating and domestic hot water collectors accounted for 84 percent of all collectors during 1983. The residential sector was the dominant user of solar collectors, accounting for 70 percent of the manufacturers' shipments in 1983 (Table 89).

Geothermal Energy. Geothermal energy, or heat from the Earth, is conducted and radiated from the hot mass of molten rock that forms the Earth's core. Most of the heat is too deep within the Earth to be extracted for practical use. However, in hot springs, geysers, and fumaroles, the Earth's heat is more readily available. Geothermal energy is most useful when geologic conditions concentrate heat energy into hot spots or thermal reservoirs. There are three types of thermal reservoirs: hydrothermal, geopressurized, and dry rock.

Hydrothermal reservoirs are the most desirable for producing geothermal energy. These reservoirs consist of a heat source covered by a permeable formation in which the water circulates. There are two types of hydrothermal systems: vapor-dominated and hot-water-dominated. The Geysers in California, a vapor-dominated system, is the major geothermal facility producing electricity in the United States.

In 1984, net generation of electricity from geothermal sources amounted to 7.7 billion kilowatthours, up 27 percent from the 6.1 billion kilowatthours generated in 1983 (Table 90).

Figure 86. Consumption of Wood Energy by End-Use Sector and Census Region, 1980-1983



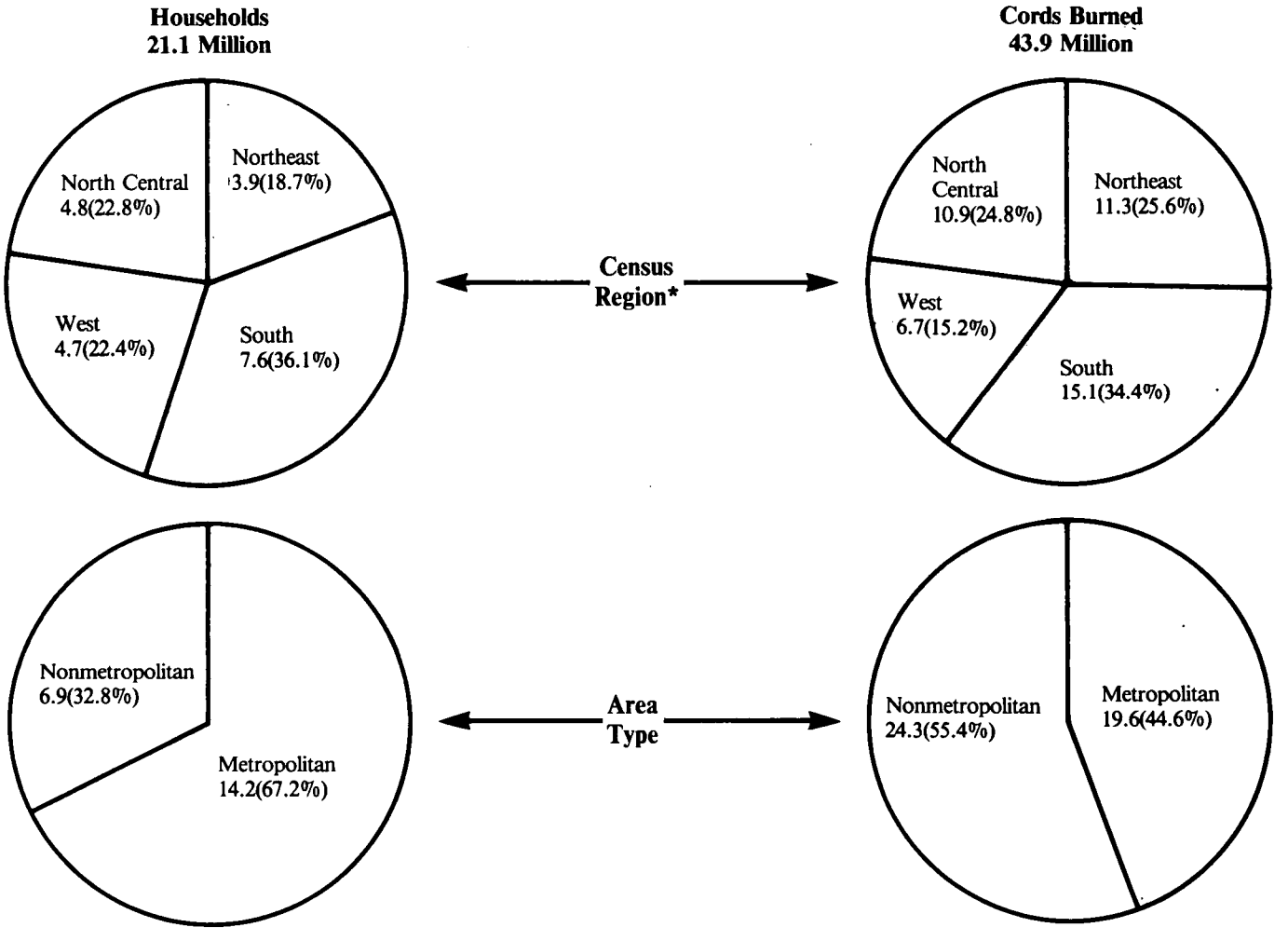
Note: See Appendix 1 for Census Regions

Table 86. Consumption of Wood Energy by End-Use Sector and Census Region, 1980-1983

	1980		1981		1982		1983	
	Million Short Tons [1]	Trillion Btu	Million Short Tons [1]	Trillion Btu	Million Short Tons [1]	Trillion Btu	Million Short Tons [1]	Trillion Btu
End-Use Sector								
Industrial	93	1,600	93	1,602	88	1,516	98	1,690
Residential	50	859	51	869	55	937	54	925
Commercial	1	21	1	21	1	22	1	22
Electric Utility	[2]	4	[2]	3	[2]	2	[2]	3
Census Region [3]								
Northeast	22	386	23	395	21	358	22	380
North Central	19	329	20	335	20	343	19	323
South	80	1,380	78	1,349	81	1,392	89	1,526
West	23	388	24	416	22	385	24	411
Total	144	2,483	145	2,495	144	2,478	153	2,640

[1] Oven-dried equivalent which averages approximately 17.2 million Btu per short ton.
[2] Less than 500,000 short tons.
[3] See Appendix 1.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *Estimates of U.S. Wood Energy Consumption, 1980-1983.*

Figure 87. Households that Burn Wood, April 1982 through March 1983



* See Appendix 1 for Census Regions.

Table 87. Households that Burn Wood, April 1982 through March 1983

Household Characteristics	Households That Burn Wood		Cords Burned		Average Amount Burned per Household (cords)
	(million)	(percent)	(million)	(percent)	
Total Households	21.1	100.0	43.9	100.0	2.1
Census Regions					
Northeast	3.9	18.7	11.3	25.6	2.9
North Central	4.8	22.8	10.9	24.8	2.3
South	7.6	36.1	15.1	34.4	2.0
West	4.7	22.4	6.7	15.2	1.4
Area Type					
Metropolitan	14.2	67.2	19.6	44.6	1.4
Nonmetropolitan	6.9	32.8	24.3	55.4	3.5
Year House was Built					
Before 1940	4.5	21.2	14.6	33.3	3.3
1940 to 1949	1.6	7.6	2.8	6.3	1.7
1950 to 1959	3.1	14.9	5.4	12.4	1.7
1960 to 1964	2.1	10.2	3.6	8.1	1.7
1965 to 1969	2.2	10.4	4.2	9.5	1.9
1970 to 1974	3.3	15.4	6.1	13.8	1.9
1975 to 1979	3.5	16.5	5.8	13.3	1.7
After 1979	0.8	3.8	1.4	3.2	1.8
Main Heating Fuel					
Natural Gas	8.7	41.3	8.4	19.2	1.0
Wood	5.5	26.3	25.6	58.3	4.6
Fireplace	0.4	1.8	1.1	2.6	3.0
Airtight Stove	4.1	19.2	18.3	41.7	4.5
Nonairtight Stove	0.7	3.3	3.2	7.3	4.7
Furnace/Other	0.4	2.1	3.0	6.8	6.8
Electricity	2.9	13.7	3.4	7.8	1.2
Fuel Oil or Kerosene	2.6	12.5	3.9	9.0	1.5
LPG/Other	1.4	6.3	2.5	5.7	1.8
Amount of Wood Burned					
Less than 0.5 Cords	6.3	30.0	1.3	3.1	0.2
0.5 to 1.4 Cords	5.5	26.2	4.4	10.1	0.8
1.5 to 2.4 Cords	3.0	14.4	5.6	12.8	1.8
2.5 to 3.4 Cords	2.0	9.3	5.7	13.0	2.9
3.5 to 4.4 Cords	1.4	6.5	5.4	12.3	3.9
4.5 or More Cords	2.8	13.4	21.4	48.8	7.6

Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, Form EIA-457, "Residential Energy Consumption Survey."

Figure 88. Producer Shipments of Solar Collectors, 1974-1983

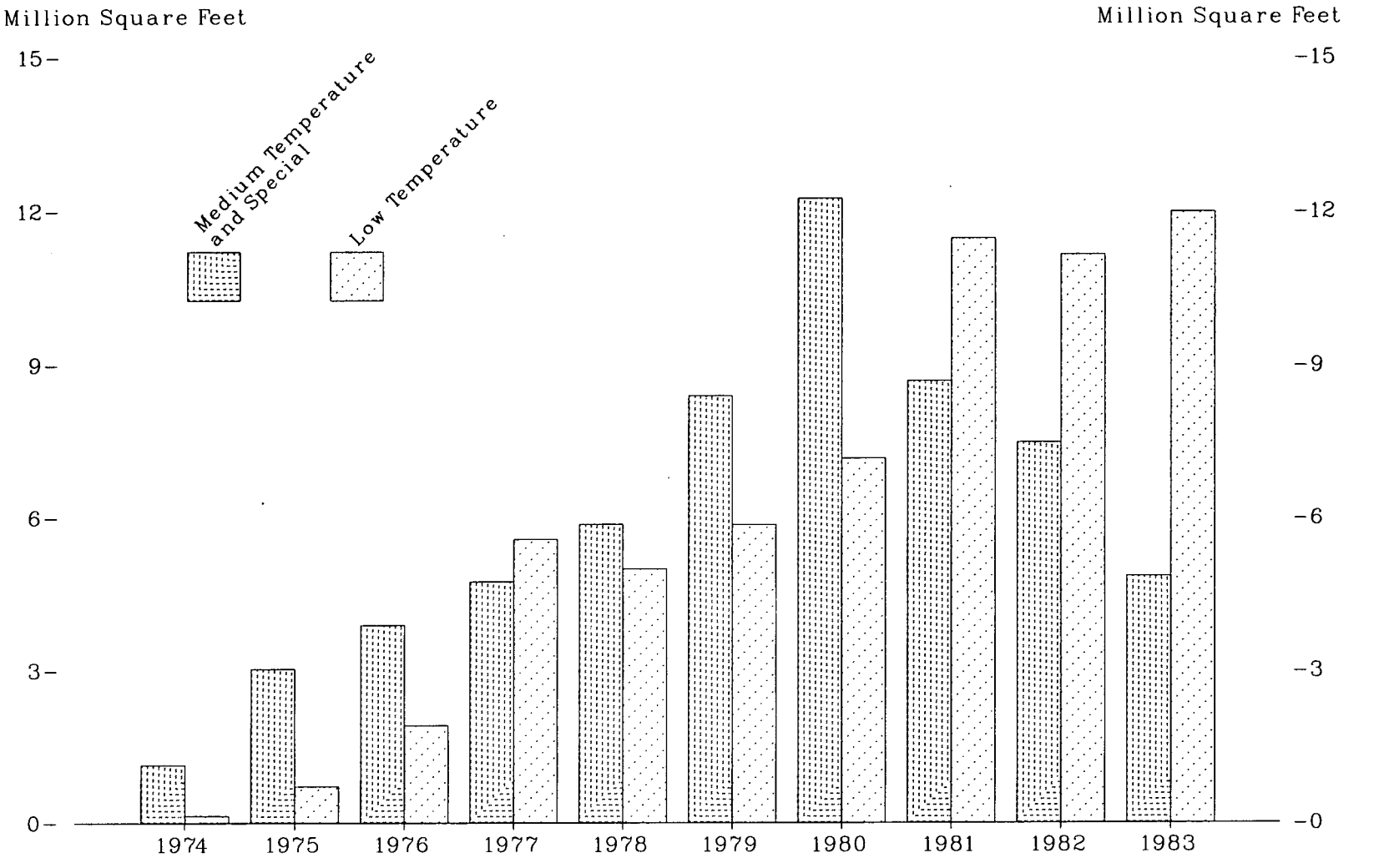


Table 88. Producer Shipments of Solar Collectors, 1974-1983

Year	Low-Temperature Collectors		Medium-Temperature, Special, and Other Collectors	
	Number of Manufacturers	Quantity Shipped (million square feet)	Number of Manufacturers	Quantity Shipped (million square feet)
1974	6	1.14	39	0.14
1975	13	3.03	118	0.72
1976	19	3.88	203	1.92
1977	52	4.74	297	5.57
1978	69	5.87	204	4.99
1979	84	8.39	257	5.86
1980	79	12.23	250	7.16
1981	75	8.68	263	11.46
1982	61	7.48	248	11.15
1983	55	4.85	179	11.98

Note: Manufacturers producing more than one type of collector are accounted for in both groups.
Sources: •1974 through 1976—Federal Energy Administration, *Solar Collector Manufacturing Activity*, semi-annual •1977—Energy Information Administration, *Solar Collector Manufacturing Activity, July through December, 1981.* March 1982 (semi-annual), •1978 through 1983—Energy Information Administration, *Solar Collector Manufacturing Activity, 1983.*

Figure 89. Producer Shipments of Solar Collectors by Type of Collector and Application, 1983

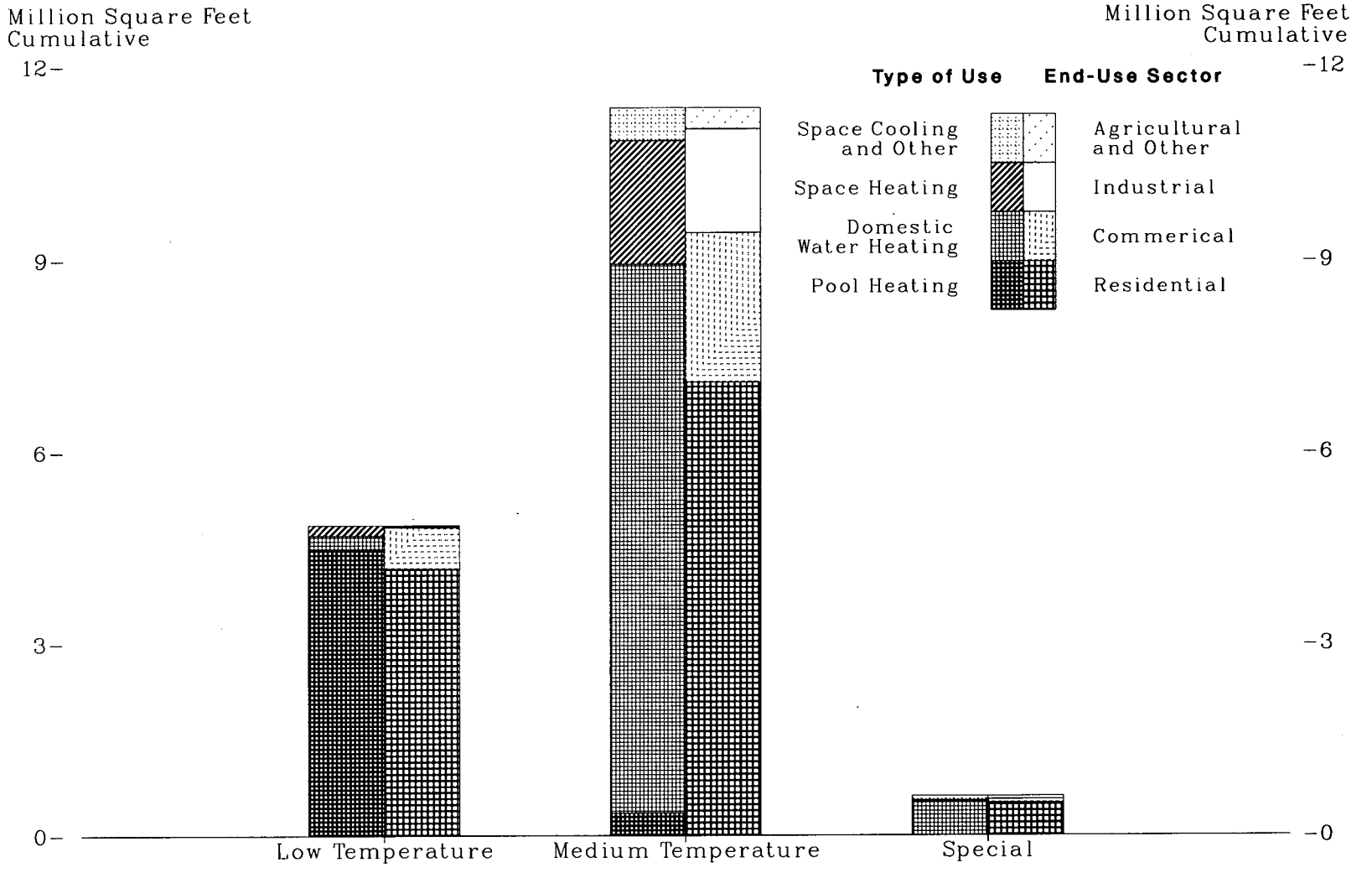


Table 89. Producer Shipments of Solar Collectors by Type of Collector and Application, 1983
(Million Square Feet)

Application	Type of Collector				
		Medium-Temperature			
	Low Temperature	Liquid	Air	Special and Other	Total
Type of Use					
Pool Heating	4.49	0.35	[1]	[1]	4.84
Domestic Hot Water	0.21	8.45	0.13	0.53	9.32
Space Heating	0.16	1.38	0.53	0.01	2.08
Space Cooling	0	[1]	0	0.02	0.03
Other	0	0.40	0.11	0.05	0.56
Total	4.86	10.58	0.77	0.61	16.83
End-Use Sector					
Residential	4.18	6.42	0.67	0.50	11.78
Commerical	0.65	2.31	0.02	0.06	3.04
Industrial	0.02	1.60	[1]	0.05	1.67
Agricultural	0.01	[1]	0.08	0	0.10
Other	0	0.25	0	0	0.25
Total	4.86	10.58	0.77	0.61	16.83

[1] Less than 0.005 million square feet.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *Solar Collector Manufacturing Activity, 1983.*

Figure 90. Net Generation of Electricity from Geothermal Sources, 1960-1984

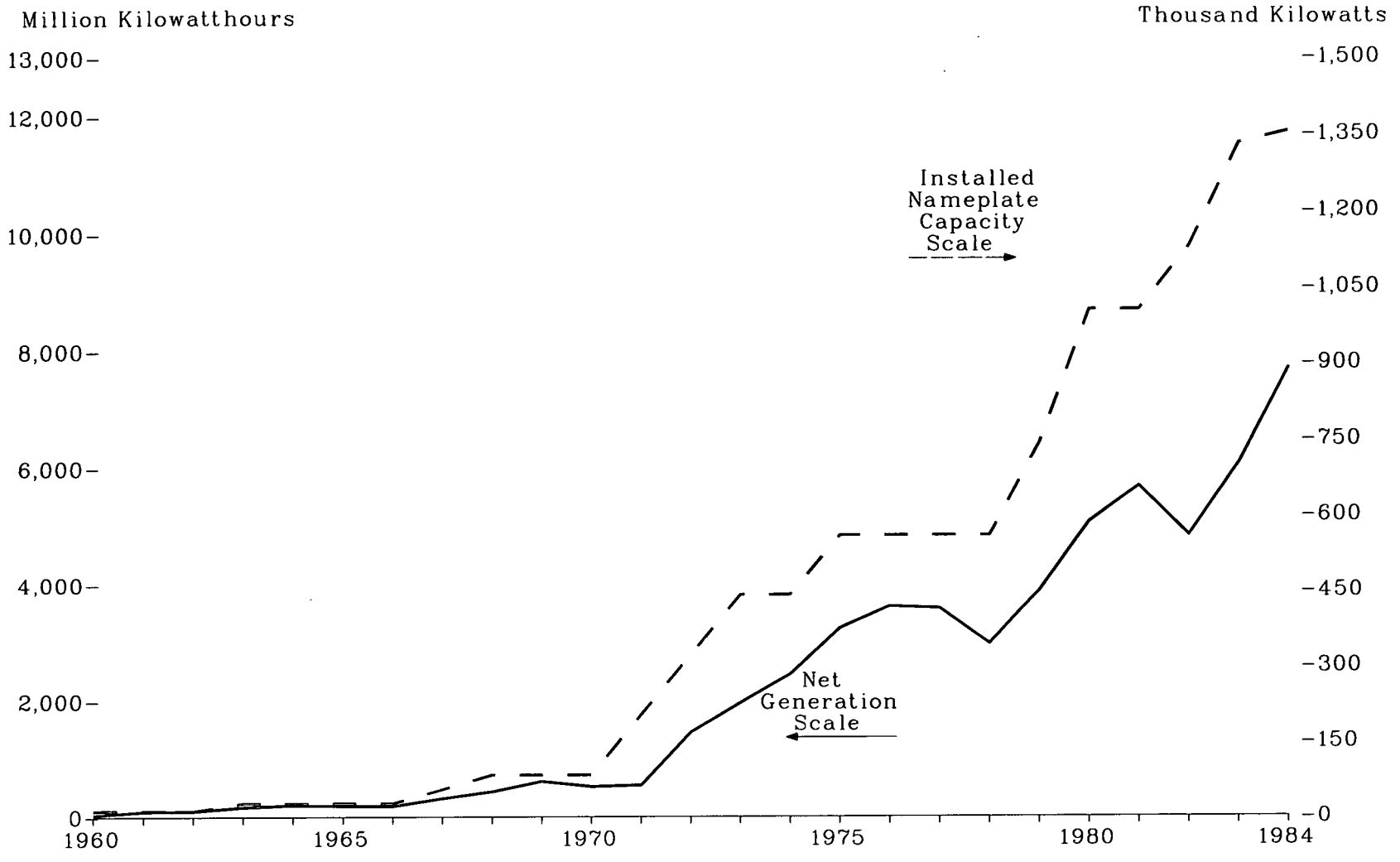


Table 90. Net Generation of Electricity from Geothermal Sources, 1960-1984

Year	Yearend Installed Nameplate Capacity (thousand kilowatts)	Net Generation [1] (million kilowatthours)
1960	12	33
1961	12	94
1962	12	100
1963	27	168
1964	27	204
1965	27	189
1966	27	188
1967	55	316
1968	84	436
1969	84	615
1970	84	525
1971	203	548
1972	322	1,453
1973	441	1,966
1974	441	2,453
1975	559	3,246
1976	559	3,616
1977	559	3,582
1978	559	2,978
1979	742	3,889
1980	1,005	5,073
1981	1,005	5,686
1982	1,129	4,843
1983	1,331	6,075
1984[2]	1,354	7,715

[1] See Explanatory Note 1.
[2] Preliminary.

Sources: **Capacity on Line:** •1960 through September 1977—Federal Power Commission, Form 12, "Power Systems Statement." •October 1977 through 1984—Federal Energy Regulatory Commission, FPC Form 12, "Power Systems Statement." **Net Generation:** • 1960 through 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 through 1984—Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

Section 10. International Energy Data

Energy Production. Total world energy production fell in 1983 for the fourth consecutive year; however, the 280.1 quadrillion Btu produced in 1983 was down only slightly from 280.2 quadrillion Btu in 1982. Production levels in 1983 reflected substantial declines in the United States and in Middle East countries and increases in most other areas. The largest increase occurred in the U.S.S.R., where energy production rose more than 1 quadrillion Btu (Table 93).

Petroleum Production. International crude oil production increased in 1984 to 53.7 million barrels per day, the first annual increase since 1979. Production levels in 1984 reflected decreases by Organization of Petroleum Exporting Countries (OPEC) and the U.S.S.R., and increases primarily in the United Kingdom, China, and the United States. OPEC production fell to 33 percent of world production, from a high of 56 percent in 1973 (Table 95).

Petroleum Consumption. World consumption of petroleum products decreased for the third straight year in 1982 (latest data available) as world economic recession and energy conservation continued to inhibit demand. Consumption of the 59.7 million barrels per day was down 8.2 percent from the all-time high of 65.1 million barrels per day in 1979. Major consumers were the United States, the U.S.S.R., and Japan, which together accounted for 49 percent of total world consumption in 1982 (Table 97).

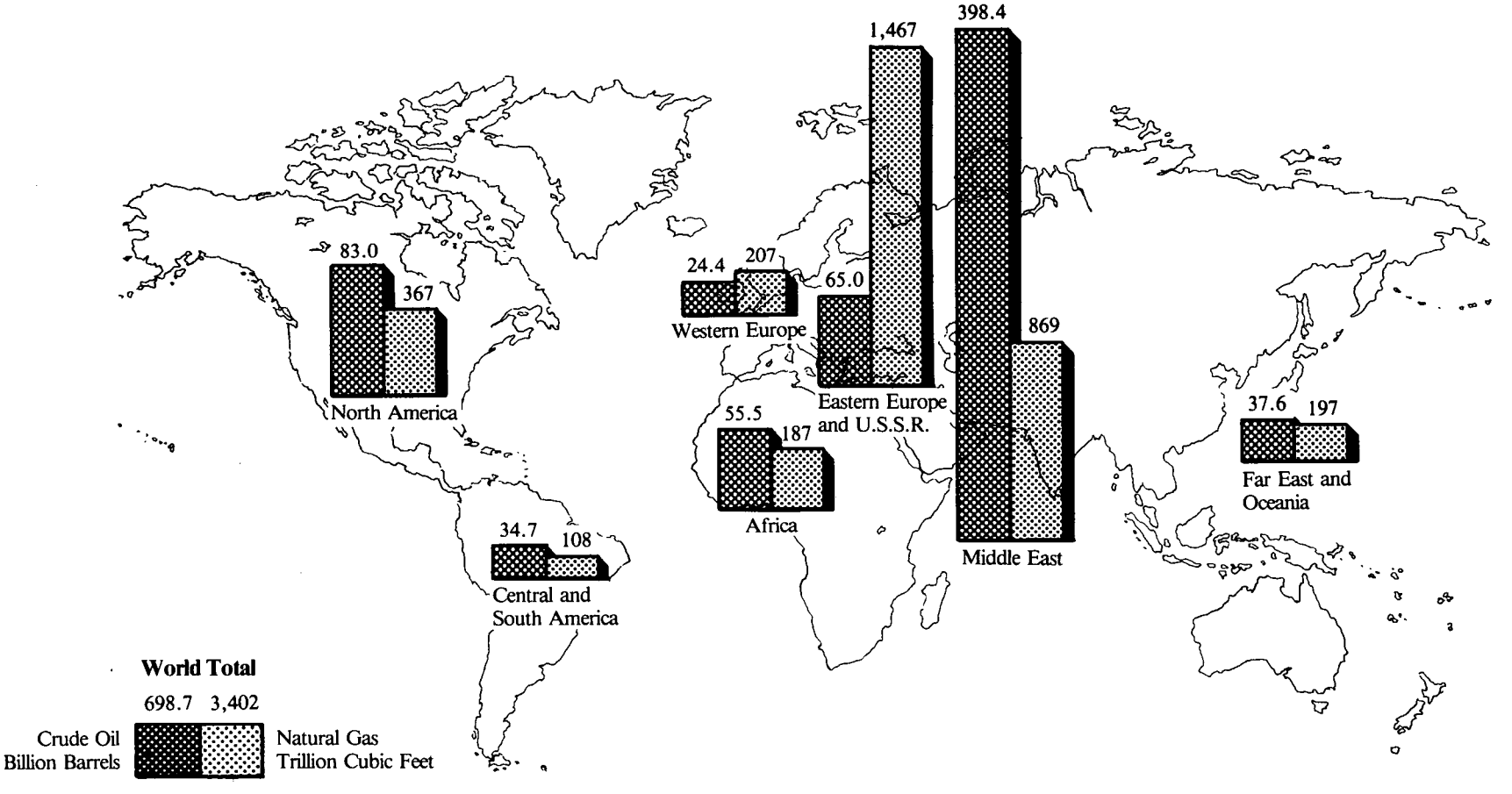
Petroleum Prices. Official prices of foreign crude oil, which fell steadily during the 1981-to-1983 period, stabilized in 1984. Of the major crude oil price postings, only United Kingdom Brent Blend and Nigerian Bonny fell from January 1, 1984, to January 1, 1985. The greatest decline in prices from January 1, 1981, through January 1, 1985, was Nigerian Bonny, which fell 30 percent from $40 per barrel to $28 per barrel (Table 104).

Natural Gas Production and Trade. World natural gas production fell in 1982 (latest data available), reversing an upward trend which began before World War II. The 53.7 trillion cubic feet produced in 1982 was 0.5 trillion cubic feet (0.9 percent) less than 1981 production. The United States and the U.S.S.R. were the major producers, accounting for nearly two-thirds of the total production. Major natural gas exporters were the U.S.S.R., the Netherlands, Norway, and Canada. Major importers were West Germany, the United States, and Japan (Table 99).

Coal Production. World coal production increased from 3.7 billion short tons in 1975 to 4.4 billion short tons in 1982, an average annual growth rate of 2.6 percent. In 1983, production fell slightly to 4.3 billion short tons. Production levels in 1983 reflected declines in the United States and West European countries and increases in East European countries. About 53 percent of 1983 world coal production came from the U.S.S.R., the United States, and China (Table 101).

Nuclear Power Electricity Generation. Annual nuclear power electricity generation by non-Communist countries exceeded 1 trillion gross kilowatthours for the first time in 1984. Although the United States remained the major producer among these nations, its share of total generation continued to decline as the West European share increased. The United States share was 32 percent in 1984, down from the all-time high of 56 percent in 1977. Other major generating countries were France, 18 percent; Japan, 12 percent; and West Germany, 9 percent (Table 103).

Figure 91. Estimated International Crude Oil and Natural Gas Proved Reserves, December 31, 1984



Note: Bars are scaled in proportion to the btu content of the reserves. One billion barrels of crude oil equals approximately 5.3 trillion cubic feet of wet natural gas.

Table 91. Estimated International Crude Oil and Natural Gas Proved Reserves, December 31, 1984

Area and Country	Crude Oil (billion barrels)	Natural Gas (trillion cubic feet)
North America		
Canada	7.1	92
Mexico	48.6	77
United States	27.3	198
Total	83.0	367
Central and South America		
Argentina	2.3	25
Bolivia	0.2	4
Brazil	2.0	3
Chile	0.7	2
Colombia	0.6	4
Ecuador	1.4	3
Peru	0.7	1
Trinidad and Tobago	0.5	11
Venezuela	25.8	55
Other	0.5	[3]
Total	34.7	108
Western Europe		
Denmark	0.4	4
Germany, West	0.3	6
Italy	0.8	4
Netherlands	0.3	68
Norway	8.3	89
United Kingdom	13.6	28
Other	0.7	8
Total	24.4	207
Eastern Europe and U.S.S.R.		
U.S.S.R.	63.0	1,450
Other	2.0	17
Total	65.0	1,467
Middle East		
Bahrain	0.2	7
Iran	48.5	479
Iraq	44.5	29
Kuwait [1]	92.7	37
Oman	3.5	7
Qatar	3.4	150
Saudi Arabia [1]	171.7	127
Syria	1.5	1
United Arab Emirates	32.5	32
Other	[3]	[3]
Total	398.4	869
Africa		
Algeria	9.0	109
Angola	1.8	2
Cameroon	0.6	4
Congo	0.5	2
Egypt	3.2	7
Gabon	0.5	1
Libya	21.1	21
Nigeria	16.7	36
Tunisia	1.5	2
Other	0.7	4
Total	55.5	187
Far East and Oceania		
Australia	1.4	18
Bangladesh	0	7
Brunei	1.4	7
China	19.1	31
India	3.5	15
Indonesia	8.7	40
Malaysia	3.0	50
New Zealand	0.2	5
Pakistan	0.1	16
Thailand	0.2	6
Other	0.2	2
Total	37.6	197
World Total	698.7	3,402

[1] Include one-half of the Partitioned Zone (formerly called Neutral Zone).
[2] Less than 0.05 billion barrels.
[3] Less than 0.05 trillion cubic feet.
Note: Sum of components may not equal total due to independent rounding.
Note: All reserve figures except those for the U.S.S.R. and natural gas reserves in Canada are proved reserves recoverable with present technology and prices. U.S.S.R. figures are "explored reserves," which include proved, probable, and some possible. The Canadian natural gas figure includes proved and some probable. The latest EIA data for the United States are for December 31, 1983, see Table 36.
Source: *Oil and Gas Journal*, December 31, 1984. Petroleum Publishing Co., Tulsa, Oklahoma. The Energy Information Administration (EIA) does not necessarily subscribe to the *Oil and Gas Journal* data but reproduces it as a matter of convenience.

Figure 92. Estimated International Recoverable Reserves of Coal, 1980
(Billion Short Tons)

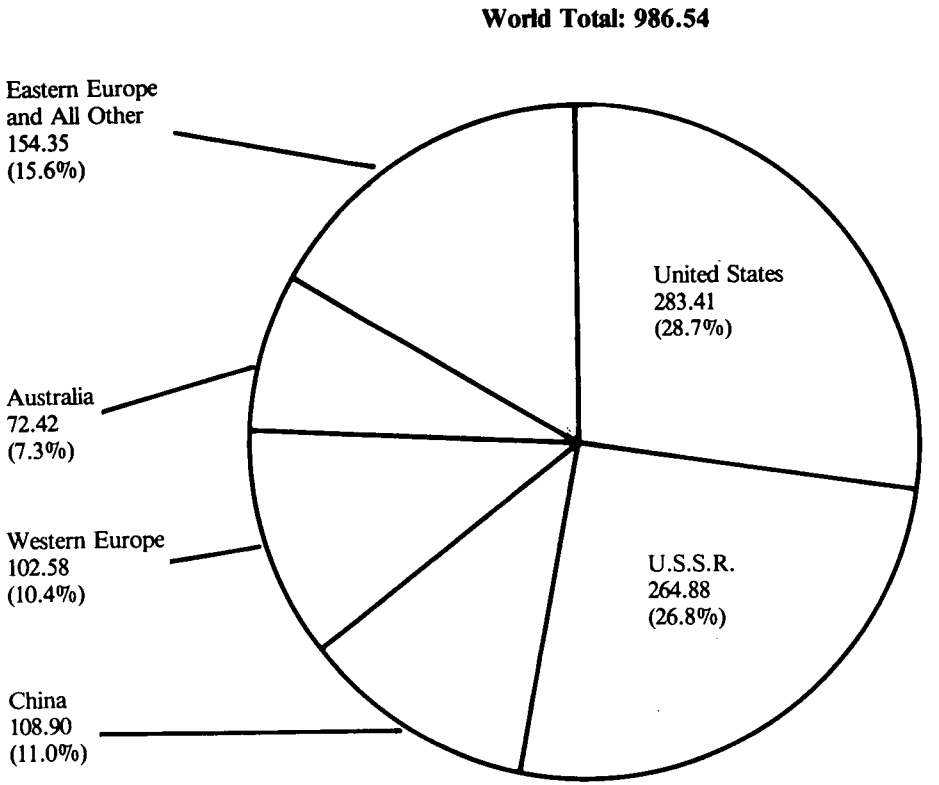


Table 92. Estimated International Recoverable Reserves of Coal, 1980 [1]

(Billion Short Tons)

Area and Country	Anthracite and Bituminous Coal [2]			Lignite		Total Recoverable
	Recoverable	Portion Surface Minable	Portion Coking Quality	Recoverable	Portion Surface Minable	
North, Central, and South America						
Canada	4.18	NA	1.38	2.33	2.33	6.51
United States	248.16	89.28	NA	35.25	35.25	283.41
Other	19.25	1.78	2.74	0.02	[3]	19.27
Total	271.59	[4] 91.07	[4] 4.12	37.60	37.58	309.19
Western Europe						
Germany, West	32.98	NA	19.78	38.66	38.66	71.64
Turkey	0.20	NA	NA	1.90	NA	2.11
United Kingdom	5.06	NA	2.23	0	0	5.06
Yugoslavia	1.73	0.06	NA	16.50	NA	18.23
Other	3.29	[4] 0.67	[4] 1.03	2.24	0.07	5.53
Total	43.26	[4] 0.72	[4] 23.04	59.31	[4] 38.74	102.58
Eastern Europe and U.S.S.R.						
Bulgaria	0.03	NA	0.02	4.00	2.65	4.03
Czechoslovakia	3.00	NA	NA	3.15	NA	6.15
Hungary	0.23	NA	NA	4.40	NA	4.63
Poland	30.00	0	6.00	13.20	13.20	43.20
U.S.S.R.	166.67	34.88	60.00	98.21	97.23	264.88
Other	0	0	0	NA	NA	NA
Total	199.93	[4] 34.88	[4] 66.02	122.96	[4] 113.08	322.89
Africa						
Botswana	3.80	NA	NA	0	0	3.80
South Africa, Republic of	57.04	NA	NA	0	0	57.04
Swaziland	2.00	NA	NA	0	0	2.00
Other	2.37	0.27	0.15	[3]	[3]	2.37
Total	65.21	[4] 0.27	[4] 0.15	[3]	[3]	65.21
Middle East, Far East, and Oceania						
Australia	32.52	7.00	13.01	39.90	39.90	72.42
China	108.90	10.91	40.28	[5]	[5]	108.90
India	NA	NA	NA	1.74	1.65	1.74
Other	3.02	[4] 0.07	[4] 0.67	0.57	0.10	3.61
Total	144.44	[4] 17.99	[4] 53.97	42.23	[4] 42.06	186.67
World Total	724.42	[4] 144.93	[4] 147.30	262.11	[4] 231.06	986.54

[1] The reference year for most of the reserves data in the source report is 1980.
[2] Includes subbituminous coal.
[3] Less than 5 million tons.
[4] Not all countries in this group reported under this category.
[5] May be included with anthracite and bituminous coal.
NA = Not available.
Source: World Energy Conference, New Delhi, India, *World Energy Conference of Energy Resources 1983*, London, 1983.

Figure 93. International Primary Energy Production, 1973 and 1983
(Quadrillion Btu)

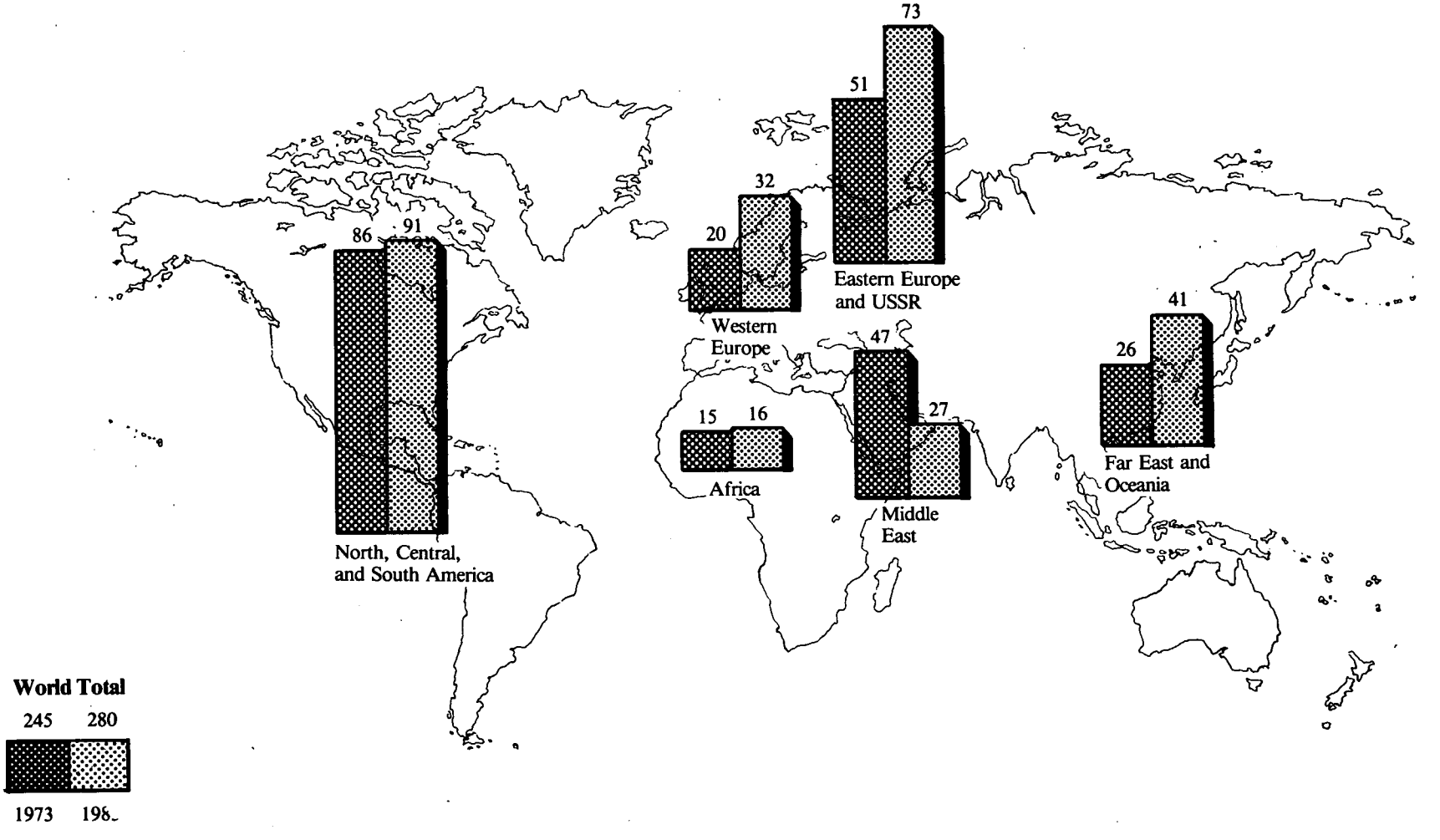


Table 93. International Primary Energy Production,[1] 1973-1983

(Quadrillion Btu)

Area and Country	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983[2]
North, Central, and South America											
Canada	9.50	9.38	8.89	8.73	9.16	9.26	9.95	10.13	9.86	9.99	10.27
Mexico	1.87	2.15	2.44	2.76	3.16	3.79	4.55	5.85	6.85	7.89	7.95
United States	61.95	60.72	59.73	59.80	60.06	60.98	63.66	64.59	64.25	63.74	61.04
Venezuela	8.13	7.29	5.90	5.79	5.70	5.49	5.94	5.66	5.56	5.14	4.85
Other	4.72	4.80	4.72	5.00	5.30	5.89	6.42	6.49	6.50	6.77	7.09
Total	86.17	84.34	81.68	82.08	83.38	85.41	90.52	92.72	93.02	93.53	91.20
Western Europe											
France	1.78	1.82	1.88	1.71	2.00	2.02	2.03	2.26	2.75	2.72	3.08
Germany, West	4.92	4.95	4.87	4.96	4.96	4.97	5.26	5.25	5.38	5.46	5.34
Netherlands	2.52	2.86	3.16	3.44	2.90	2.49	2.69	3.33	3.11	2.67	2.84
Norway	0.83	0.88	1.22	1.50	1.49	2.10	2.71	3.06	3.12	3.20	3.56
United Kingdom	4.66	4.47	4.97	5.49	6.69	7.31	8.41	8.56	8.91	9.51	9.98
Other	4.87	5.03	5.26	5.19	5.86	5.92	6.30	6.20	6.63	6.99	7.21
Total	19.58	20.01	21.36	22.29	23.90	24.81	27.40	28.66	29.90	30.55	32.01
Eastern Europe and U.S.S.R.											
Germany, East	2.19	2.19	2.20	2.26	2.30	2.26	2.36	2.44	2.53	2.57	2.60
Poland	4.94	5.09	5.37	5.59	5.81	6.02	6.21	6.03	5.10	5.81	5.87
Romania	2.14	2.19	2.30	2.39	2.49	2.34	2.48	2.49	2.56	2.68	2.79
U.S.S.R.	39.28	41.77	43.62	46.16	48.43	50.68	52.42	54.41	55.35	57.14	58.23
Other	2.89	2.93	3.02	3.11	3.20	3.28	3.28	3.31	3.35	3.52	3.59
Total	51.44	54.17	56.51	59.51	62.23	64.58	66.75	68.68	68.89	71.72	73.08
Middle East											
Iran	13.27	13.68	12.23	13.43	12.88	11.93	7.44	3.87	3.21	5.04	5.62
Iraq	4.35	4.25	4.89	5.25	5.08	5.44	7.37	5.36	2.13	2.16	2.14
Kuwait	6.75	5.67	4.68	4.85	4.47	4.87	5.68	3.87	2.63	1.95	2.52
Saudi Arabia	16.63	18.68	15.68	18.95	20.57	18.48	21.25	22.31	22.11	14.72	11.57
United Arab Emirates	3.27	3.56	3.56	4.20	4.45	4.09	4.11	3.89	3.45	2.99	2.82
Other	2.34	2.49	2.54	2.52	2.39	2.40	2.57	2.43	2.40	2.28	2.31
Total	46.61	48.33	43.58	49.20	49.84	47.21	48.42	41.73	35.93	29.14	26.98
Africa											
Algeria	2.47	2.35	2.34	2.63	2.68	3.22	3.15	2.91	2.61	2.71	3.05
Libya	4.72	3.32	3.27	4.26	4.53	4.36	4.59	3.98	2.57	2.58	2.43
Nigeria	4.45	4.89	3.88	4.51	4.50	4.06	4.95	4.43	3.15	2.83	2.71
South Africa, Republic of	1.48	1.57	1.65	1.84	2.03	2.15	2.53	2.86	3.22	3.38	3.59
Other	1.69	1.80	2.05	2.15	2.65	2.68	2.86	3.36	3.33	3.60	3.94
Total	14.81	13.93	13.19	15.39	16.39	16.47	18.08	17.54	14.88	15.10	15.72
Far East and Oceania											
Australia	3.25	3.44	3.64	3.99	4.08	4.20	4.68	4.64	5.16	4.88	5.03
China	13.14	14.25	15.11	15.93	16.77	18.74	19.23	19.01	18.78	19.87	20.14
India	2.22	2.36	2.68	2.84	2.90	3.09	3.15	3.15	3.79	4.08	4.02
Indonesia	2.90	2.99	2.90	3.38	3.85	3.72	3.84	4.12	4.22	3.66	3.85
Japan	1.53	1.70	1.82	1.87	1.66	1.91	2.06	2.33	2.30	2.43	2.44
Other	3.13	3.30	3.56	3.91	4.06	4.22	4.68	5.07	4.98	5.26	5.68
Total	26.17	28.04	29.71	31.92	33.32	35.88	37.64	38.32	39.23	40.18	41.16
World Total	244.78	248.81	246.03	260.40	269.06	274.35	288.82	287.64	281.84	280.22	280.14

[1] See Explanatory Note 3.
[2] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Note: Primary energy includes crude oil, lease condensate, natural gas plant liquids, dry natural gas, coal, net hydroelectric power, and net nuclear power.
Source: Energy Information Administration, *International Energy Annual 1983*.

Figure 94. International Petroleum Supply and Disposition, 1982
(Thousand Barrels per Day)

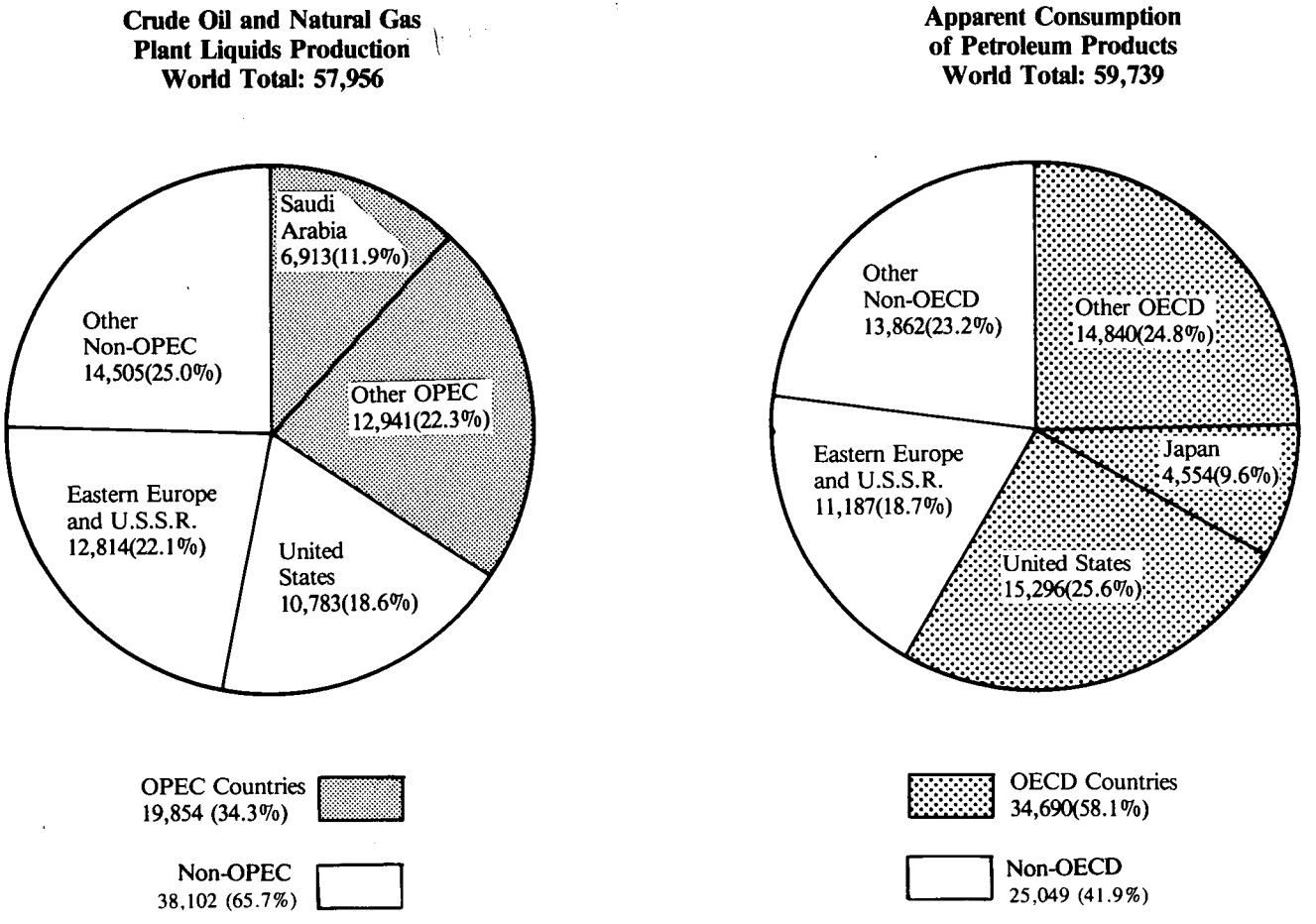


Table 94. International Petroleum Supply and Disposition, 1982

(Thousand Barrels per Day)

Area and Country	Supply				Disposition			
	Crude Oil [1] Production	Natural Gas Plant Liquids Production	Crude Oil Imports	Petroleum Product Imports	Crude Oil Exports	Petroleum Product Exports	Apparent Consumption [2]	International Bunkers
North America								
Canada	1,372	320	327	40	386	91	1,617	28
Mexico	2,748	255	0	112	1,596	43	1,360	9
United States	[3] 9,233	1,550	3,488	1,625	236	579	15,296	387
Other	0	0	0	13	0	0	14	2
Total	13,353	2,125	3,815	1,791	2,218	713	18,288	426
Central and South America								
Argentina	491	12	14	2	0	48	468	11
Bahama Islands	0	0	184	10	0	106	41	16
Brazil	[4] 323	8	798	60	22	90	1,082	29
Chile	43	11	25	23	0	0	88	1
Colombia	141	6	20	30	0	33	183	5
Cuba	10	1	120	100	0	0	230	0
Ecuador	211	2	0	16	117	15	95	5
Netherlands Antilles	0	0	516	44	12	327	150	43
Panama Republic	0	0	32	44	0	6	83	53
Peru	195	4	0	2	42	20	119	3
Puerto Rico	0	0	191	113	[5]	52	251	1
Trinidad and Tobago	180	3	73	[5]	89	135	40	12
Venezuela	1,895	60	0	0	1,058	454	427	16
Virgin Islands	0	0	428	26	24	325	120	19
Other	30	2	157	100	4	8	295	13
Total	3,519	109	2,558	570	1,368	1,619	3,673	227
Western Europe								
Austria	26	1	125	51	0	3	209	0
Belgium	0	0	508	253	10	315	444	48
Denmark	35	0	100	132	15	23	233	9
Finland	0	0	193	52	0	37	226	12
France	34	20	1,638	403	0	243	1,939	57
Germany, West	84	0	1,477	818	1	170	2,324	52
Greece	21	0	294	93	17	161	242	16
Ireland	0	0	11	81	0	2	91	0
Italy	35	1	1,730	338	11	294	1,783	78
Luxembourg	0	0	0	23	0	0	22	0
Netherlands	38	6	762	760	1	961	639	168
Norway	520	70	57	68	397	51	174	5
Portugal	0	0	163	32	2	4	189	3
Spain	30	0	883	169	0	82	1,009	33
Sweden	0	0	266	226	4	96	406	9
Switzerland	0	0	80	151	0	1	239	0

Continued to next page.

Table 94. International Petroleum Supply and Disposition, 1982 (Continued)

(Thousand Barrels per Day)

Area and Country	Supply				Disposition			
	Crude Oil [1] Production	Natural Gas Plant Liquids Production	Crude Oil Imports	Petroleum Product Imports	Crude Oil Exports	Petroleum Product Exports	Apparent Consumption [2]	International Bunkers
Western Europe (continued)								
Turkey	50	0	287	29	0	32	327	0
United Kingdom	2,065	78	683	254	1,268	262	1,585	50
Yugoslavia	87	2	179	27	0	8	286	0
Other	0	0	0	26	0	0	23	5
Total	3,025	178	9,436	3,986	1,726	2,746	12,390	545
Eastern Europe and U.S.S.R.								
Albania	64	0	0	0	0	0	64	0
Bulgaria	3	0	250	39	0	3	295	0
Czechoslovakia	2	(s)	331	15	9	8	327	0
Germany, East	1	0	420	8	0	53	371	0
Hungary	41	20	176	35	33	15	223	0
Poland	5	1	265	54	0	11	318	1
Romania	234	14	218	(s)	0	136	337	0
U.S.S.R.	12,080	350	100	19	2,500	985	9,253	80
Total	12,430	384	1,760	170	2,542	1,211	11,187	81
Africa								
Algeria	710	200	0	3	550	163	143	16
Angola	122	0	0	3	104	1	21	7
Egypt	670	20	0	25	370	25	313	36
Gabon	156	0	0	(s)	129	11	11	2
Kenya	0	0	49	7	0	18	30	6
Libya	1,150	40	0	33	1,080	21	124	4
Morocco	1	0	89	4	0	5	88	4
Nigeria	1,295	0	0	4	1,050	10	228	2
South Africa, Republic of	*20	0	324	15	0	1	349	73
Tunisia	120	0	7	27	97	2	49	2
Other	232	0	172	150	203	29	301	44
Total	4,476	260	641	272	3,583	288	1,657	196

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Table 94. International Petroleum Supply and Disposition, 1982 (Continued)

(Thousand Barrels per Day)

Area and Country	Supply				Disposition			
	Crude Oil [1] Production	Natural Gas Plant Liquids Production	Crude Oil Imports	Petroleum Product Imports	Crude Oil Exports	Petroleum Product Exports	Apparent Consumption [2]	International Bunkers
Middle East								
Bahrain	44	8	150	0	0	176	31	13
Iran	2,214	9	0	0	1,450	95	675	18
Iraq	1,012	5	0	3	811	38	205	2
Israel	1	0	165	6	0	13	162	5
Kuwait	823	40	0	0	369	395	98	24
Oman	324	0	0	16	320	0	16	6
Qatar	330	30	0	3	322	12	11	1
Saudi Arabia	6,483	430	10	35	5,805	539	606	85
Syria	160	0	104	24	101	46	121	6
United Arab Emirates	1,250	90	0	69	1,241	42	126	21
Other	0	0	114	38	0	8	154	25
Total	12,641	612	543	194	10,419	1,365	2,206	206
Far East and Oceania								
Australia	370	52	241	45	1	104	659	17
Brunei	154	25	0	1	170	0	4	0
China	2,045	0	13	3	304	80	1,661	0
Hong Kong	0	0	0	128	0	4	125	26
India	390	0	339	105	91	14	710	10
Indonesia	1,339	80	124	239	1,179	121	479	6
Japan	9	1	3,742	749	0	35	4,554	132
Korea, South	0	0	489	54	0	10	534	4
Malaysia	306	0	77	57	249	3	180	8
New Zealand	15	1	36	27	0	0	82	5
Pakistan	12	1	92	33	0	24	104	7
Philippines	8	0	193	34	0	1	224	6
Singapore	0	0	777	196	4	740	222	129
Taiwan	3	3	326	20	0	19	330	4
Thailand	0	0	148	46	0	[5]	199	2
Other	30	0	138	136	0	23	270	33
Total	4,681	163	6,735	1,873	1,998	1,178	10,337	389
World Total	54,125	3,831	25,488	8,856	23,854	9,119	59,739	2,070

[1] Data include lease condensate.

[2] Data represent apparent consumption, which includes domestic consumption, refinery fuel and loss, and international bunkering. Apparent consumption is either an actual figure or is derived from the components of refined product output, plus imports, minus exports with no allowance for stock changes. Also includes, where available, liquefied petroleum gases sold directly for fuel and chemical uses from natural gas processing plants.

[3] Includes 584,000 barrels per day of refinery processing gain and other hydrocarbon inputs to refineries.

[4] Includes 63,000 barrels per day of fuel alcohol.

[5] Denotes less than 500 barrels per day.

[6] Includes 20,000 barrels per day of liquids produced from coal.

Note: Sum of components may not equal total due to independent rounding.

Source: Energy Information Administration, *International Energy Annual 1983.*

Figure 95. International Production of Crude Oil, 1960-1984

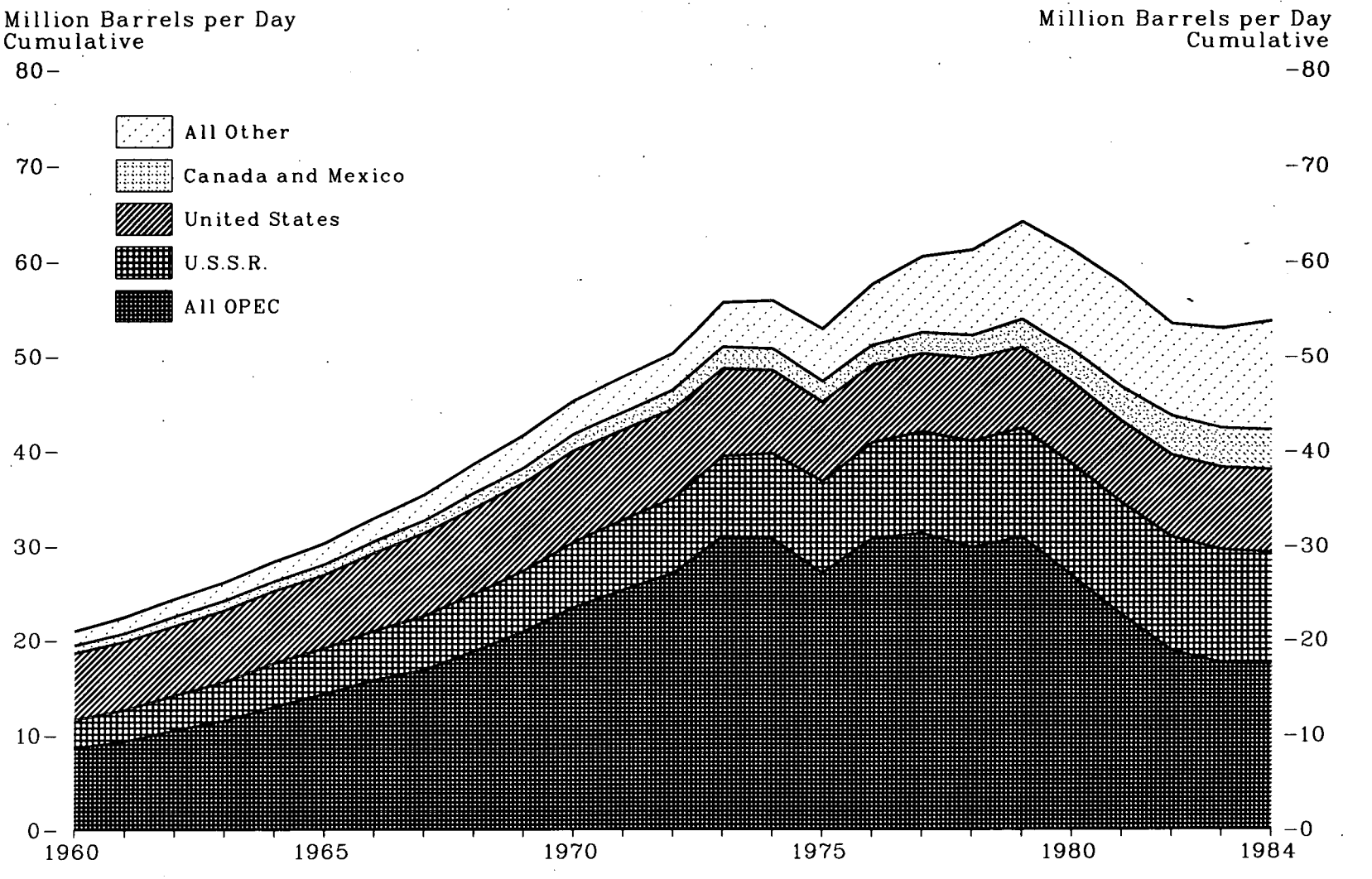


Table 95. International Production of Crude Oil,[1] 1960-1984

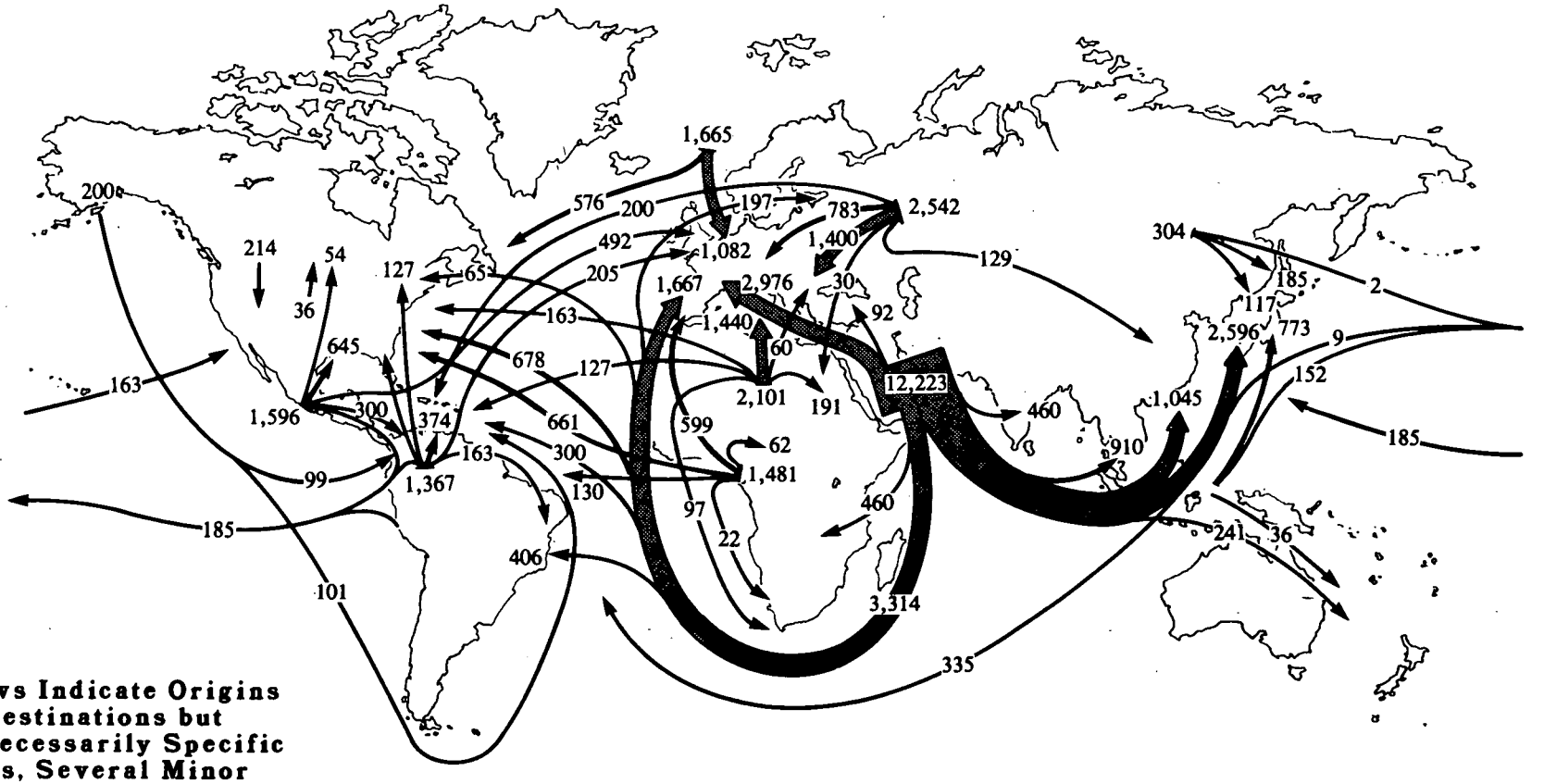
(Million Barrels per Day)

Year	Organization of Petroleum Exporting Countries (OPEC)[2]															
	Indonesia	Iran	Nigeria	Saudi Arabia[3]	Venezuela	Other OPEC	Total OPEC	Canada	China	Mexico	United Kingdom	United States	U.S.S.R.	Other Non-OPEC	Total World	Non-Communist World
1960	0.41	1.07	0.02	1.31	2.85	3.04	8.70	0.52	0.10	0.27	(4)	7.04	2.91	1.42	20.96	17.65
1961	0.42	1.20	0.05	1.48	2.92	3.27	9.36	0.61	0.11	0.29	(4)	7.18	3.28	1.60	22.43	18.66
1962	0.45	1.34	0.07	1.64	3.20	3.63	10.51	0.67	0.12	0.31	(4)	7.33	3.67	1.71	24.32	20.14
1963	0.44	1.49	0.08	1.79	3.25	4.02	11.51	0.71	0.13	0.32	(4)	7.54	4.07	1.85	26.13	21.52
1964	0.46	1.71	0.12	1.90	3.39	4.54	12.98	0.75	0.18	0.32	(4)	7.61	4.60	1.92	28.36	23.15
1965	0.48	1.91	0.27	2.21	3.47	4.78	14.34	0.81	0.23	0.32	(4)	7.80	4.79	2.01	30.30	24.85
1966	0.47	2.13	0.42	2.60	3.37	5.28	15.77	0.88	0.29	0.33	(4)	8.30	5.23	2.13	32.93	26.96
1967	0.51	2.60	0.32	2.81	3.54	5.33	16.85	0.96	0.28	0.37	(4)	8.81	5.68	2.42	35.37	28.95
1968	0.60	2.84	0.14	3.04	3.61	5.96	18.79	1.19	0.30	0.39	(4)	9.10	6.08	2.79	38.64	31.85
1969	0.75	3.38	0.54	3.22	3.59	6.32	20.91	1.13	0.48	0.46	(4)	9.24	6.48	2.99	41.69	34.42
1970	0.85	3.83	1.08	3.80	3.71	6.82	23.41	1.26	0.60	0.49	(4)	9.64	6.97	2.92	45.29	37.36
1971	0.89	4.54	1.53	4.77	3.55	7.29	25.33	1.35	0.78	0.49	(4)	9.46	7.44	2.99	47.84	39.29
1972	1.08	5.02	1.82	6.02	3.22	7.69	27.09	1.53	0.90	0.51	(4)	9.44	7.88	2.91	50.26	41.31
1973	1.34	5.86	2.05	7.60	3.37	8.59	30.99	1.80	1.09	0.47	(4)	9.21	8.47	3.64	55.67	45.66
1974	1.38	6.02	2.26	8.48	2.98	8.09	30.73	1.68	1.32	0.57	(4)	8.77	9.00	3.78	55.85	45.07
1975	1.31	5.35	1.78	7.08	2.35	7.81	27.16	1.44	1.49	0.71	0.01	8.38	9.63	4.07	52.88	41.29
1976	1.50	5.88	2.07	8.58	2.29	8.49	30.74	1.30	1.67	0.83	0.25	8.13	10.14	4.50	57.31	45.02
1977	1.69	5.66	2.09	9.25	2.24	8.31	31.30	1.32	1.87	0.98	0.77	8.25	10.68	5.29	59.69	46.65
1978	1.64	5.24	1.90	8.30	2.17	8.58	29.81	1.31	2.08	1.21	1.08	8.71	11.19	5.75	60.06	46.32
1979	1.59	3.17	2.30	9.53	2.36	9.89	30.93	1.50	2.12	1.46	1.57	8.55	11.46	6.52	62.54	48.51
1980	1.58	1.66	2.06	9.90	2.17	7.73	26.89	1.44	2.11	1.94	1.62	8.60	11.77	6.79	59.54	45.23
1981	1.61	1.38	1.43	9.82	2.10	5.17	22.65	1.29	2.01	2.31	1.81	8.57	11.91	7.16	55.90	41.55
1982	1.34	2.21	1.30	6.48	1.90	5.64	18.87	1.37	2.05	2.75	2.07	8.65	12.08	5.63	53.46	38.89
1983	1.39	2.43	1.24	5.09	1.77	5.66	17.56	1.45	2.12	2.69	2.29	8.69	12.03	6.15	52.98	38.36
1984[5]	1.47	2.19	1.37	4.67	1.80	5.96	17.46	1.41	2.21	2.76	2.50	8.76	11.83	6.81	53.72	39.21

[1] Includes lease condensate, excludes natural gas plant liquids.
[2] See Glossary for membership.
[3] Saudi Arabia includes one-half of the production in the Partitioned Zone (formerly Neutral Zone).
[4] Less than 5,000 barrels per day.
[5] Preliminary.
Note: Sum of components may not equal total due to independent rounding.

Sources: **China** •1960 through 1972—Central Intelligence Agency, unpublished data. •1973 through 1983—Energy Information Administration, *International Energy Annual, 1983.* •1984—Energy Information Administration, *Monthly Energy Review.* **United States** •1960 through 1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1976 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 through 1983—Energy Information Administration, *Petroleum Supply Annual.* •1984—Energy Information Administration, *Monthly Energy Review.* **U.S.S.R.:** •1960 through 1972—USSR Central Statistical Office, *Narodnoye Khozyaystvo SSSR* (National Economy USSR). •1973 through 1983—Energy Information Administration, *International Energy Annual, 1983.* •1984—Energy Information Administration, *Monthly Energy Review.* **OPEC Nations:** •1960 through 1972—Organization of Petroleum Exporting Countries, *Annual Statistical Bulletin 1979.* •1973 through 1983—Energy Information Administration, *International Energy Annual 1983.* •1984—Energy Information Administration, *Monthly Energy Reveiw.* **All other countries:** •1960 through 1969—Bureau of Mines, *International Petroleum Annual, 1969.* •1970 through 1972—Energy Information Administration, *International Petroleum Annual, 1978.* •1973 through 1983—Energy Information Administration, *International Energy Annual, 1983.* •1984—Energy Information Administration, *Monthly Energy Review.*

Figure 96. International Crude Oil Flow, 1982
(Thousand Barrels per Day)



Arrows Indicate Origins and Destinations but Not Necessarily Specific Routes, Several Minor Routes and Quantities Are Not Displayed.

Table 96. International Crude Oil Flow, 1982

(Thousand Barrels per Day)

Exporting Area and Country	Importing Area or Country										
	North America		Central and South America		Western Europe				Far East and Oceania		
	United States	Canada	Caribbean Area	Other	Via Atlantic Ocean and North Sea	Via Mediterranean Sea	Eastern Europe	Middle East and Africa	Japan	Other	Total [1]
North America											
Canada	214	—	—	0	0	0	0	0	0	0	214
Mexico	645	54	190	110	212	280	0	0	96	10	1,596
United States	—	36	[2] 200	0	0	0	0	0	0	0	236
Central and South America											
Ecuador	32	0	8	32	4	0	0	0	0	41	117
Peru	21	0	12	9	0	0	0	0	0	0	42
Trinidad and Tobago	92	0	0	0	0	0	0	0	0	0	92
Venezuela	155	127	374	163	105	100	1	0	28	5	1,058
Other	22	0	10	5	8	2	0	6	0	5	58
Western Europe											
Norway	102	0	0	2	280	9	0	4	0	0	397
United Kingdom	441	18	15	1	740	53	0	0	0	0	1,268
Other	([3])	0	18	10	33	0	0	0	0	0	61
U.S.S.R. and Eastern Europe	0	0	120	80	503	280	1,400	30	1	128	2,542
Middle East											
Via Suez Canal and Sumed Pipeline	0	0	0	0	750	1,850	45	1	0	0	2,646
Via Eastern Mediterranean	3	0	111	50	190	186	47	151	0	65	803
Via Cape of Good Hope	678	65	300	406	1,380	287	197	0	0	0	3,314
Other [4]	0	0	0	0	0	110	0	714	2,596	2,041	5,460
Africa											
North	163	23	92	35	700	740	60	191	57	40	2,101
West	661	4	70	60	480	119	8	62	6	16	1,486
Far East and Oceania [5]	260	0	45	30	10	25	2	25	958	643	1,998
World Total	3,488	327	1,565	993	5,395	4,040	1,760	1,184	3,742	2,993	25,488

[1] The data in this column are total imports; they do not equal reported exports because of changes in stocks at sea, exchanges, transshipments, and other statistical discrepancies.
[2] Includes shipments to Puerto Rico and the Virgin Islands.
[3] Less than 500 barrels per day.
[4] Primarily tanker shipments to countries bordering the Indian or Pacific Oceans.
[5] Primarily Indonesia, China, Malaysia, and Brunei.
Note: Transshipments are assigned to the country of original lading, if known.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *International Energy Annual 1983.*

Figure 97. International Consumption of Petroleum Products, 1960-1982

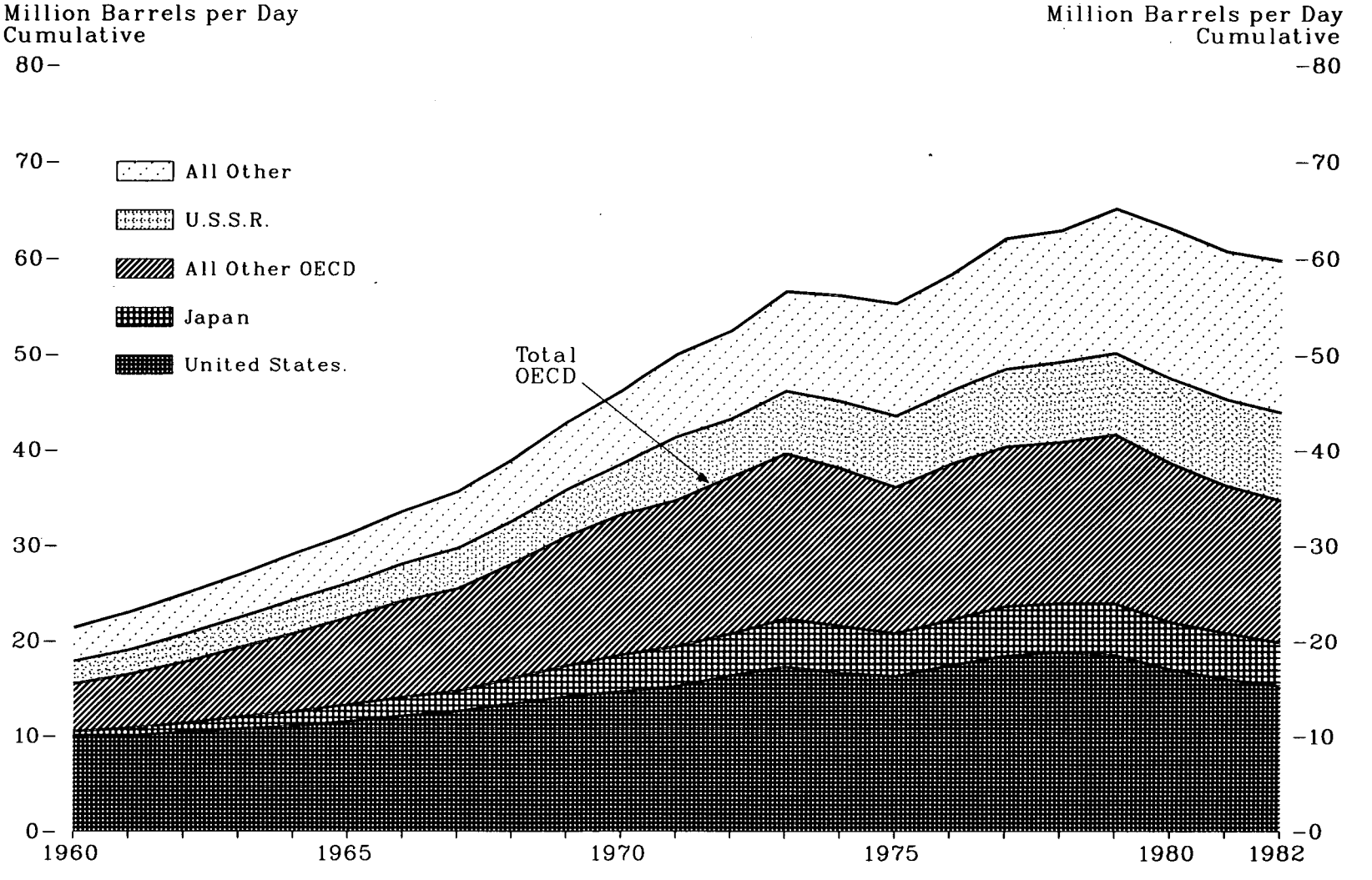


Table 97. International Consumption of Petroleum Products, 1960-1982

(Million Barrels per Day)

Year	Organization for Economic Cooperation and Development (OECD) [1]																
	Australia	Canada	France	West Germany	Italy	Japan	Spain	United Kingdom	United States	Other OECD	Total	Brazil	China	Mexico	U.S.S.R.	Total World	Non-Communist World
1960	0.22	0.84	0.56	0.63	0.44	0.66	0.10	0.94	9.80	1.28	15.47	0.27	0.17	0.30	2.38	21.34	18.32
1961	0.23	0.87	0.63	0.79	0.54	0.82	0.12	1.04	9.98	1.45	16.46	0.28	0.17	0.29	2.57	23.00	19.57
1962	0.25	0.92	0.73	1.00	0.67	0.93	0.12	1.12	10.40	1.62	17.74	0.31	0.14	0.30	2.87	24.89	21.20
1963	0.29	0.99	0.86	1.17	0.77	1.21	0.12	1.27	10.74	1.85	19.26	0.34	0.17	0.31	3.15	26.92	22.90
1964	0.32	1.05	0.98	1.36	0.90	1.48	0.20	1.36	11.02	2.03	20.70	0.35	0.20	0.33	3.58	29.08	24.76
1965	0.35	1.14	1.09	1.61	0.98	1.74	0.23	1.49	11.51	2.30	22.44	0.33	0.23	0.34	3.61	31.14	26.45
1966	0.37	1.21	1.19	1.80	1.08	1.98	0.31	1.58	12.08	2.61	24.20	0.38	0.30	0.36	3.87	33.56	28.53
1967	0.41	1.25	1.34	1.86	1.19	2.14	0.36	1.64	12.56	2.72	25.48	0.38	0.28	0.39	4.22	35.59	30.08
1968	0.45	1.34	1.46	1.99	1.40	2.66	0.46	1.82	13.39	3.08	28.05	0.46	0.31	0.41	4.48	38.96	32.96
1969	0.49	1.42	1.66	2.33	1.69	3.25	0.49	1.98	14.14	3.49	30.94	0.48	0.44	0.45	4.87	42.89	36.37
1970	0.51	1.49	1.89	2.43	1.84	3.85	0.56	2.09	14.70	3.88	33.23	0.51	0.62	0.50	5.30	46.17	39.39
1971	0.54	1.53	2.05	2.61	1.93	4.18	0.60	2.09	15.21	3.95	34.71	0.56	0.79	0.52	6.65	50.03	42.54
1972	0.54	1.62	2.24	2.76	2.07	4.36	0.67	2.24	16.37	4.29	37.15	0.65	0.91	0.56	6.10	52.47	45.06
1973	0.59	1.71	2.42	2.92	2.15	5.07	0.74	2.30	17.31	4.38	39.58	0.77	1.12	0.61	6.57	56.53	47.58
1974	0.62	1.74	2.26	2.61	2.09	4.96	0.78	2.14	16.65	4.23	38.08	0.83	1.38	0.67	7.01	56.12	47.54
1975	0.56	1.69	2.14	2.52	1.58	4.50	0.84	1.87	16.32	4.07	36.09	0.87	1.58	0.74	7.47	55.28	46.20
1976	0.62	1.74	2.28	2.71	1.80	4.77	0.98	1.86	17.46	4.29	38.51	0.97	1.68	0.80	7.65	58.31	47.37
1977	0.66	1.75	2.23	2.84	1.97	5.23	0.93	1.88	18.43	4.41	40.34	1.01	1.83	0.84	8.18	62.02	50.15
1978	0.61	1.74	2.17	3.05	2.18	5.14	0.95	1.85	18.85	4.29	40.81	1.05	1.81	0.92	8.47	62.84	50.55
1979	0.61	1.86	2.39	3.07	2.00	5.48	0.98	1.93	18.51	4.78	41.62	1.18	1.85	0.90	8.58	65.11	51.95
1980	0.59	1.95	2.26	2.71	1.88	4.96	0.99	1.73	17.06	4.49	38.60	1.16	1.83	1.22	8.91	63.03	49.57
1981	0.58	1.84	2.02	2.45	1.91	4.85	0.94	1.59	16.06	4.07	36.30	1.02	1.68	1.27	9.03	60.71	47.44
1982	0.66	1.62	1.94	2.32	1.78	4.55	1.01	1.59	15.30	3.92	34.69	1.08	1.66	1.36	9.25	59.74	46.28

[1] See Glossary for membership. "Other OECD" includes the United States territories of Puerto Rico, Virgin Islands, and Guam.

Note: Sum of components may not equal total due to independent rounding.

Sources: **United States:** •1960 through 1976—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* •1977 through 1980—Energy Information Administration, Energy Data Reports, *Petroleum Statement, Annual.* •1981 and 1982—Energy Information Administration, *Petroleum Supply Annual.* **U.S.S.R.:** •1960 through 1976—U.S.S.R. Central Statistical Office, *Narodnoye Khozyaystvo SSSR* (National Economy U.S.S.R.), and *Vneshnyaya Torgvliya SSSR* (Foreign Trade of the U.S.S.R.), annual issues. •1977 through 1979—U.S.S.R. Central Statistical Office, *Narodnoye Khozyaystvo SSSR* (National Economy U.S.S.R.), annual issues; U.S.S.R. trade as imports reported by their trading partners in official trade statistics of the respective countries. •1980 through 1982—Energy Information Administration, *International Energy Annual.* **China:** •1960 through 1979—Central Intelligence Agency, unpublished data. •1980 through 1982—Energy Information Administration, *International Energy Annual.* **All other countries:** •1960 through 1969—Bureau of Mines, *International Petroleum Annual, 1969.* •1970 through 1978—Energy Information Administration, *International Petroleum Annual, 1978.* •1979 through 1982—Energy Information Administration, *International Energy Annual.*

Figure 98. Primary Stocks of Petroleum in OECD Countries, Yearend 1977-1984

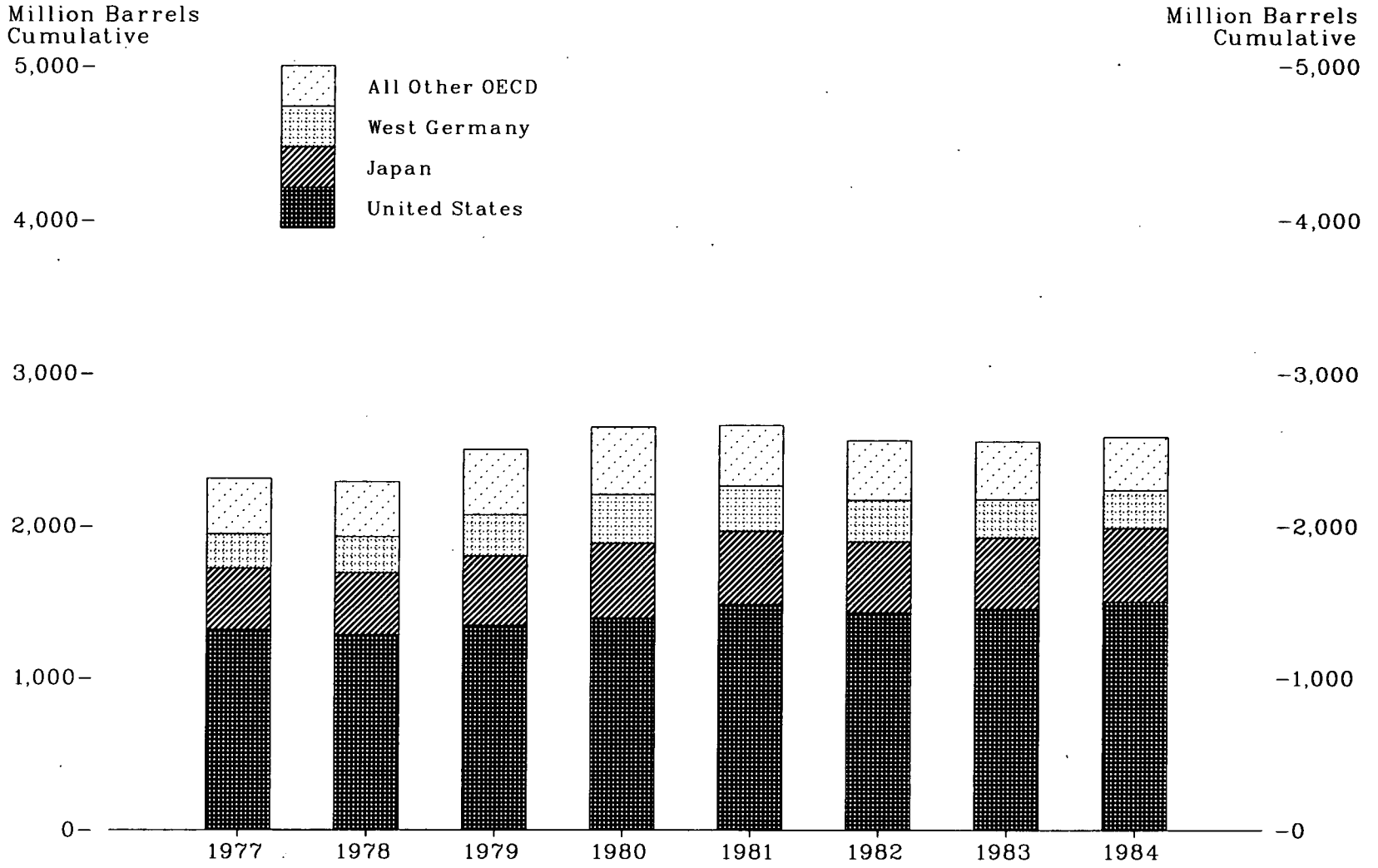


Table 98. Primary Stocks of Petroleum [1] in OECD Countries, [2] Yearend 1977-1984

(Million Barrels)

Year	Canada	France	West Germany	Italy	Japan	Netherlands	Spain	United Kingdom	United States	Other OECD [3]	Total OECD
1977	167	239	225	161	409	81	79	148	1,312	364	3,185
1978	144	201	238	154	413	77	76	157	1,278	359	3,097
1979	150	226	272	163	460	87	78	169	1,341	429	3,375
1980	164	243	319	170	495	116	77	168	1,392	443	3,587
1981	161	214	297	167	482	97	88	143	1,484	398	3,531
1982	136	193	272	179	468	87	79	125	1,430	391	3,360
1983	120	153	250	149	471	84	78	119	1,454	380	3,258
1984 [4]	122	150	250	161	484	90	80	122	1,502	350	3,311

[1] Includes crude oil, lease condensate, natural gas plant liquids, unfinished oils, and finished petroleum products. See Explanatory Note 7.
[2] Organization for Economic Cooperation and Development. See Glossary for membership.
[3] A calculated quantity derived as the difference between "Total OECD" stocks and the sum of the countries identified above.
[4] As of June 30.

Sources: • 1977 through 1983 — Organization for Economic Cooperation and Development/International Energy Agency, *Quarterly Oil Statistics*. • First and second quarter 1984 — Energy Information Administration, *Monthly Energy Review*.

Figure 99. International Supply and Disposition of Natural Gas, 1982
(Trillion Cubic Feet)

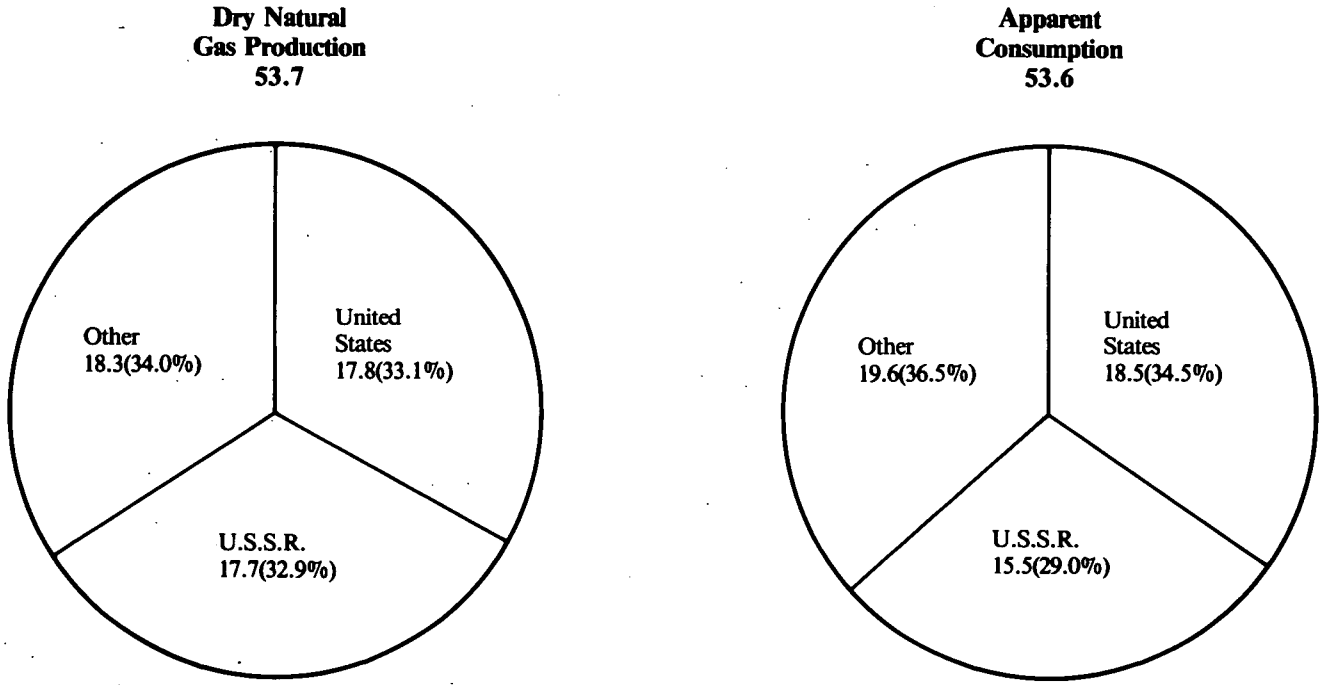


Table 99. International Supply and Disposition of Natural Gas, 1982
(Billion Cubic Feet)

Area and Country	Supply		Disposition	
	Dry Natural Gas Production	Imports	Apparent Consumption	Exports
North, Central, and South America				
Argentina	375	81	456	0
Canada	2,447	[1]	1,664	783
Mexico	1,111	0	1,016	95
United States	17,758	933	[2] 18,477	52
Venezuela	585	0	585	0
Other	414	0	333	81
Total	22,690	1,014	22,531	1,011
Western Europe				
France	226	693	914	5
Germany, West	594	1,243	1,795	42
Italy	467	522	989	0
Netherlands	2,666	126	1,511	1,281
Norway	897	0	43	855
United Kingdom	1,227	345	1,571	[1]
Other	187	692	871	6
Total	6,264	3,621	7,694	2,191
Eastern Europe and U.S.S.R.				
Czechoslovakia	23	319	341	[1]
Germany, East	286	233	519	0
Hungary	235	139	374	0
Poland	195	199	394	0
Romania	1,348	71	1,411	8
U.S.S.R.	17,682	80	15,522	2,240
Other	13	176	189	0
Total	19,782	1,217	18,750	2,249
Middle East and Africa				
Algeria	890	0	553	337
Iran	200	0	200	0
Kuwait	100	0	100	0
Saudi Arabia	201	0	201	0
Other	949	0	805	144
Total	2,340	0	1,859	481
Far East and Oceania				
Australia	384	0	383	[1]
Brunei	325	0	70	255
China	381	0	381	0
Indonesia	670	0	218	452
Japan	53	866	919	0
Pakistan	354	0	354	0
Other	483	26	403	106
Total	2,650	892	2,728	814
World Total	53,726	6,745	53,563	6,745

[1] Less than 0.5 billion cubic feet.
[2] Actual consumption.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *International Energy Annual 1983.*

Figure 100. International Natural Gas Flow, 1982
(Billion Cubic Feet)

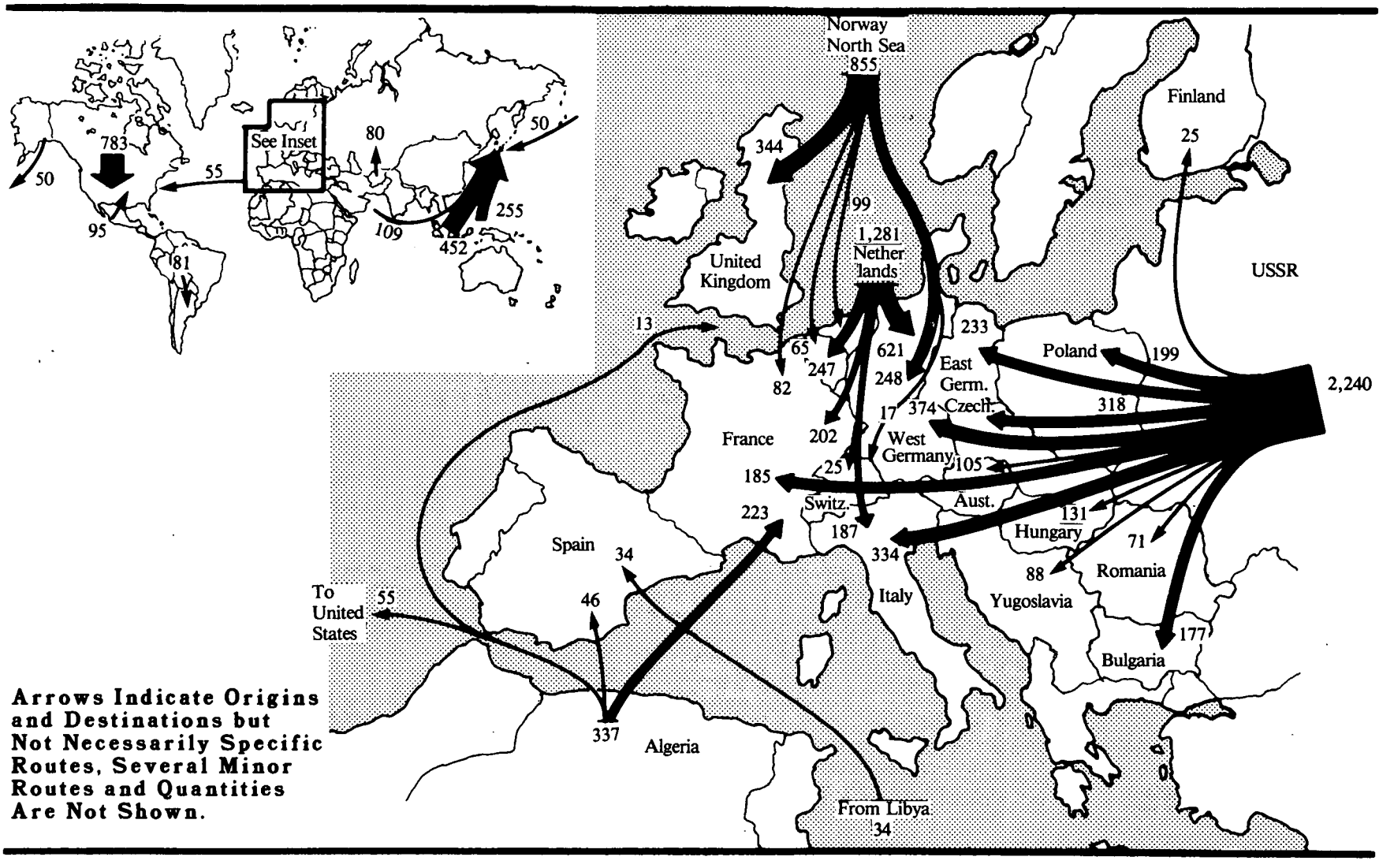


Table 100. International Natural Gas Flow, 1982

(Billion Cubic Feet)

Importing Area and Country	Exporting Area or Country													
	North and South America			Western Europe			Eastern Europe			Africa		Far East and Oceania		
	Canada	United States	Other	Netherlands	Norway	Other	U.S.S.R.	Other	Middle East	Algeria	Libya	Indonesia	Other	Total
North America														
Mexico	0	2	0	0	0	0	0	0	0	0	0	0	0	2
United States	783	—	95	0	0	0	0	0	0	[1] 55	0	0	0	933
Central and South America														
Argentina	0	0	81	0	0	0	0	0	0	0	0	0	0	81
Western Europe														
Austria	0	0	0	0	0	2	105	1	0	0	0	0	0	107
Belgium and Luxembourg	0	0	0	247	65	25	0	0	0	[1] 13	0	0	0	350
Finland	0	0	0	0	0	0	25	0	0	0	0	0	0	25
France	0	0	0	202	82	0	185	0	0	[1] 223	0	0	0	693
Germany, West	0	0	0	621	248	0	374	0	0	0	0	0	0	1,243
Italy	0	0	0	187	0	0	334	0	0	0	[1] 1	0	0	522
Netherlands	0	0	0	—	99	27	0	0	0	0	0	0	0	126
Spain	0	0	0	0	0	0	0	0	0	[1] 46	[1] 34	0	0	79
Switzerland	0	0	0	25	17	1	0	0	0	0	0	0	0	42
United Kingdom	0	0	0	0	344	0	0	0	0	[1] 1	0	0	0	345
Yugoslavia	0	0	0	0	0	0	88	0	0	0	0	0	0	88
Eastern Europe and U.S.S.R.														
Bulgaria	0	0	0	0	0	0	177	0	0	0	0	0	0	177
Czechoslovakia	0	0	0	0	0	0	318	([2])	0	0	0	0	0	319
Germany, East	0	0	0	0	0	0	233	0	0	0	0	0	0	233
Hungary	0	0	0	0	0	0	131	8	0	0	0	0	0	139
Poland	0	0	0	0	0	0	199	0	0	0	0	0	0	199
Romania	0	0	0	0	0	0	71	0	0	0	0	0	0	71
U.S.S.R.	0	0	0	0	0	0	—	0	0	0	0	0	[2] 80	80
Far East and Oceania														
Japan	0	[1] 50	0	0	0	0	0	0	[1] 109	0	0	[1] 452	[1] 255	[1] 866
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	27	27
World Total	783	52	176	1,281	855	55	2,240	9	[1] 109	[1] 337	[1] 34	[1] 452	361	6,745

[1] Liquefied natural gas.
[2] Less than 0.5 billion cubic feet.
[3] Estimated.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *International Energy Annual 1983.*

Figure 101. International Coal Production, 1975 and 1983
(Million Short Tons)

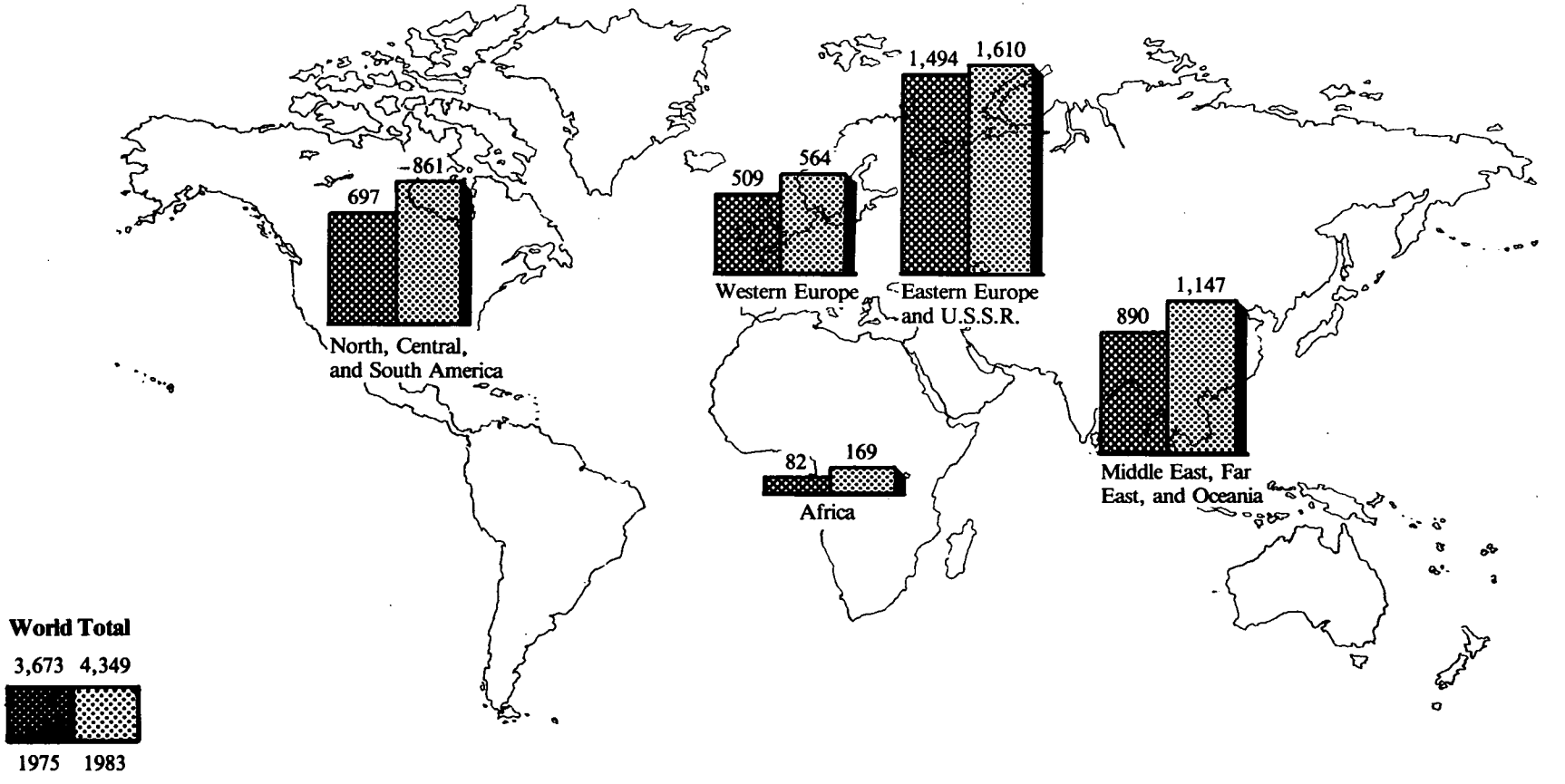


Table 101. International Coal Production, 1975-1983

(Million Short Tons)

Area and Country	1975	1976	1977	1978	1979	1980	1981	1982	1983 [1]
North, Central, and South America									
Canada	28	28	32	34	33	40	44	47	49
United States	655	685	697	670	781	830	824	838	785
Other	15	16	17	17	24	24	22	26	27
Total	697	729	746	721	838	894	890	911	861
Western Europe									
Germany, West	238	247	229	228	239	239	241	247	237
Spain	15	16	19	22	24	32	38	43	44
Turkey	12	11	13	15	22	18	19	24	26
United Kingdom	142	137	135	136	135	141	138	137	128
Yugoslavia	39	41	43	44	46	52	58	60	60
Other	63	66	67	64	63	61	67	68	69
Total	509	518	506	509	529	543	561	579	564
Eastern Europe and U.S.S.R.									
Bulgaria	31	28	28	28	31	33	32	35	36
Czechoslovakia	127	130	134	136	137	136	137	139	140
Germany, East	272	273	280	279	282	285	294	304	308
Poland	233	241	250	258	264	254	219	250	258
U.S.S.R.	773	784	796	798	792	790	776	792	789
Other	61	57	58	61	65	68	72	73	79
Total	1,494	1,513	1,546	1,560	1,571	1,566	1,529	1,593	1,610
Africa									
South Africa, Republic of	77	85	94	100	114	127	144	151	161
Other	6	6	6	6	7	6	5	6	8
Total	82	91	100	106	121	133	149	157	169
Middle East, Far East, and Oceania									
Australia	105	117	119	124	139	140	159	150	151
China	570	586	606	681	698	684	683	734	738
India	109	116	115	116	118	125	142	148	142
Other	105	102	103	105	107	111	114	116	116
Total	890	921	942	1,026	1,062	1,061	1,098	1,148	1,147
World Total	3,673	3,772	3,841	3,922	4,121	4,197	4,228	4,389	4,349

[1] Preliminary.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *International Energy Annual 1983*.

Figure 102. International Hydroelectric Power Generation, 1973 and 1983
(Billion Kilowatthours)

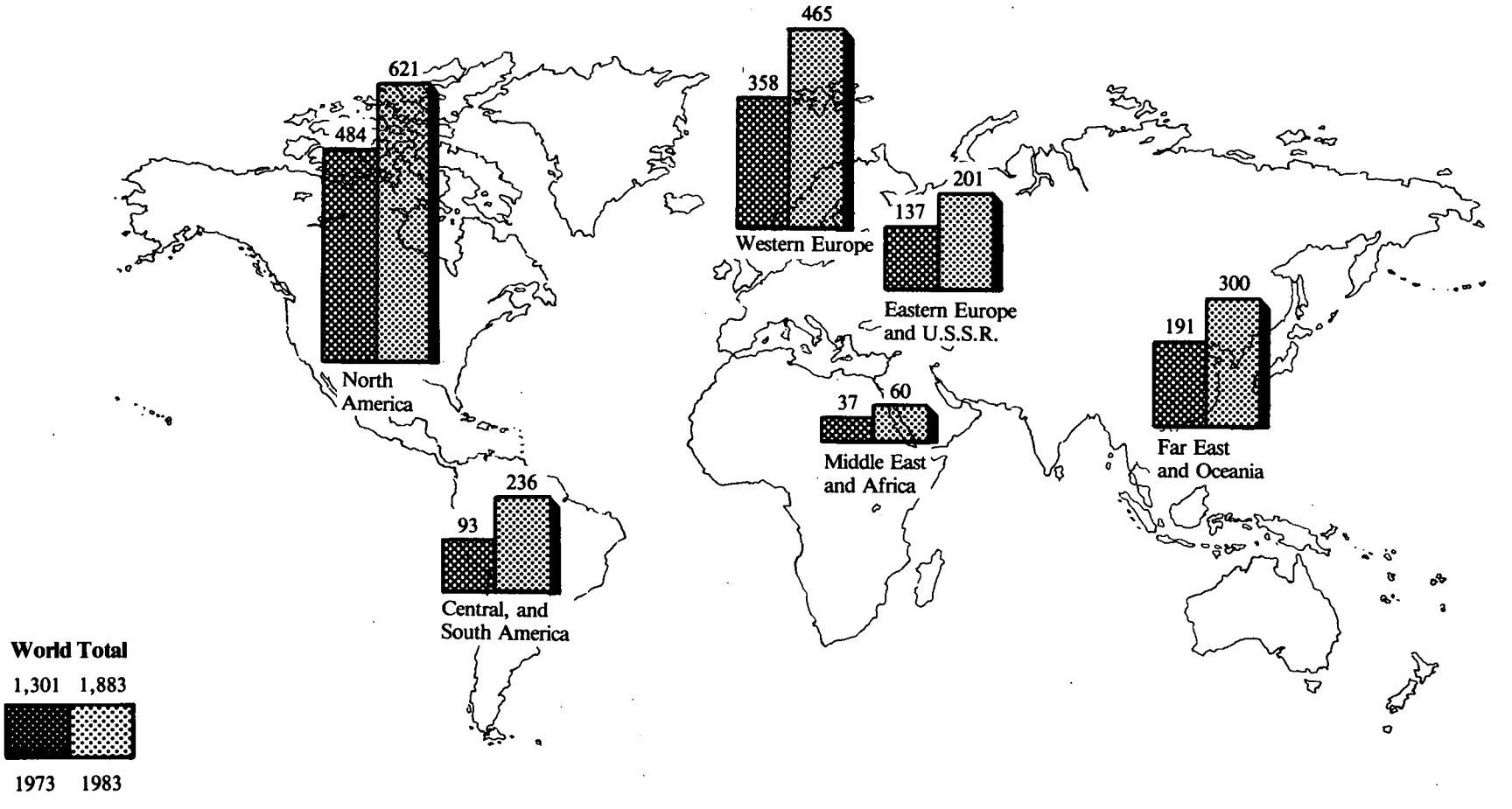


Table 102. International Hydroelectric Power Generation,[1] 1973-1983

(Billion Kilowatthours)

Area and Country	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983 [p]
North, Central, and South America											
Argentina	3	5	5	5	6	8	11	15	15	17	18
Brazil	58	66	74	82	94	103	115	127	130	140	150
Canada	193	211	202	213	220	234	243	251	263	255	263
Colombia	8	9	10	10	11	12	13	15	18	18	19
Mexico	16	17	15	17	19	16	18	17	25	23	23
United States	275	304	303	287	224	284	283	279	264	312	335
Venezuela	6	7	9	11	12	12	13	15	15	16	16
Other	17	19	19	20	21	23	24	28	29	33	33
Total	577	637	638	645	605	691	720	746	758	814	857
Western Europe											
Austria	19	22	24	20	25	25	28	29	31	31	31
Finland	10	13	12	9	12	10	11	10	13	13	13
France	48	57	60	49	76	69	67	69	73	71	71
Germany, West	15	18	17	14	17	18	18	21	20	19	19
Italy	39	39	42	41	53	47	48	49	45	44	44
Norway	72	76	77	81	72	80	88	83	92	92	105
Portugal	7	8	6	5	10	11	12	8	5	7	8
Spain	29	31	26	22	40	41	47	31	23	28	29
Sweden	59	57	57	54	53	57	60	59	60	55	56
Switzerland	29	29	34	27	36	33	32	34	36	37	37
Yugoslavia	16	21	19	20	24	25	26	28	25	23	24
Other	14	15	17	19	20	22	24	25	26	29	28
Total	358	384	391	362	437	436	461	444	450	449	465
Eastern Europe and U.S.S.R.											
Romania	8	8	9	8	9	11	11	13	13	13	12
U.S.S.R.	121	131	125	134	146	168	170	182	185	174	175
Other	9	11	11	11	13	13	13	15	14	13	14
Total	137	150	145	154	168	191	195	210	212	200	201
Middle East and Africa											
Egypt	5	6	7	8	9	9	9	10	10	10	10
Zambia	5	6	6	7	9	8	9	9	10	11	11
Other	27	29	30	34	37	39	46	50	40	40	39
Total	37	40	43	49	54	56	64	68	60	61	60
Far East and Oceania											
Australia	12	14	15	15	14	15	16	17	15	15	13
China	38	43	45	51	47	44	50	58	65	74	75
India	29	28	33	35	38	47	45	46	49	52	53
Japan	71	84	85	88	76	74	84	91	90	83	84
Korea, North	12	14	16	17	17	19	20	22	23	25	27
New Zealand	14	14	17	15	14	16	15	16	19	18	18
Other	16	17	19	21	20	21	27	28	28	29	30
Total	191	213	230	241	226	236	257	278	289	296	300
World Total	1,301	1,425	1,445	1,450	1,491	1,611	1,697	1,747	1,769	1,819	1,883

[1] See Explanatory Note 1.
[p] Preliminary.
Note: Data include industrial and utility generation of hydroelectric power.
Note: Sum of components may not equal total due to independent rounding.
Source: Energy Information Administration, *International Energy Annual 1983*.

Figure 103. Nuclear Electricity Generation by Non-Communist Countries, 1972, 1978, and 1984

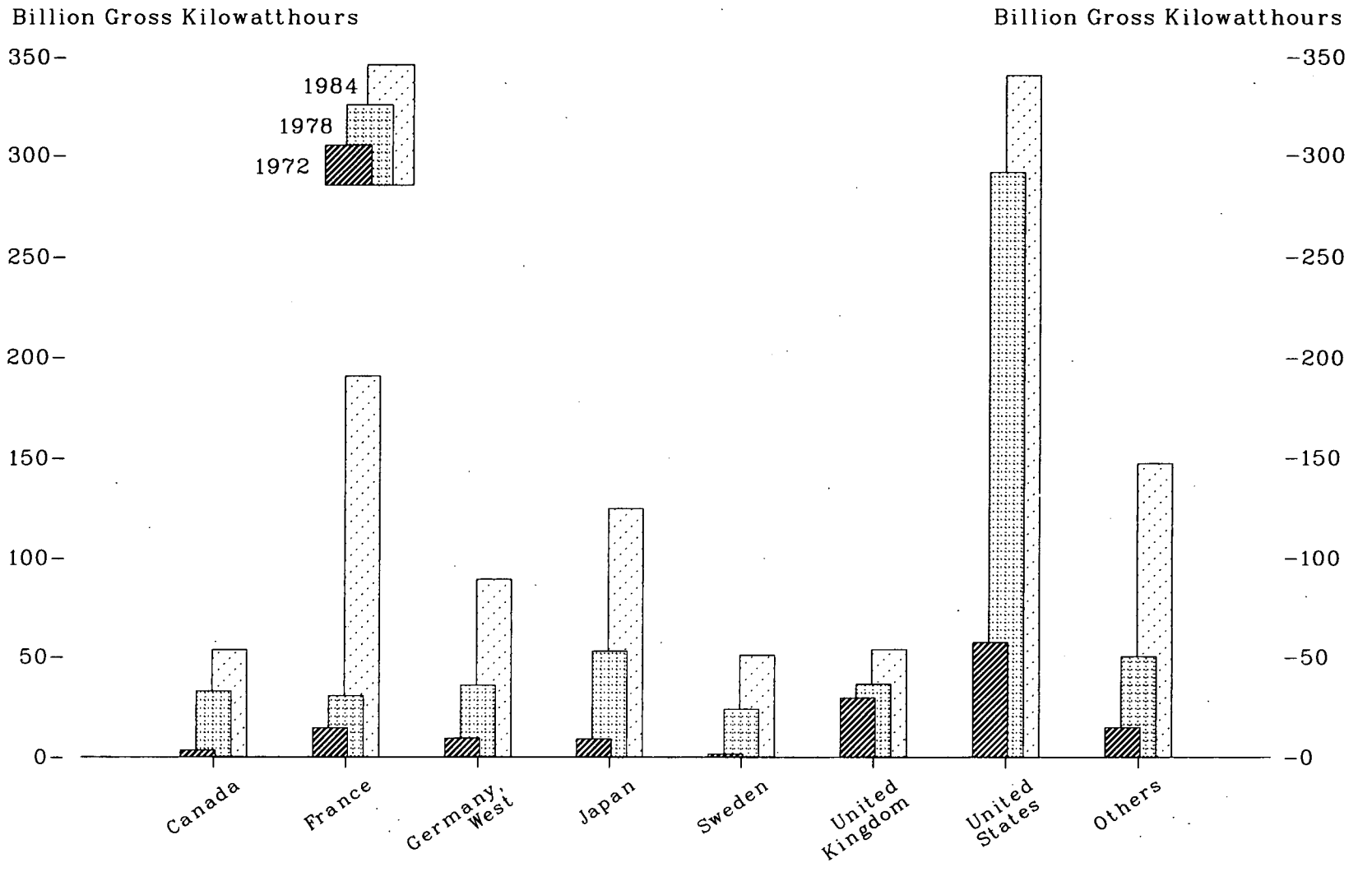


Table 103. Nuclear Electricity Generation[1] by Non-Communist Countries, 1971-1984

(Billion Gross Kilowatthours)

Country	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
North America														
Canada	4.2	3.5	18.3	15.4	13.2	18.0	26.8	32.9	38.4	40.4	43.3	42.6	53.1	53.9
United States	40.8	57.6	88.0	104.5	181.7	201.8	263.3	292.7	270.6	265.4	288.5	298.6	313.6	340.5
Total	44.9	61.1	106.2	119.9	195.0	219.8	290.1	325.6	309.0	305.8	331.8	341.2	366.7	394.4
Central and South America														
Argentina	0	0	0	1.0	2.5	2.6	1.6	2.9	2.7	2.3	2.8	1.9	3.4	4.5
Brazil	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	2.0
Total	0	0	0	1.0	2.5	2.6	1.6	2.9	2.7	2.3	2.8	1.9	3.6	6.5
Western Europe														
Belgium	0	0	0	0.1	6.8	10.0	11.9	12.5	11.4	12.5	12.8	15.6	24.1	27.7
Finland	0	0	0	0	0	0	2.7	3.3	6.7	7.0	14.5	16.5	17.4	18.5
France	9.4	14.6	11.6	14.7	18.3	15.8	17.9	30.5	39.9	61.2	105.2	108.9	144.2	191.2
Germany, West	6.0	9.3	11.9	12.0	21.7	24.5	35.8	35.9	42.2	43.7	53.4	63.4	65.8	89.7
Italy	3.4	3.6	3.1	3.4	3.8	3.8	3.4	4.4	2.6	2.2	2.7	6.8	5.8	6.9
Netherlands	0.4	0.3	1.1	3.3	3.3	3.9	3.7	4.1	3.5	4.2	3.7	3.9	3.6	3.7
Spain	2.5	4.8	6.5	7.2	7.5	7.6	6.5	7.6	6.7	5.2	9.4	8.8	10.7	23.0
Sweden	0.1	1.5	2.1	1.6	12.0	16.0	19.9	23.8	21.0	26.7	37.7	38.8	40.5	51.3
Switzerland	1.9	4.9	6.2	7.0	7.7	7.9	8.1	8.3	11.8	14.3	15.2	15.0	15.5	16.3
United Kingdom	27.6	29.6	28.0	34.0	30.5	36.8	38.1	36.7	38.5	37.2	38.9	44.1	50.0	54.1
Total	51.3	68.6	70.6	83.5	111.7	126.2	147.9	167.1	184.3	214.2	293.4	321.8	377.6	482.5
Far East and Africa														
India	1.8	0.9	1.9	2.5	2.5	3.2	2.8	2.3	3.2	2.9	3.1	2.2	2.9	4.1
Japan	6.5	9.0	9.4	18.1	22.2	36.7	28.1	53.2	62.0	82.8	86.0	104.5	109.1	124.9
Pakistan	(2)	0.2	0.5	0.6	0.5	0.5	0.3	0.2	(2)	0.1	0.2	0.1	0.2	0.3
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	4.0
South Korea	0	0	0	0	0	0	0.1	2.3	3.2	3.5	2.9	3.8	9.0	11.8
Taiwan	0	0	0	0	0	0	0.1	2.7	6.3	8.2	10.7	13.1	18.9	24.6
Total	8.3	10.1	11.8	21.2	25.3	40.4	31.4	60.7	74.7	97.4	102.9	123.6	140.1	169.7
Total	104.5	139.8	188.7	225.6	334.4	389.1	471.0	556.3	570.7	619.8	730.9	788.5	887.9	1,053.1

[1] See Explanatory Note 1.
[2] Less than 0.05 billion gross kilowatthours.
Note: Sum of components may not equal total due to independent rounding.
Source: *Nucleonics Week*, McGraw-Hill Publishing Co., Inc.

Figure 104. Official Prices of Selected Foreign Crude Oils, January 1, 1970–1985

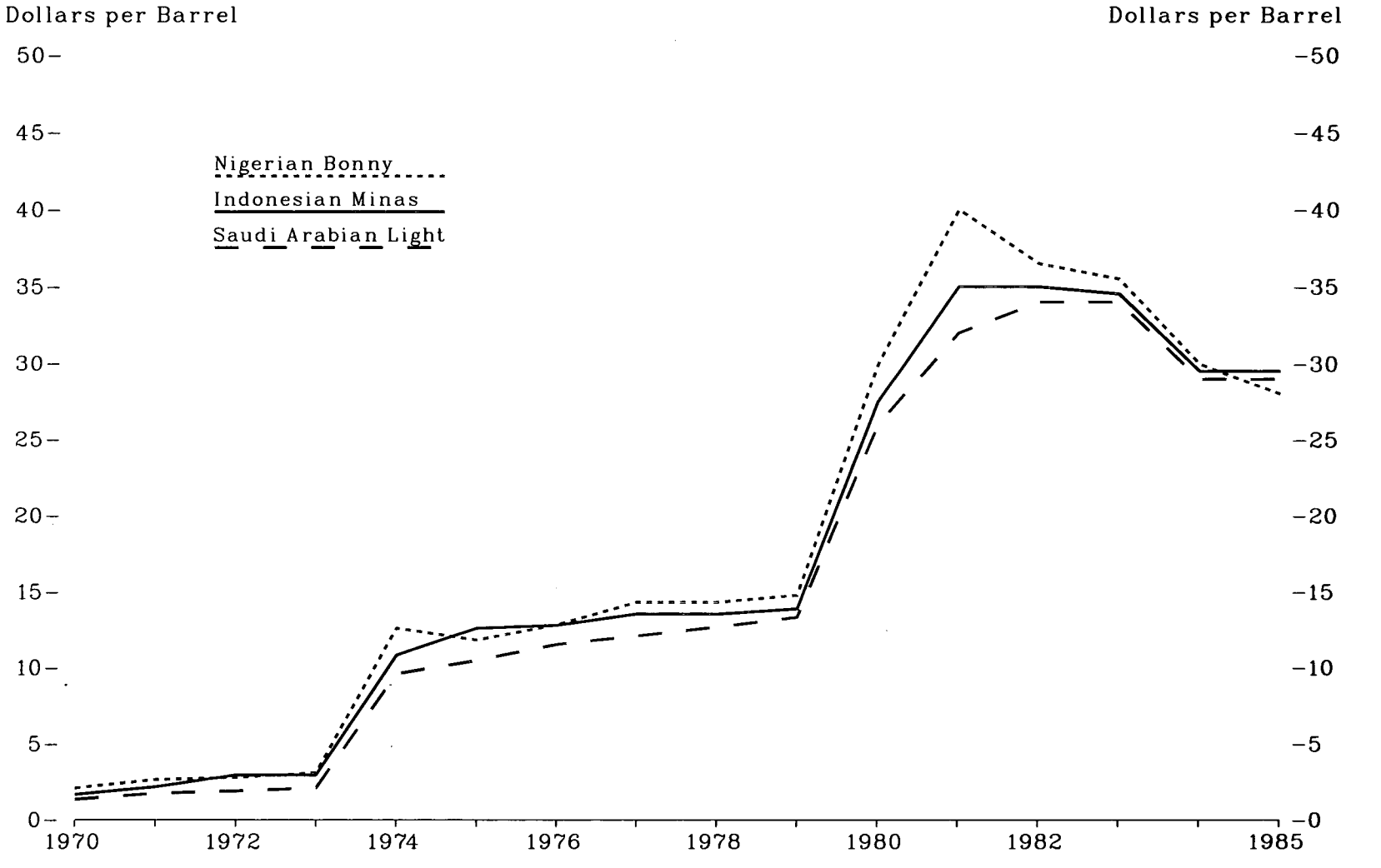


Table 104. Official Prices[1] of Selected Foreign Crude Oils, January 1, 1970-1985

(Dollars per Barrel)

Year	Saudi Arabian Light-34° API	Iranian Light-34° API	Libyan [2] Es Sider-37° API	Nigerian [3] Bonny-37° API	Indonesian Minas-34° API	Venezuelan Tia Juana-26° API	Mexico Maya-22° API	United Kingdom Brent Blend-38° API [4]
1970	1.35	1.36	2.09	2.10	1.67	2.05	NA	NA
1971	1.75	1.76	2.80	2.65	2.18	2.45	NA	NA
1972	1.90	1.91	2.80	2.80	2.96	2.45	NA	NA
1973	2.10	2.11	3.10	3.10	2.96	2.60	NA	NA
1974	9.60	10.63	14.30	12.60	10.80	9.30	NA	NA
1975	10.46	10.67	11.98	11.80	12.60	11.00	NA	NA
1976	11.51	11.62	12.21	12.84	12.80	11.12	NA	NA
1977	12.09	12.81	13.74	14.33	13.55	12.72	NA	NA
1978	12.70	12.81	13.80	14.33	13.55	12.82	NA	NA
1979	13.34	13.45	14.52	14.80	13.90	13.36	15.45	15.70
1980	26.00	[5] 30.00	34.50	29.97	27.50	25.20	28.00	26.02
1981	32.00	37.00	40.78	40.00	35.00	32.88	34.50	39.25
1982	34.00	34.20	36.50	36.50	35.00	32.88	26.50	36.60
1983	34.00	31.20	35.10	35.50	34.53	32.88	25.50	33.50
1984	29.00	28.00	30.15	30.00	29.53	27.88	25.00	30.00
1985	29.00	28.00	30.15	28.00	29.53	27.88	25.50	28.65

[1] Selling prices free on board (f.o.b.) at the foreign port of lading. Except as noted (see United Kingdom Brent Blend - 38 degrees API) prices prior to mid-1974 are average contract selling prices and prices for the period mid-1974 forward are official selling prices including premiums or discounts in cases where they were clearly defined and applicable to all clints.

[2] Prices for 1974 and 1975 are for 40 degrees API gravity. Prices for 1980 include $4.72 in retroactive charges and market premiums.

[3] Prices from 1977 forward include 2 cents per barrel harbor dues.

[4] Estimated long term contract prices.

[5] Price for 1980 includes $1.87 market premiums and credit charges.

NA = Not available.

Sources: •1970 through 1978—Petroleum and Energy Intelligence Weekly, Inc., *Petroleum Intelligence Weekly.* •1979 through 1985—Energy Information Administration, *Weekly Petroleum Status Report.*

Figure 105. Comparison of Average Annual Spot Prices and Official Prices for Selected Foreign Crude Oil Mixes, 1960–1983

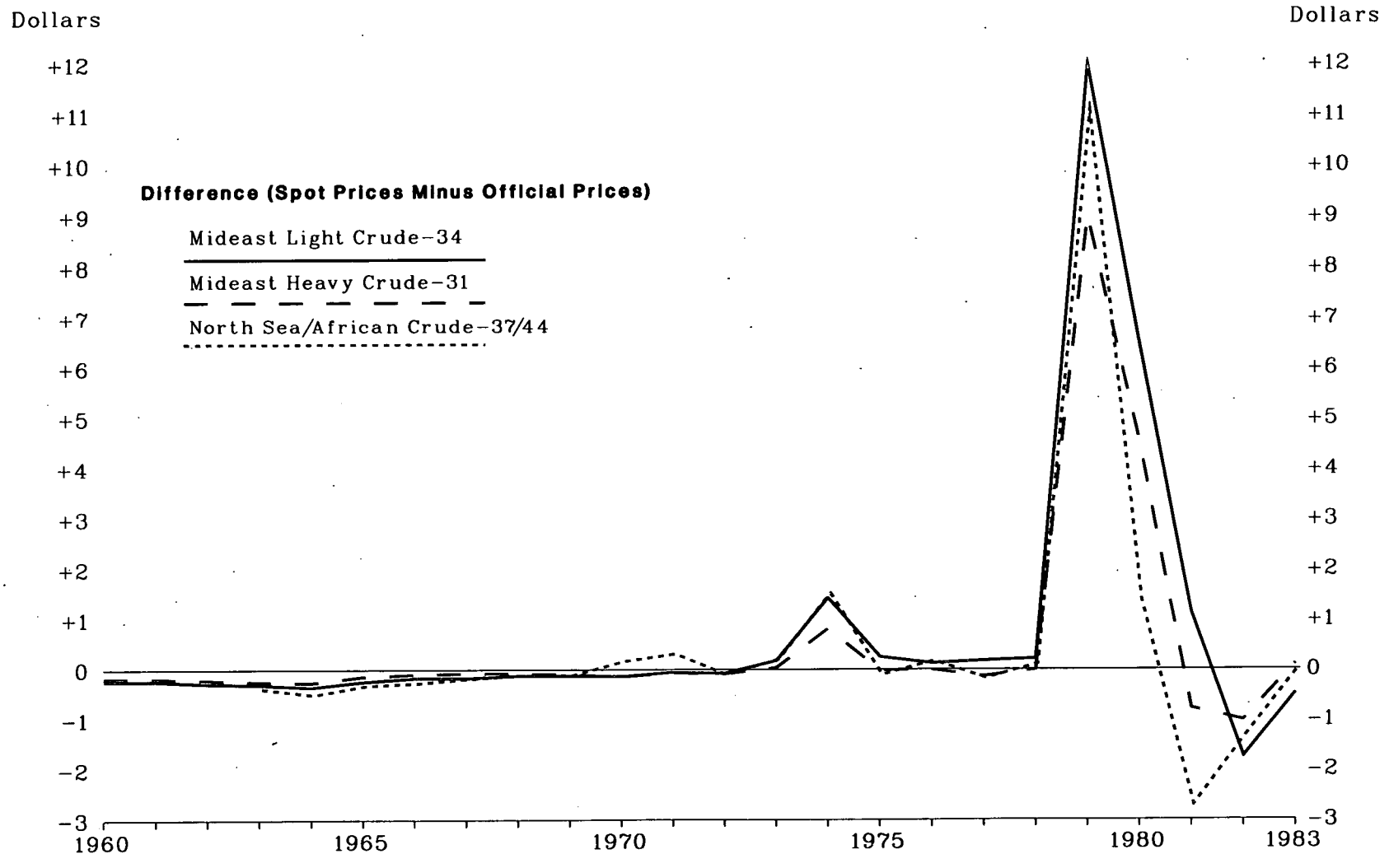


Table 105. Comparison of Average Annual Spot Prices and Official Prices for Selected Foreign Crude Oil Mixes, 1960-1983

(Dollars per Barrel)

Year	Mideast Light Crude -34 [1]			Mideast Heavy Crude -31 [2]			North Sea/African Crude -37/44 [3]		
	Official Price	Spot Price	Difference [4]	Official Price	Spot Price	Difference [4]	Official Price	Spot Price	Difference [4]
1960	1.86	1.63	-0.23	1.64	1.46	-0.18	NA	NA	NA
1961	1.80	1.57	-0.23	1.59	1.41	-0.18	NA	NA	NA
1962	1.80	1.52	-0.28	1.59	1.38	-0.21	2.23	NA	NA
1963	1.80	1.50	-0.30	1.59	1.35	-0.24	2.23	1.85	-0.38
1964	1.80	1.45	-0.35	1.59	1.33	-0.26	2.23	1.73	-0.50
1965	1.66	1.42	-0.24	1.45	1.31	-0.14	2.00	1.68	-0.32
1966	1.53	1.36	-0.17	1.38	1.28	-0.10	1.90	1.63	-0.27
1967	1.50	1.33	-0.17	1.35	1.27	-0.08	1.95	1.76	-0.19
1968	1.45	1.32	-0.13	1.32	1.24	-0.08	2.00	1.88	-0.12
1969	1.40	1.27	-0.13	1.30	1.20	-0.10	1.95	1.83	-0.12
1970	1.35	1.21	-0.14	1.30	1.15	-0.15	2.10	2.26	0.16
1971	1.75	1.69	-0.06	1.68	1.61	-0.07	2.35	2.66	0.31
1972	1.90	1.82	-0.08	1.80	1.71	-0.09	2.80	2.69	-0.11
1973	[5] 2.64	2.81	0.17	2.04	2.07	0.03	3.20	3.40	0.20
1974	[5] 9.56	10.98	1.42	9.44	10.25	0.81	11.40	12.92	1.52
1975	10.46	10.71	0.25	10.37	10.35	-0.02	11.61	11.50	-0.11
1976	11.51	11.63	0.12	11.26	11.25	-0.01	12.97	13.14	0.17
1977	12.40	12.57	0.17	12.37	12.23	-0.14	14.48	14.30	-0.18
1978	12.70	12.91	0.21	12.27	12.26	-0.01	14.10	14.21	0.11
1979	17.84	29.82	11.98	18.04	27.04	9.00	21.04	32.11	11.07
1980	29.38	35.85	6.47	29.81	34.34	4.53	36.50	37.89	1.39
1981	33.16	34.29	1.13	33.74	32.96	-0.78	39.39	36.68	-2.71
1982	33.51	31.76	-1.75	31.38	30.36	-1.02	34.75	33.42	-1.33
1983	29.20	28.72	-0.48	27.50	27.61	0.11	30.72	29.82	-0.90

[1] Primarily Arabian Light Crude Oil, 34 degrees API.
[2] Primarily Kuwait Heavy Crude Oil, 31 degrees API.
[3] Primarily Libyan Brega Crude Oil, 40 degrees API during the 1960's. Broadened to include Algeria Saharan Crude Oil, 44 degrees API and Nigerian Bonny, 37 degrees API from 1970 through 1980. Further broadened in 1981 to include United Kingdom-Brent, 38 degrees API and Norway-Ekofisk, 43 degrees API.
[4] Spot price minus official price.
[5] Actual contract prices for Arabian Light Crude -34 degrees API. Although an official Arabian Light Crude -34 degrees API price existed, it applied to only a few direct sales contracts.
NA = Not available.
Sources: Petroleum and Energy Intelligence Weekly, Inc., *Petroleum Intelligence Weekly.*

Glossary

Additions to Property. The current year's expenditures on property, plant, and equipment. The amount is predicated upon each reporting company's accounting practices. That is, accounting practices with regard to capitalization of certain items may differ across companies, and therefore this figure is a function of each reporting company's policy.

Alcohol. The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group (CH–(CH)n–OH). Alcohol includes methanol and ethanol.

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. Includes meta-anthracite and semi-anthracite. Conforms to ASTM Specification D388 for anthracite.

API. The trade association American Petroleum Institute.

API Gravity. An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API. A low API gravity means a heavy, more dense product.

Apparent Consumption, Natural Gas (International). The total of an individual nation's marketed natural gas production plus imports less exports.

Asphalt. A dark-brown-to-black cement-like material containing bitumens as the predominant constituents, obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts.

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

Aviation Gasoline, Finished. All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910. Excludes blending components that will be used in blending or compounding into finished aviation gasoline.

Aviation Gasoline Blending Components. Finished components in the gasoline range that will be used for blending or compounding into finished aviation gasoline.

Base Gas. The total volume of natural gas in underground storage reservoirs that will maintain the required rate of delivery during an output cycle.

Bituminous Coal. A coal that is high in carbonaceous matter having a volatility greater than anthracite and a calorific value greater than lignite. Often referred to in the United States as soft coal. Conforms to ASTM Specification D388 for bituminous coal. It is used primarily to generate electricity, to make coal coke, and for 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 IT (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 straight-chain or branch-chain hydrocarbon (C_4H_{10}). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is covered by ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane. It is used primarily for blending into motor gasoline, for residential and commercial heating, and for industrial purposes, especially the manufacture of chemicals and synthetic rubber.

Class A Electric Utility. A utility having annual electric operating revenues of $2.5 million or more.

Class B Electric Utility. A utility having annual electric operating revenues of $1.0 million or more but less than $2.5 million.

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

Coal Coke. Bituminous coal from which the volatile constituents have been driven off by heat so that the fixed carbon and the ash are fused together. It is used primarily in blast furnaces for smelting ores, especially iron ore.

Cost, Insurance, and Freight (CIF). A term used in sales price contracts for both domestic and export sales. In general, the sales price includes the cost of the goods, the freight charges to a named destination, and the insurance charges on the goods shipped. The seller may waive insurance and choose to assume responsibility for any loss or damage. Regarding domestic coal sales, the sales price includes all charges for delivering the coal to the electric power utility excluding demurrage at the plant and unloading charges. Federal Power Commission Form 423, on which these data are collected, refers to this price as "FOB plant" price.

Crude Oil (Including Lease Condensate). A mixture of hydrocarbons that existed 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 likewise excluded where identifiable.

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

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

Crude Oil Wellhead Price. The average price at which all domestic crude oil is purchased. Prior to February 1976, the domestic crude oil wellhead price represented an estimate of the average of posted prices; after February 1976, the wellhead price represents an average of first sale prices.

Demonstrated Reserve Base of Coal. Known in-place coals of all rank that are technically and economically minable at the time of evaluation. It includes measured and indicated coal resources. It is estimated that at least one-half of the in-place coals can be recovered. (See "Indicated Resources, Coal" and "Measured Resources, Coal.")

Distillate Fuel Oil. A general classification for one of the petroleum fractions produced in conventional distillation operations. Included are products known as No. 1, No. 2, and No. 4 fuel oils which conform to ASTM Specification D396 and No. 1, No. 2, and No. 4 diesel fuels which conform to ASTM Specification D975. These products are used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel), and electric power generation.

Dry Hole. An exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

Eliminations. Revenues and expenses resulting from transactions between segments. Consolidated company accounts do not include intersegment revenues and expenses. Therefore, such intersegment transactions must be eliminated.

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

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 from the 50 States and the District of Columbia to foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Extraction Loss. The reduction in volume of natural gas due to the removal of natural gas constituents, such as ethane, propane, and butane, at natural gas processing plants.

Federally Administered Lands. Includes all public lands (Federal), Indian lands, Naval Petroleum Reserve, National Petroleum Reserve (Alaska), Outer Continental Shelf, and acquired lands (lands formerly held by the Department of Agriculture and now under the jurisdiction of the Department of the Interior).

Free Alongside Ship (F.A.S.). This represents the transaction value of imports at the foreign port of exportation. It is based on the purchase

price, i.e., the actual transaction value, and generally includes all charges incurred in placing the merchandise alongside the carrier at the foreign port of exportation.

Free on Board (F.O.B.). A term used in sales price quotations meaning, in general, that the seller assumes all responsibility and costs up to the specific point of delivery and that the buyer takes over responsibility and costs at that same point.

Gasohol. A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) in which 10 percent or more of the product is alcohol.

Gas Well. A well completed for the production of natural gas from one or more gas zones or reservoirs. Such wells have no completions for the production of crude oil.

Geothermal Energy (Consumed by 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 Input to Distillation Units. The volume of crude oil, lease condensate, natural gas plant liquids, unfinished oils, liquefied refinery gases, slop oils, and other liquid hydrocarbons that are processed through crude oil distillation units.

Household. A group of 12 persons or less that occupy the same housing unit (see "Housing Unit") as their usual or permanent place of residence. Persons include babies, lodgers, boarders, and persons who live in the housing unit but are traveling or in a hospital. Excluded are persons who are away from home as college students or members of the Armed Services.

Housing Unit. A structure or part of a structure in which a household (see "Household") lives or could live, with access to the outside of the building either directly or through a common hall. Housing units do not include group quarters, such as prisons, hospitals, dormitories, nursing homes, fraternity/sorority houses, or convents, in which 10 or more unrelated persons live. Hotels, motel rooms, mobile homes, and trailers are considered housing units if permanently occupied by a household.

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

Implicit GNP Price Deflator. The implicit price deflator is the price index for gross national product (GNP). The index is the ratio of GNP in current prices to GNP in constant prices. It is a weighted average of the price indexes used to deflate the components of GNP, the implicit weights used being expenditures in the current period. All expenditures are valued in prices of the base year (1972 in this report) to obtain the constant-dollar GNP.

Imports. Receipts into the 50 States and the District of Columbia of foreign goods (including goods from U.S. territories and U.S. Foreign Trade Zones) that are classified by customs officials as "imports for consumption" or "withdrawals from bonded warehouses for consumption," including withdrawals from bonded warehouses for military offshore use and for bunkering of vessels or aircraft engaged in international commerce. See also "Petroleum Imports."

Indicated Resources, Coal. Coal resources for which estimates for the rank, quality, and quantity have been computed partly from sample analyses and measurements and partly from reasonable geologic projections (see "Demonstrated Reserve Base of Coal").

Installed Nameplate Capacity. The electric power plant capacity as shown on the manufacture's identification plate attached to the generating equipment. The installed nameplate capacity is the full-load continuous rating of a generator, prime mover, or other electrical equipment under specified conditions as designated by the manufacturer.

International Bunkers. Fuel loaded on vessels and aircraft engaged in international commerce for use as fuel by the vessel or aircraft.

Isobutane. A normally colorless paraffinic branch-chain hydrocarbon ($(CH_3)_3CH$) extracted from natural gas or refinery gas streams.

Jet Fuel. Includes both naphtha-type and kerosene-type jet fuel meeting standards for use in aircraft turbine engines or meeting ASTM Specification D1655. Although most jet fuel is used in aircraft, some is used for other purposes, such as fuel for turbines to produce electricity.

Kerosene. A petroleum middle distillate having burning properties suitable for use as an illuminant when burned in wick lamps. Included are No. 1-K and No. 2-K recognized in ASTM Specification D3699 and grades of kerosene called range oil having properties similar to No. 1 fuel oil. Kerosene is used primarily in space heaters, cooking stoves, and water heaters.

Landed Cost of Imported Crude Oil. Includes the purchase price at the foreign port (or U.S. land border), transportation and insurance costs, wharfage and demurrage, brokerage fees, import fees and duties, license (ticket) fees, and transportation costs to the refinery. Averages are computed based on major importers, which account for an estimated 90 to 95 percent of total crude oil imports. 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 non-associated) 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.

Line Miles of Seismic Exploration. The distance along the earth's surface that is covered by seismic surveying.

Liquefied Petroleum Gases. Ethane, ethylene, propane, propylene, butane, butylene, ethane-propane mixtures, propane-butane mixtures, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate raw natural gas plant liquids.

Low-Temperature Solar Collector. A collector that generally operates in the temperature range below 110° F. Typically, it has no glazing or insulation and is made of plastic or rubber, although it may be made of metal.

Lubricants. Substances used to reduce friction between bearing surfaces. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. Lubricants include all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. The three categories include bright stock lubricants, neutral lubricants, and other lubricants (lubricating oil base stock used in finished lubricating oils and greases, including black, coastal, and red oils).

Maximum Dependable Capacity, Net. Represents the dependable main-unit net capacity of domestic nuclear power plant reactors and generally varies throughout the year because the unit efficiency varies with seasonal cooling water temperature variations. Usually maximum dependable capacity is the highest net dependable output of the turbine generator during the most restrictive seasonal conditions (usually summer).

Measured Resources, Coal. Coal resources for which estimates of the quality and quantity have been computed within a margin of error of less than 20 percent, by analyzing measurements taken from closely spaced geologically well-known sample sites (see "Demonstrated Reserve Base of Coal").

Medium-Temperature Solar Collector. A collector that generally operates in the temperature range of 140° F. to 180° F. Typically, it has one or two glazings, a metal frame, a metal absorption panel with integral flow channels or attached tubing (liquid collector) or with integral ducting (air collector), and insulation on the sides and back of the panel.

Metallurgical Coal. A high-quality bituminous coal suitable for making coal coke.

Metropolitan Area. A group of households located within Metropolitan Statistical Areas (MSA's) as defined in the 1980 Census. Except in New England, an MSA is a county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. The contiguous counties are included in an MSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, MSA's consist of towns and cities, rather than counties.

Miscellaneous Petroleum Products. Includes all finished products not classified elsewhere, e.g. petrolatum, absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, specialty oils, and medicinal oils.

Motor Gasoline Blending Components. Finished components in the gasoline range that will be used for blending or compounding into finished motor gasoline. Pool gasoline (gasoline needing no processing other than blending) is included in this category.

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 the following:

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.

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.

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. Includes gasohol.

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. Includes gasohol.

Excluded are blendstocks that have not been blended into finished motor gasoline and alcohol that has not been blended into gasohol.

Native Gas. The total volume of natural gas indigenous to the storage reservoir at the time the gas storage started.

Natural Gas. A mixture of hydrocarbons and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in underground reservoirs.

Natural Gas, Dry Production. Derived by subtracting extraction loss from "marketed production." It represents the amount of domestic gas production that is available to be marketed and consumed as a gas.

Natural Gas, End-Use Average Price. Average price per specified unit, including all taxes, at the point of consumption.

Natural Gas Gross Withdrawals. Full well stream volume of produced natural gas excluding condensate separated at the lease.

Natural Gas Liquids. Those hydrocarbons in natural gas that are separated as a liquid from the gas at lease separators, field facilities, and natural gas processing plants. Natural gas liquids include natural gas plant liquids and lease condensate.

Natural Gas, Marketed Production. This quantity is derived. It is gross withdrawals of natural gas from production reservoirs, less gas used for reservoir repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating and processing operations.

Natural Gas Plant Liquids. Natural gas liquids recovered from natural gas processing plants, and in some situations, from natural gas field facilities. Natural gas liquids extracted by fractionators are also included. These liquids are defined according to the published specifications of the Gas Processors Association and the American Society for Testing and Materials 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 wellhead price of natural gas is calculated by dividing the total reported value at the wellhead by the total quantity produced as reported by the appropriate agencies of individual producing States and the U.S. Geological Survey. The price includes all costs prior to shipment from the lease including gathering and compression costs in addition to State production, severance, and/or similar charges.

Natural Gas, Wet. Natural gas prior to the extraction of liquids and other miscellaneous products.

Net Income. Operating income plus earnings from unconsolidated affiliates; gains from disposition of property, plant, and equipment; minority interest income; and foreign currency translation effects less income taxes, extraordinary items, and the cumulative effect of accounting changes.

Net Ownership Interest. The sum of net working interest and royalty interest (see "Net Working Interest" and "Royalty Interest"). Net ownership interest applies to both production and reserves.

Net Property Investment. The original cost of property, plant, and equipment (PP&E), less accumulated depreciation.

Net Working Interest. A company's working interest, not including any basic royalty or overriding royalty interests (see "Working Interest").

Nonhydrocarbon Gases. Typical nonhydrocarbon gases which may be present in reservoir natural gas are carbon dioxide, helium, hydrogen sulfide, and nitrogen.

Nonmetropolitan Area. Households not located within Metropolitan Statistical Areas as defined in the 1980 Census.

Nontraceables. Those revenues, costs, assets, and liabilities that cannot be directly attributed to a type of business or that cannot be assigned to a type of business by use of a reasonable allocation method developed on the basis of operating-level realities.

Nuclear Power. Electricity generated by an electric power plant whose turbines are driven by steam generated in a reactor by heat from the fissioning of nuclear fuel.

Oil Well. A well completed for the production of crude oil from one or more oil zones or reservoirs.

Operable Refineries. Operable refineries include those that were in one of the following three categories at the beginning of the year: (1) in operation; (2) not in operation and not under active repair but capable of being placed into operation within 30 days; or (3) not in operation but under active repair that can be completed within 90 days.

Operating Income. Operating revenues less operating expenses. Excludes items of other revenue and expense such as equity in earnings of unconsolidated affiliates, dividends, interest income and expense, income taxes, extraordinary items, and cumulative effect of accounting charges.

Organization for Economic Cooperation and Development (OECD). Current membership includes: 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 membership includes: Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. Data for Saudi Arabia and Kuwait include their share from the Partitioned Zone (formerly Neutral Zone).

Other Hydrocarbons (Petroleum Data). Other materials processed at refineries. Includes coal tar derivatives, hydrogen, gilsonite, and natural gas received by the refinery for reforming into hydrogen.

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

Petrochemical Feedstocks. Chemical feedstocks derived from petroleum, principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are "naphtha—less than 400° F. end-point" and "other oils over 400° F. end-point."

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; 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 marketed or catalyst petroleum coke.

Petroleum Imports. Imports of petroleum into the 50 States and the District of Columbia from foreign countries, U.S. territories, and the U.S. Foreign Trade Zones. 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, wax, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Product 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. Primary Stocks excludes stocks of foreign origin that are held in bonded warehouse storage.

Petroleum Products Supplied. See Explanatory Note 5.

Photovoltaic and Solar Thermal Energy (Consumed by Electric Utilities). Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar cells (photovoltaic cells) or concentrating (focusing) collectors.

Plant Condensate. One of the natural gas plant liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants. Plant condensate is not suitable for blending into finished motor gasoline. It is usually blended with crude oil for distilling or processed at other refinery units.

Primary Consumption Expenditures. Expenditures for energy consumed in each of the four major end-use sectors, excluding energy in the form of electricity, plus expenditures by the electric utilities sector for energy used to generate electricity. There are no fuel-associated expenditures for hydroelectric power, geothermal energy, photovoltaic and solar energy, and wind energy. Also excluded are the quantifiable consumption expenditures that are an integral part of process fuel consumption (see "Process Fuel").

Process Fuel. All energy consumed in the acquisition, processing, and transportation of energy. Quantifiable process fuel includes only four categories: natural gas lease and plant operations (acquisition and processing), natural gas pipeline operations (transportation), oil refinery operations (processing), and uranium enrichment operations (processing).

Processing Gain. Represents the amount by which the total volume of refinery output is greater than the volume of input for a given period of time. This difference is due to the processing of crude oil and other hydrocarbons into products the majority of which are less dense than the crude oil processed. Therefore, in terms of volume (barrels), the total output of products is greater than the input.

Propane. A normally colorless, gaseous, 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. It 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.

Proved Reserves, Crude Oil. The estimated quantities of all liquids statistically defined as crude oil that geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions.

Proved Reserves, Natural Gas. The estimated quantities of natural gas that analysis of geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known crude oil and natural gas reservoirs under existing economic and operating conditions.

Proved Reserves, Natural Gas Liquids. Estimates include: (1) reserves of liquids that are expected to be recovered from associated and nonassociated gas produced from gas wells and processed through lease separators, and (2) reserves of liquids expected to be recovered from associated-dissolved and nonassociated gas when processed in field facilities or gas processing plants. Estimates of proved reserves of natural gas liquids are based on (1) proved reserves of natural gas at the time of estimation, and (2) rates at which liquids can be recovered from natural gas by using processing equipment of the type currently installed or planned at the time of estimation.

Refiner Acquisition Cost of Crude Oil. 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. Also see Explanatory Note 8.

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

Residual Fuel Oil. The topped crude of refinery operations that includes No. 5 and No. 6 fuel oils as defined in ASTM Specification D396, Navy Special fuel oil, and Bunker C fuel oil. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and for various industrial purposes. Imports of residual fuel oil include "imported crude oil burned as fuel."

Residue Gas. Natural gas from which natural gas processing plant liquid products and, in some cases, nonhydrocarbon components have been extracted.

Road Oil. Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from O, the most liquid, to 5, the most viscous.

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

Royalty Interest. An interest in a mineral property provided through a contractual arrangement that gives the owner of the interest the right to a fractional share of production, or proceeds therefrom, that does not contain rights and obligations of operating a mineral property, and that is normally free and clear of exploration, development, and operating costs, except production taxes.

Special Naphthas. All finished products within the gasoline range, specially refined to a specified flash point and boiling range, for use as paint thinners, cleaners, and solvents, including commercial hexane conforming with ASTM Specification D1836, and cleaning solvent conforming to ASTM Specification D484. Excluded are naphthas to be blended or marketed as motor gasoline or aviation gasoline, or to be used as petrochemical and synthetic natural gas (SNG) feedstock.

Special Solar Collector. An evacuated tube collector or a concentrating (focusing) collector. Special collectors operate in the temperature range from just above ambient temperature (low concentration for pool heating) to several hundred degrees Fahrenheit (high concentration for air conditioning and specialized industrial processes).

Spot Price. A transaction price concluded "on the spot," that is, on a one-time, prompt basis; usually the transaction involves only one specific quantity of product. This contrasts with a term contract sale price, which obligates the seller to deliver a product at an agreed frequency and price over an extended period.

Startup Test Phase of Nuclear Power Plant. A nuclear power plant that has been licensed by the Nuclear Regulatory Commission to operate, but is in the initial testing phase during which production of electricity may not be continuous. In general, when the electric utility is satisfied with the plant's performance, it formally accepts the plant from the manufacturer, and places it in "commercial operation" status. A request is then submitted to the appropriate utility rate commission to include the power plant in the rate base calculation.

Still Gas (Refinery Gas). Any form or mixture of gas produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylene, propane, and propylene. It is used primarily as refinery fuel and petrochemical feedstock.

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

Stripper Well Property. A property whose average daily production of crude oil per well (excluding condensate recovered in nonassociated natural gas production) did not exceed an average of 10 barrels per day during any preceding consecutive 12-month period beginning after December 31, 1972.

Subbituminous Coal. A dull, black coal of rank intermediate between lignite and bituminous coal. Conforms to ASTM Specification D388 for subbituminous coal. Used almost exclusively for electric power generation.

Supplemental Gaseous Fuels. Other gaseous fuels, such as synthetic natural gas, propane-air, manufactured gas, biomass gas, coke oven gas, and refinery (still) gas, normally mixed with natural gas prior to distribution.

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.

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 crude oil imports less changes in crude oil stocks. Total disposition of crude oil is the sum of refinery input of crude oil, crude oil exports, crude oil burned as fuel, and crude oil losses.

Undiscovered Recoverable Resources (Crude Oil and Natural Gas). Those economic resources of crude oil and natural gas, yet undiscovered, that are estimated to exist in favorable geologic settings.

Unfinished Oil. Includes all oils requiring further refinery processing, except those requiring only mechanical blending.

Unfractionated Streams. Mixtures of unsegregated natural gas liquid components, excluding those in plant condensate. This product is extracted from natural gas.

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.

Uranium Resources. Uranium resource estimates are divided into three separate categories reflecting different levels of confidence in the quantities estimated. They are reasonably assured resources, estimated additional resources, and speculative resources. Reasonably assured resources refers to uranium in known mineral deposits of such size, grade, and configuration that it could be recovered within the given cost ranges, with currently proven mining and processing technology. Estimated additional resources refers to uranium in addition to reasonably assured resources that is expected to occur, mostly on the basis of direct geological evidence, in extensions of well-explored deposits, in deposits in which geological continuity has been well established, as well as deposits believed to exist in well-defined geological trends or areas of mineralization with known deposits. Such deposits in this category can be discovered and delineated and the uranium subsequently recovered, all within a given cost range. Speculative resources refers to uranium in addition to estimated additional resources that is thought to exist, mostly on the basis of indirect evidence and geological extrapolations.

Wax. A solid or semi-solid material derived from petroleum distillates or residues. It is a light-colored, more or less translucent crystalline mass, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series predominates. Includes all marketable wax whether crude scale or fully refined. Used primarily as industrial coatings for surface protection.

Well. A hole drilled for the purpose of finding or producing crude oil or natural gas or providing services related to the production of crude oil or natural gas. Wells are classified as oil wells, gas wells, dry holes, stratigraphic or core tests, or service wells.

Wind Energy (Consumed by Electric Utilities). The kinetic energy of wind converted at electric utilities into mechanical energy by wind turbines (i.e., blade rotating from a hub) that drive generators to produce electricity.

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.

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 total volume of gas in a storage reservoir that is in excess of the base gas.

Working Interest. An interest in a mineral property that entitles the owner of that interest to all or a share of mineral production from the property, usually subject to a royalty.

Explanatory Notes

1. Electricity Generation. Data on the generation of electricity in the United States represents gross electricity output measured at the generator terminals, minus power plant use (net electricity generated). International nuclear electricity generation data are gross electricity output.

2. Consumption of Primary Energy by End-Use Sector. Sector data are derived from the end-use sector table of each energy commodity. The "Other" sector in the Electric Utility Sales table is allocated to the Residential and Commercial Sector, except for the railways' portion of "Other," which is allocated to the Transportation Sector.

3. Primary Energy Production—International. Includes only crude oil and lease condensate, natural gas plant liquids, dry natural gas, coal, and electricity from hydroelectric power and nuclear power. Crude oil production is measured at the wellhead and includes lease condensate. Natural gas plant liquids are products obtained from processing natural gas at natural gas processing plants, including natural gas plants, cycling plants, and fractionators. Dry natural gas production is that amount of natural gas production that is available to be marketed and consumed as a gas. Coal (anthracite, subanthracite, bituminous, subbituminous, lignite, and brown coal) production is the sum of sales, mine consumption, issues to miners, and issues to coking, briquetting, and other ancillary plants at mines. Coal production data include quantities extracted from surface and underground workings and normally exclude wastes removed at mines or associated preparation plants. The production of electricity from hydroelectric power and nuclear power includes both electric utility and industrial production reported on a net basis, thus excluding electricity that is generally used by the electric powerplant for its own operating purposes or electricity losses in the transformers that are considered integral parts of the station.

4. Reclassified. Accurate calculation of the quantity of petroleum products supplied to the domestic market is complicated by the recycling of products at the refinery, the renaming of products involved in a transfer, and the receipt of products from outside of the primary supply system. Beginning in 1981, a single adjustment (always a negative quantity) is made to total product supplied to correct this accounting problem. The calculation of this adjustment, called "reclassified," involves only unfinished oils and gasoline blending components. It is the sum of their net changes in primary stocks (net withdrawals is a plus quantity, net additions is a minus quantity) plus imports minus net input to refineries.

5. Petroleum Products Supplied. Total petroleum products supplied is the sum of all refined petroleum products supplied. For each product, the amount supplied is calculated by adding production, crude oil burned directly, and imports and subtracting changes in primary stocks (net withdrawals is a plus quantity; net additions is a minus quantity) and exports. This term is synonymous with the term "Petroleum Product Consumption" in the Energy Overview Section. End-use sector data for petroleum products used in more than one sector are derived from surveys of sales to ultimate consumers by refiners, marketers, distributors, and dealers and from receipts at electric utilities. See Explanatory Notes 4 and 6.

6. Joint Petroleum Reporting System. Beginning in January 1981, several Energy Information Administration survey forms and calculation methodologies were changed to reflect new developments in refinery and blending plant practices and to improve data integrity. These changes affect production and product supplied statistics for motor gasoline, distillate fuel oil, and residual fuel oil, and stocks of motor gasoline. On the new basis, motor gasoline production during the last half of 1980 would have averaged 289,000 barrels per day higher than that which was published on the old basis. Distillate and residual fuel oil production and product supplied for all of 1980 would have averaged, respectively, 105,000 and 54,000 barrels per day higher than the numbers that were published.

7. Primary Oil Stocks—OECD. Oil stocks reported by the Organization for Economic Cooperation and Development (OECD) include those held at (or in) the following locations or facilities: leases, refineries, natural gas processing plants, bulk terminals, tanks associated with pipelines, barges, intercoastal tankers, ocean tankers in port, inland ship bunkers, major final consumers, and the strategic storage reserve. For an individual country, stocks include those held for the account of that

country but located in another country. U.S. stocks include those held in the 50 States and the District of Columbia. "Other OECD" includes stocks held in Puerto Rico and the Virgin Islands. The OECD definition of oil stocks excludes oil in pipelines, rail tank cars, tank trucks, oceangoing ship bunkers, service stations, retail stores, and tankers at sea. An exception is U.S. stocks which include oil in pipelines.

8. Refiner Acquisition Cost of Crude Oil. This cost was estimated for 1968 through 1973. The cost of domestic crude oil was derived by adding estimated transportation costs to the reported average wellhead value. The cost of imported crude oils was derived by adding an estimated ocean transport cost based on the published "Average Freight Rate Assessment" to the average "Free Alongside Ship" value published by the U.S. Bureau of the Census. The composite cost was derived by weighting domestic costs and imported costs based on quantities produced and imported.

9. Natural Gas Consumption. Natural gas consumption statistics are compiled from a survey of natural gas production, transmission, and distribution companies and electric utility companies. Consumption by end-use sector from these surveys is compiled on a national and individual State basis and then balanced with national and individual State supply data. Included in end-use data are the following: Commercial Sector—consumption by nonmanufacturing establishments, by municipalities for institutional heating and lighting, and those engaged in agriculture, forestry, and fishing; Electric Utility Sector—consumption by electric utilities for the generation of electric power; Industrial Sector—consumption by establishments engaged primarily in processing unfinished materials into another form of product (includes mining, petroleum refining, manufacturing, and natural gas industry use for lease and plant fuel); Residential Sector—consumption by private households for space heating, cooking, and other household uses; Transportation Sector—natural gas transmission (pipeline) fuel.

10. Coal Consumption. Data in this report on the consumption of bituminous coal (including subbituminous coal), lignite, and anthracite are generated primarily from consumption data reported in surveys. Included are data reported by all electric utilities companies and coke plant companies. Data on coal consumption by all industrial and manufacturing establishments and by the residential and commercial sector are based on distribution data obtained quarterly from coal companies. Included in end-use sector data are the following: Electric Utility Sector—consumption by privately and publicly owned establishments engaged in the generation and/or distribution of electric power primarily for sale or resale; Industrial and Miscellaneous Sector—consumption at manufacturing plants, large commercial establishments, coking plants, and by agriculture, mining (other than coal mining) and construction industries; Transportation Sector—sales to railroads and vessel bunker fuel; Residential and Commercial Sector—retail dealer sales to households and small commercial establishments.

11. Electricity Sales. Data on the sales of electric utility electricity represent 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 Sector—sales of electricity to businesses that generally require less than 1,000 kilowatts of service; Industrial Sector—sales of electricity to businesses that generally require more than 1,000 kilowatts of service; Residential Sector—sales of electricity to residences for household purposes; "Other" Sector—sales of electricity to Government, railways, street lighting authorities, and sales not elsewhere included.

12. Operable Reactors and Capacity. Prior to 1973, the number of "Yearend Operable Reactors" includes reactors that were in commercial operation by December 31 of the stated year. Units decommissioned or inoperative for extended periods were generally included. Also included are two U.S. Department of Energy (DOE)-operated plants that supply electricity to the commercial grid. A third DOE plant, which does not distribute electricity to the grid, is excluded. For 1973 and forward, the number of reactors includes units issued full-power or operating licenses and generally does not include units in long-term shut-down status. Prior to 1973, "Yearend Capacity" figures are gross kilowatts of installed capacity. For 1973 and forward, the capacity is net Maximum Dependable Capacity (MDC), except for some units in start-up testing for which the Design Electrical Rating (DER) value is used. Starting with 1973, the restricted capacity of "derated" units (i.e., units for which the Nuclear Regulatory Commission or the operating utility has imposed a "power limit") is used in place of either the MDC or DER capacity. This provides a more realistic estimate of available capacity.

13. Financial Reporting System (FRS) Companies. The structure of the FRS data system is designed to permit review of the functional perform-

ance of energy companies in total, as well as specific functions and geographic areas of operation. Domestic operations include Puerto Rico and the Virgin Islands. Foreign operations exclude these areas. The following are the FRS companies as of December 31, 1983:

Amerada Hess Corporation
American Petrofina, Incorporated
Ashland Oil, Incorporated
Atlantic Richfield Company
Burlington Northern, Incorporated
Cities Service Oil Company
E. I. du Pont de Nemours and Company
Exxon Corporation
Getty Oil Company
Gulf Oil Corporation
Kerr-McGee Corporation
Mobil Oil Corporation
Occidental Petroleum Corporation
Phillips Petroleum Company
Shell Oil Company
Standard Oil Company (an Indiana Corporation)
Standard Oil Company of California
Sun Company, Incorporated
Tenneco Incorporated
Texaco, Incorporated
The Coastal Corporation
The Standard Oil Company (an Ohio Corporation)
The Superior Oil Company
Unocal Corporation (Formerly Union Oil Company of California)
Union Pacific Corporation
United States Steel Corporation

14. Natural Gas Prices by National Gas Policy Act of 1978 (NGPA) Categories. Old Gas. Includes natural gas dedicated to interstate commerce and natural gas purchased under existing interstate or rollover contracts (Section NGPA 104, 105, and 106). **New Gas.** Includes new natural gas and certain natural gas produced from the Outer Continental Shelf, stripper well gas, and other new gas categories (Section NGPA 102, 103, 108, and 109). **High-Cost Gas.** Includes natural gas from deep wells and low permeability (tight) reservoirs and unregulated gas (NGPA Section 107).

15. Gross Input to Distillation Units (GIDU). The methods for deriving GIDU in this report are as follows: 1949 through 1966 GIDU is estimated by summming annual crude oil runs to stills, net unfinished oil reruns at refineries and shipments of natural gasoline and plant condensate from natural gas processing plants to refineries. 1967 through 1973 GIDU is estimated by summing annual crude oil runs to stills, net unfinished oil reruns, and refinery input of natural gasoline and plant condensate. 1974 through 1980 GIDU is reported annual data. 1981 and forward GIDU is the sum of reported monthly data.

16. Crude Oil Wellhead Prices. Derived as follows: 1949 through 1973—weighted average wellhead values as reported by State agencies and calculated by the Bureau of Mines; 1974 and 1975—weighted averages of a sample survey of major first purchasers' purchases; 1976 and forward—weighted averages of all first purchasers' purchases.

17. 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 these losses occur at steam electric power plants (conventional and nuclear) in the conversion of heat energy into mechanical energy to turn electric generators. This 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 these 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 energy system losses may be less than actual losses, because primary consumption does not include the energy equivalent of utility purchases of electricity from nonutilities and from Canada and Mexico, although they are included in electricity sales.

Units of Measure and Conversion Factors

Weight

1 short ton	contains	2,000 pounds
1 metric ton	contains	1.102 short tons
1 long ton	contains	1.120 short tons

Volume

1 cubic foot	contains	0.028 cubic meters
1 cubic meter	contains	35.315 cubic feet
1 U.S. barrel	contains	42 U.S. gallons
1 Cord	contains	128 cubic feet

Conversion Factors for Crude Oil (Average Gravity)

1 U.S. barrel	weighs	0.136 metric tons
1 U.S. barrel	weighs	0.150 short tons
1 metric ton	contains	7.33 U.S. barrels
1 short ton	contains	6.65 U.S. barrels

Electricity Consumption	3,412 Btu/kilowatthour
Hardwood, dry (average)	1.25 short tons/cord 17.2 million Btu/short ton 21.5 million Btu/cord

Using Thermal Equivalent Conversion Factors

Btu conversion factors for hydrocarbon mixes are the weighted average of the Btu content of all hydrocarbons included in the mix. All final Btu factors are computed from *final* annual data. If the current year's final data are not available, preliminary Btu conversion factors are computed from the best available data.

Approximate Heat Content of Refined Petroleum Products (Million Btu per Barrel)

Asphalt	6.636
Aviation gasoline	5.048
Butane	4.326
Butane-propane mixture*	4.130
Distillate fuel oil	5.825
Ethane	3.082
Ethane-propane mixture**	3.308
Isobutane	3.974
Jet fuel—kerosene type	5.670
Jet fuel—naphtha type	5.355
Kerosene	5.670
Lubricants	6.065
Motor gasoline	5.253
Natural gasoline and Isopentane	4.620
Pentane Plus	4.620
Petrochemical feedstocks	
Naphtha 400° F or less	5.248
Other Oils over 400° F	5.825
Still gas	6.000
Petroleum coke	6.024
Plant condensate	5.418
Propane	3.836
Residual fuel oil	6.287
Road oil	6.636
Special naphtha	5.248
Still gas	6.000
Unfinished oils	5.825
Unfractionated stream	5.418
Wax	5.537
Miscellaneous	5.796

* 60 percent butane and 40 percent propane.
** 70 percent ethane and 30 percent propane.

Thermal Conversion Factors: Petroleum and Natural Gas Plant Liquids, 1949-1984

(Million Btu per Barrel)

Year	Petroleum Consumption				
	All Users	Residential and Commercial	Industrial	Transportation	Electric Utilities
1949	5.649	5.631	5.947	5.465	6.254
1950	5.649	5.626	5.940	5.461	6.254
1951	5.634	5.626	5.913	5.458	6.254
1952	5.621	5.621	5.905	5.442	6.254
1953	5.608	5.606	5.897	5.426	6.254
1954	5.595	5.603	5.883	5.412	6.254
1955	5.591	5.607	5.866	5.408	6.254
1956	5.585	5.601	5.856	5.406	6.254
1957	5.577	5.587	5.842	5.405	6.254
1958	5.567	5.582	5.832	5.393	6.254
1959	5.557	5.549	5.811	5.389	6.254
1960	5.555	5.570	5.799	5.388	6.267
1961	5.552	5.570	5.794	5.387	6.268
1962	5.545	5.555	5.783	5.386	6.267
1963	5.534	5.532	5.757	5.385	6.266
1964	5.528	5.517	5.727	5.389	6.267
1965	5.532	5.535	5.725	5.388	6.267
1966	5.532	5.523	5.717	5.390	6.266
1967	5.515	5.473	5.675	5.394	6.266
1968	5.504	5.450	5.638	5.398	6.263
1969	5.492	5.399	5.596	5.397	6.259
1970	5.503	5.404	5.598	5.395	6.252
1971	5.504	5.392	5.593	5.392	6.245
1972	5.500	5.368	5.559	5.390	6.233
1973	5.515	5.387	5.565	5.397	6.245
1974	5.504	5.377	5.537	5.394	6.238
1975	5.494	5.358	5.527	5.392	6.250
1976	5.504	5.383	5.535	5.396	6.251
1977	5.518	5.389	5.552	5.402	6.249
1978	5.519	5.382	5.546	5.407	6.251
1979	5.494	5.471	5.416	5.430	6.258
1980	5.479	5.468	5.376	5.440	6.254
1981	5.448	5.409	5.310	5.434	6.258
1982	5.415	5.392	5.262	5.423	6.258
1983	5.406	5.263	5.279	5.416	6.255
1984[1]	5.393	5.265	5.245	5.423	6.251

[1] Preliminary.

Note: See Thermal Conversion Factor Source Documentation.

Thermal Conversion Factors: Petroleum and Natural Gas Plant Liquids, 1949-1984 (Continued)

(Million Btu per Barrel)

Year	Petroleum Production, Imports, and Exports							Natural Gas Plant Liquids
	Production of Crude Oil and Lease Condensate	Imports of Crude Oil and Petroleum Products	Imports of Crude Oil	Imports of Petroleum Products	Exports of Crude Oil and Petroleum Products	Exports of Crude Oil	Exports of Petroleum Products	Production
1949	5.8	6.059	5.952	6.261	5.692	5.8	5.651	4.544
1950	5.8	6.080	5.943	6.263	5.766	5.8	5.751	4.522
1951	5.8	6.075	5.938	6.265	5.762	5.8	5.753	4.495
1952	5.8	6.067	5.938	6.261	5.774	5.8	5.768	4.464
1953	5.8	6.052	5.924	6.268	5.742	5.8	5.732	4.450
1954	5.8	6.052	5.931	6.252	5.745	5.8	5.738	4.415
1955	5.8	6.040	5.924	6.234	5.768	5.8	5.765	4.406
1956	5.8	6.024	5.916	6.225	5.754	5.8	5.744	4.382
1957	5.8	6.023	5.918	6.219	5.780	5.8	5.774	4.369
1958	5.8	5.993	5.916	6.091	5.779	5.8	5.778	4.366
1959	5.8	6.020	5.916	6.142	5.829	5.8	5.830	4.311
1960	5.8	6.021	5.911	6.161	5.834	5.8	5.835	4.295
1961	5.8	5.991	5.900	6.102	5.832	5.8	5.833	4.283
1962	5.8	6.004	5.890	6.138	5.841	5.8	5.842	4.273
1963	5.8	6.002	5.894	6.126	5.840	5.8	5.841	4.264
1964	5.8	5.998	5.882	6.129	5.844	5.8	5.845	4.268
1965	5.8	5.997	5.872	6.123	5.743	5.8	5.742	4.264
1966	5.8	5.993	5.863	6.112	5.729	5.8	5.728	4.259
1967	5.8	5.999	5.838	6.128	5.777	5.8	5.758	4.232
1968	5.8	5.977	5.836	6.095	5.763	5.8	5.762	4.218
1969	5.8	5.974	5.825	6.093	5.714	5.8	5.713	4.170
1970	5.8	5.985	5.822	6.088	5.810	5.8	5.811	4.146
1971	5.8	5.961	5.824	6.062	5.775	5.8	5.775	4.117
1972	5.8	5.935	5.809	6.045	5.741	5.8	5.741	4.070
1973	5.8	5.897	5.817	5.983	5.752	5.8	5.752	4.049
1974	5.8	5.884	5.827	5.959	5.774	5.8	5.773	4.011
1975	5.8	5.858	5.821	5.935	5.748	5.8	5.747	3.984
1976	5.8	5.856	5.808	5.980	5.745	5.8	5.743	3.964
1977	5.8	5.834	5.810	5.908	5.797	5.8	5.796	3.941
1978	5.8	5.839	5.802	5.955	5.808	5.8	5.814	3.925
1979	5.8	5.810	5.810	5.811	5.832	5.8	5.864	3.955
1980	5.8	5.796	5.812	5.748	5.820	5.8	5.841	3.914
1981	5.8	5.775	5.818	5.659	5.821	5.8	5.837	3.930
1982	5.8	5.775	5.826	5.664	5.820	5.8	5.829	3.872
1983	5.8	5.774	5.825	5.677	5.800	5.8	5.800	3.839
1984[1]	5.8	5.763	5.823	5.659	5.853	5.8	5.871	3.960

[1] Preliminary.
Note: See Thermal Conversion Factor Source Documentation.

Thermal Conversion Factors: Natural Gas, 1949-1984

(Btu per Cubic Foot)

Year	Dry Natural Gas						Wet Natural Gas Production
		Consumption					
	Production	All Users	Electric Utilities	Nonelectric Utility	Imports	Exports	
1949	1,035	1,035	1,035	1,035	—	1,035	1,120
1950	1,035	1,035	1,035	1,035	—	1,035	1,119
1951	1,035	1,035	1,035	1,035	—	1,035	1,114
1952	1,035	1,035	1,035	1,035	1,035	1,035	1,115
1953	1,035	1,035	1,035	1,035	1,035	1,035	1,116
1954	1,035	1,035	1,035	1,035	1,035	1,035	1,115
1955	1,035	1,035	1,035	1,035	1,035	1,035	1,120
1956	1,035	1,035	1,035	1,035	1,035	1,035	1,116
1957	1,035	1,035	1,035	1,035	1,035	1,035	1,113
1958	1,035	1,035	1,035	1,035	1,035	1,035	1,110
1959	1,035	1,035	1,035	1,035	1,035	1,035	1,109
1960	1,035	1,035	1,035	1,035	1,035	1,035	1,107
1961	1,035	1,035	1,035	1,035	1,035	1,035	1,108
1962	1,035	1,035	1,035	1,035	1,035	1,035	1,107
1963	1,031	1,031	1,031	1,031	1,031	1,031	1,103
1964	1,032	1,032	1,032	1,032	1,032	1,032	1,102
1965	1,032	1,032	1,032	1,032	1,032	1,032	1,101
1966	1,033	1,033	1,033	1,033	1,033	1,033	1,103
1967	1,032	1,032	1,032	1,032	1,032	1,032	1,105
1968	1,031	1,031	1,031	1,031	1,031	1,031	1,115
1969	1,031	1,031	1,031	1,031	1,031	1,031	1,103
1970	1,031	1,031	1,031	1,031	1,031	1,031	1,102
1971	1,031	1,031	1,031	1,031	1,031	1,031	1,103
1972	1,027	1,027	1,027	1,027	1,027	1,027	1,100
1973	1,021	1,021	1,024	1,020	1,026	1,023	1,093
1974	1,024	1,024	1,022	1,024	1,027	1,016	1,097
1975	1,021	1,021	1,026	1,020	1,026	1,014	1,095
1976	1,020	1,020	1,023	1,019	1,025	1,013	1,093
1977	1,021	1,021	1,029	1,019	1,026	1,013	1,093
1978	1,019	1,019	1,034	1,016	1,030	1,013	1,088
1979	1,021	1,021	1,035	1,018	1,037	1,013	1,092
1980	1,026	1,026	1,035	1,024	1,022	1,013	1,098
1981	1,027	1,027	1,035	1,025	1,014	1,011	1,103
1982	1,028	1,028	1,036	1,026	1,018	1,011	1,107
1983	1,031	1,031	1,030	1,031	1,024	1,010	1,115
1984[1]	1,031	1,031	1,030	1,031	1,024	1,010	1,115

[1] Preliminary.
Note: See Thermal Conversion Factor Source Documentation.

Thermal Conversion Factors: Coal and Coal Coke, 1949-1984

(Million Btu per Short Ton)

Year	Bituminous Coal [1] and Lignite								Anthracite				
		Consumption								Consumption			
	Production	All Users	Residential and Commercial	Coke Plants	Other Industry [2]	Electric Utilities	Imports	Exports	Production	All Users	Electric Utilities	Non-electric Utility	Imports and Exports
1949	24.965	24.836	24.047	26.800	24.601	24.022	25.000	27.000	24.74	24.65	24.65	24.65	25.40
1950	25.127	25.024	24.039	26.800	24.804	24.200	25.000	27.000	24.90	24.84	24.84	24.84	25.40
1951	25.065	24.854	24.108	26.800	24.503	23.936	25.000	27.000	24.71	24.60	24.60	24.60	25.40
1952	25.157	24.955	24.082	26.800	24.711	24.118	25.000	27.000	24.65	24.54	24.54	24.54	25.40
1953	25.207	25.062	24.166	26.800	24.773	24.172	25.000	27.000	24.57	24.48	24.48	24.48	25.40
1954	25.115	24.971	24.144	26.800	24.775	24.174	25.000	27.000	24.62	24.55	24.55	24.55	25.40
1955	25.258	25.034	24.143	26.800	24.811	24.206	25.000	27.000	24.55	24.53	24.53	24.53	25.40
1956	25.187	24.913	24.108	26.800	24.668	24.080	25.000	27.000	24.34	24.13	24.13	24.13	25.40
1957	25.287	24.979	23.988	26.800	24.711	24.118	25.000	27.000	24.26	24.01	24.01	24.01	25.40
1958	25.031	24.758	24.162	26.800	24.592	24.014	25.000	27.000	24.52	24.42	24.42	24.42	25.40
1959	24.965	24.773	24.044	26.800	24.606	24.026	25.000	27.000	24.34	24.24	24.24	24.24	25.40
1960	24.960	24.765	24.054	26.800	24.604	24.029	25.000	27.000	24.28	24.20	24.20	24.20	25.40
1961	24.892	24.693	24.034	26.800	24.569	23.993	25.000	27.000	24.42	24.33	24.33	24.33	25.40
1962	24.869	24.668	24.027	26.800	24.558	23.988	25.000	27.000	24.39	24.20	24.20	24.20	25.40
1963	24.879	24.639	24.007	26.800	24.524	23.962	25.000	27.000	24.21	23.86	23.86	23.86	25.40
1964	24.887	24.652	23.988	26.800	24.490	23.928	25.000	27.000	24.13	23.89	23.89	23.89	25.40
1965	24.813	24.575	23.928	26.800	24.387	23.836	25.000	27.000	24.14	23.95	23.95	23.95	25.40
1966	24.664	24.431	23.836	26.800	24.227	23.699	25.000	27.000	23.95	23.75	23.75	23.75	25.40
1967	24.516	24.287	23.737	26.800	24.056	23.554	25.000	27.000	23.51	23.25	23.25	23.25	25.40
1968	24.487	24.229	23.724	26.800	24.034	23.531	25.000	27.000	23.35	23.06	23.06	23.06	25.40
1969	24.313	24.011	23.553	26.800	23.737	23.274	25.000	27.000	23.41	23.04	23.04	23.04	25.40
1970	23.861	23.461	23.111	26.800	22.973	22.603	25.000	27.000	23.40	23.04	23.04	23.04	25.40
1971	23.535	23.148	22.927	26.800	22.653	22.325	25.000	27.000	23.50	23.16	23.16	23.16	25.40
1972	23.380	23.050	22.861	26.800	22.539	22.225	25.000	27.000	23.42	23.02	23.02	23.02	25.40
1973	23.391	23.073	22.887	26.800	22.585	22.262	25.000	26.612	23.17	22.71	17.92	24.34	25.40
1974	23.087	22.694	22.523	26.800	22.420	21.799	25.000	26.716	22.56	21.95	17.20	23.75	25.40
1975	22.911	22.522	22.258	26.800	22.439	21.659	25.000	26.573	22.39	21.74	17.06	23.65	25.40
1976	22.863	22.509	22.819	26.800	22.528	21.692	25.000	26.613	22.77	22.15	17.53	23.84	25.40
1977	22.597	22.266	22.594	26.800	22.290	21.521	25.000	26.561	23.18	22.69	17.24	24.99	25.40
1978	22.242	22.014	22.078	26.800	22.175	21.284	25.000	26.501	23.52	22.97	17.10	25.17	25.40
1979	22.459	22.100	21.884	26.800	22.436	21.372	25.000	26.570	23.59	22.70	17.45	25.20	25.40
1980	22.411	21.950	22.488	26.800	22.690	21.301	25.000	26.404	23.35	22.16	17.65	23.74	25.40
1981	22.302	21.712	22.191	26.800	22.572	21.091	25.000	26.176	23.69	22.10	18.17	25.12	25.40
1982	22.234	21.671	22.373	26.800	22.694	21.200	25.000	26.231	23.69	23.00	18.16	25.37	25.40
1983	22.053	21.581	22.934	26.800	22.679	21.141	25.000	26.300	23.24	22.41	16.52	25.59	25.40
1984[3]	22.122	21.698	22.902	26.800	22.763	21.219	25.000	26.445	23.24	22.54	17.28	25.41	25.40

[1] Including subbituminous coal.
[2] Includes transportation.
[3] Preliminary.
Note: See Thermal Conversion Factor Source Documentation.

Note discontinuity.

Thermal Conversion Factors: Coal and Coal Coke, 1949-1984 (Continued)

(Million Btu per Short Ton)

Year	All Coal						Coal Coke
		Consumption					
	Production	All Users	Electric Utilities	Nonelectric Utility	Imports	Exports	Imports and Exports
1949	24.945	24.831	24.047	24.985	25.00	26.76	24.80
1950	25.109	25.019	24.225	25.190	25.02	26.79	24.80
1951	25.039	24.847	23.960	25.066	25.03	26.85	24.80
1952	25.115	24.936	24.133	25.168	25.04	26.86	24.80
1953	25.167	25.042	24.182	25.316	25.05	26.88	24.80
1954	25.081	24.955	24.184	25.270	25.01	26.87	24.80
1955	25.220	25.023	24.213	25.376	25.00	26.91	24.80
1956	25.141	24.891	24.081	25.289	25.00	26.89	24.80
1957	25.236	24.955	24.116	25.413	25.00	26.91	24.80
1958	25.006	24.758	24.021	25.229	25.01	26.93	24.80
1959	24.935	24.771	24.029	25.305	25.01	26.93	24.80
1960	24.930	24.762	24.032	25.303	25.00	26.94	24.80
1961	24.873	24.699	23.998	25.274	25.00	26.94	24.80
1962	24.850	24.619	23.991	25.262	25.01	26.93	24.80
1963	24.853	24.589	23.961	25.262	25.01	26.89	24.80
1964	24.861	24.578	23.928	25.342	25.00	26.95	24.80
1965	24.794	24.525	23.837	25.334	25.00	26.97	24.80
1966	24.647	24.404	23.699	25.241	25.00	26.98	24.80
1967	24.494	24.250	23.552	25.165	25.00	26.98	24.80
1968	24.464	24.193	23.528	25.160	25.00	26.98	24.80
1969	24.296	23.971	23.273	25.083	25.00	26.98	24.80
1970	23.854	23.445	22.606	24.793	25.00	26.98	24.80
1971	23.535	23.134	22.329	24.779	25.00	26.98	24.80
1972	23.380	23.051	22.229	24.723	25.00	26.98	24.80
1973	23.389	23.071	22.246	24.919	25.00	26.60	24.80
1974	23.081	22.685	21.781	24.823	25.00	26.70	24.80
1975	22.907	22.510	21.642	24.777	25.00	26.56	24.80
1976	22.862	22.499	21.679	24.890	25.00	26.60	24.80
1977	22.602	22.268	21.508	24.721	25.00	26.55	24.80
1978	22.252	22.022	21.275	24.512	25.00	26.48	24.80
1979	22.466	22.103	21.364	24.640	25.00	26.55	24.80
1980	22.418	21.946	21.295	24.751	25.00	26.38	24.80
1981	22.312	21.712	21.085	24.506	25.00	26.16	24.80
1982	22.242	21.669	21.194	24.211	25.00	26.22	24.80
1983	22.059	21.574	21.133	24.110	25.00	26.29	24.80
1984[1]	22.127	21.694	21.213	24.230	25.00	26.44	24.80

[1] Preliminary.
Note: See Thermal Conversion Factor Source Documentation.

Thermal Conversion Factors: Other Energy Sources, 1949-1984

(Thousand Btu per Kilowatthour)

Year	Hydropower	Nuclear Power	Geothermal Energy [1]	Miscellaneous [2]
1949	15.033	[3]	[3]	15.033
1950	14.030	[3]	[3]	14.030
1951	13.641	[3]	[3]	13.641
1952	13.361	[3]	[3]	13.361
1953	12.889	[3]	[3]	12.889
1954	12.180	[3]	[3]	12.180
1955	11.699	[3]	[3]	11.699
1956	11.456	[3]	[3]	11.456
1957	11.365	11.629	[3]	11.365
1958	11.085	11.629	[3]	11.085
1959	10.970	11.629	[3]	10.970
1960	10.760	11.629	23.200	10.760
1961	10.650	11.629	23.200	10.650
1962	10.558	11.629	23.200	10.558
1963	10.482	11.877	22.182	10.482
1964	10.462	11.912	22.182	10.462
1965	10.453	11.804	22.182	10.453
1966	10.415	11.623	22.182	10.415
1967	10.432	11.555	21.770	10.432
1968	10.398	11.297	21.606	10.398
1969	10.447	11.037	21.606	10.447
1970	10.494	10.977	21.606	10.494
1971	10.478	10.837	21.655	10.478
1972	10.379	10.792	21.668	10.379
1973	10.389	10.903	21.674	10.389
1974	10.442	11.161	21.674	10.442
1975	10.406	11.013	21.611	10.406
1976	10.373	11.047	21.611	10.373
1977	10.435	10.769	21.611	10.435
1978	10.361	10.941	21.611	10.361
1979	10.353	10.879	21.545	10.353
1980	10.388	10.908	21.639	10.388
1981	10.453	11.030	21.639	10.453
1982	10.423	11.073	21.629	10.423
1983	10.445	10.905	21.290	10.445
1984[4]	10.445	10.905	21.303	10.445

[1] Consumed at electric utilities only.
[2] Consumed at electric utilities only. Factors shown apply to wood and waste, wind, photovoltaic, and solar thermal energy.
[3] Not Applicable.
[4] Preliminary.
[5] Estimated.
Note: See Thermal Conversion Factor Source Documentation.

Energy Equivalents and Price Deflators

One million Btu equals approximately:

- 90 pounds of coal production (1984)
- 120 pounds of oven-dried hardwood
- 8 gallons of motor gasoline or enough to move the average passenger car about 134 miles (1983 rate)
- 10 therms of natural gas (dry)
- 11 gallons of propane
- 1.2 days of per capita energy consumption (1984 rate)
- 2 months of dietary intake of a laborer
- 20 cases (240 bottles) of table wine

One million Btu of fossil fuels burned at electric utilities can generate about 100 kilowatthours of electricity, while about 300 kilowatthours of electricity generated at electric utilities can produce about one million Btu of heat.

One quadrillion Btu equals approximately:

- 45 million short tons of coal production
- 60 million short tons of oven-dried hardwood
- 1 trillion cubic feet of natural gas (dry)
- 170 million barrels of crude oil
- 470 thousand barrels per day of crude oil for one year
- 32 days of petroleum imports into the United States (1984 rate)
- 28 days of United States motor gasoline usage (1984 rate)
- 30 hours of world energy consumption (1983 rate)

One barrel of crude oil equals approximately:

- 15 days of petroleum consumption per person (U.S.)
- 5.6 thousand cubic feet of natural gas (dry)
- 0.26 short tons (or 520 pounds) of coal production
- 1,700 kilowatthours of electricity consumed

One short ton of coal equals approximately:

- 110 days of coal consumption per person (U.S.)
- 3.8 barrels of crude oil
- 21 thousand cubic feet of natural gas (dry)
- 6,500 kilowatthours of electricity consumed

One thousand cubic feet of natural gas equals approximately:

- 5 days of natural gas consumption per person (U.S.)
- 0.18 barrels (or 7.4 gallons) of crude oil
- 0.047 short tons (or 93 pounds) of coal production
- 300 kilowatthours of electricity consumed

One thousand kilowatthours (kWh) of electricity equal approximately:

- 38 days of electricity consumption per person (U.S.)
- 0.59 barrels of crude oil (although it takes about 1.8 barrels of oil to produce 1,000 kWh)
- 0.15 short tons (or 310 pounds) of coal production (although it takes about 0.47 short tons to produce 1,000 kWh)
- 3,300 cubic feet of natural gas—dry (although it takes about 10,000 cubic feet to produce 1,000 kWh)

Gross National Product (GNP) Implicit Price Deflators 1972=100

1949 ..... 52.49	1958 ..... 66.04	1967 ..... 79.06	1976 ..... 132.34
1950 ..... 53.56	1959 ..... 67.60	1968 ..... 82.54	1977 ..... 140.05
1951 ..... 57.09	1960 ..... 68.70	1969 ..... 86.79	1978 ..... 150.42
1952 ..... 57.92	1961 ..... 69.33	1970 ..... 91.45	1979 ..... 163.42
1953 ..... 58.82	1962 ..... 70.61	1971 ..... 96.01	1980 ..... 178.42
1954 ..... 59.55	1963 ..... 71.67	1972 ..... 100.00	1981 ..... 195.60
1955 ..... 60.84	1964 ..... 72.77	1973 ..... 105.75	1982 ..... 207.38
1956 ..... 62.79	1965 ..... 74.36	1974 ..... 115.08	1983 ..... 215.34
1957 ..... 64.93	1966 ..... 76.76	1975 ..... 125.79	1984 ..... 223.44

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Thermal Conversion Factor Source Documentation

PETROLEUM AND NATURAL GAS PLANT LIQUIDS

Asphalt. • 1949 forward: 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. • 1965 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. • 1949 forward: EIA adopted the Bureau of Mines thermal conversion factor of 4.326 million Btu per barrel as published by the Gas Processors Suppliers Association/Gas Processors Association in the *Engineering Data Book,* Ninth Edition, 1972.

Butane–Propane Mixture. • 1949 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."

Crude Oil and Lease Condensate, Production. • 1949 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, Imports. • 1949 forward: Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product and each 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."

Crude Oil and Refined Products, Exports. • 1949 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 "Petroleum Products, Exports" and "Crude Oil, Exports."

Crude Oil,Exports. • 1949 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. • 1949 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.

Distillate Fuel Oil. • 1949 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. • 1959 forward: EIA adopted the Bureau of Mines thermal conversion factor of 3.082 million Btu per barrel as published by the Gas Processors Suppliers Association/Gas Processors Association in the *Engineering Data Book,* Ninth Edition, 1972.

Ethane–Propane Mixture. • 1979 forward: EIA calculation of 3.308 million Btu per barrel based on an assumed mixture of 70 percent ethane and 30 percent propane. See "Ethane" and "Propane."

Isobutane. • 1949 forward: EIA adopted the Bureau of Mines thermal conversion factor of 3.974 million Btu per barrel as published by the Gas Processors Suppliers Association/Gas Processors Association in the *Engineering Data Book,* Ninth Edition, 1972.

Jet Fuel, Kerosene Type. • 1952 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 Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947-1985,* 1968.

Jet Fuel, Naphtha Type. • 1952 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. • 1949 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. • 1949 forward: EIA adopted the thermal conversion factor of 6.065 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Miscellaneous Products. • 1949 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, Annual, 1956.*

Motor Gasoline. • 1949 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 *Competition and Growth in American Energy Markets 1947-1985,* 1968.

Natural Gas Plant Liquids, Production. • 1949 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.

Natural Gasoline. • 1949 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.*

Petrochemical Feedstocks, Naphtha 400 degrees F or Less. • 1962 forward: Assumed by EIA to be 5.248 million Btu per barrel, equal to the thermal conversion factor for special naphtha. See "Special Naphtha."

Petrochemical Feedstock, Over 400 degrees F. • 1962 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. • 1962 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. • 1949 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 memorandum *Bureau of Mines Standard Average Heating Value of Various Fuels, adopted January 3, 1950.* 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.

Petroleum Products, Consumption. • 1949 forward: Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed, weighted by the quantity of each petroleum product consumed.

Petroleum Products, Consumption by Electric Utilities. • 1949 forward: 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. For 1960 and forward, the quantity of petroleum consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Industrial Users. • 1949 forward: 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. For 1960 and forward, the quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Residential and Commercial Users . • 1949 forward: 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. For 1960 and forward, the quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption for Transportation Use. • 1949 forward: 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. For 1960 and forward, the quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Exports. • 1949 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. • 1949 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.

Plant Condensate. • 1949 forward: Estimated to be 5.418 million Btu per barrel by EIA from data provided by McClanahan Consultants, Inc., Houston, Texas.

Propane. • 1949 forward: EIA adopted the Bureau of Mines thermal conversion factor of 3.836 million Btu per barrel as published by the Gas Processors Suppliers Association/Gas Processors Association in the *Engineering Data Book,* Ninth Edition, 1972.

Residual Fuel Oil. • 1949 forward: EIA adopted the thermal conversion factor of 6.287 million Btu per barrel as reported in the Bureau of Mines internal memorandum *Bureau of Mines Standard Average Heating Values of Various Fuels, adopted January 3, 1950.*

Road Oil. • 1949 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. • 1965 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 (aviation and motor) factor and was first published in the *Petroleum Statement, Annual, 1970.*

Still Gas. • 1949 forward: EIA adopted the Bureau of Mines estimated thermal conversion factor of 6.000 million Btu per barrel and was first published in the *Petroleum Statement, Annual, 1970.*

Unfinished Oil. • 1949 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 natural gasoline (see "Natural Gasoline") and first published in the *Annual Report to Congress, Volume 2, 1981.*

Wax. • 1949 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.*

NATURAL GAS

Natural Gas, Consumption. • 1949-1962: EIA adopted the thermal conversion factor of 1,035 Btu per cubic foot as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.* • 1963-1979: EIA adopted the thermal conversion factor calculated annually by the American Gas Association (AGA) and published in *Gas Facts,* an AGA annual. • 1980-1983: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity of natural gas consumed. Heat content and quantity consumed are from Form EIA-176. • 1984: Estimated to be the same as 1983.

Natural Gas, Consumption by Electric Utilities. • 1949-1972: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See "Natural Gas, Consumption." • 1973-1983: Calculated annually by EIA by dividing the total heat content of natural gas consumed at electric utilities by the quantity consumed at electric

utilities. The heat contents are from FERC Form 423 and predecessor forms and the quantities consumed are from Form EIA-759 and predecessor forms. • 1984: Estimated to be the same as 1983.

Natural Gas, Consumption by Nonelectric Utility Users. • 1949-1972: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See "Natural Gas, Consumption." • 1973-1983: Calculated annually by EIA by dividing the heat content of natural gas consumed by nonelectric utility consumers by the quantity of nonelectric utility natural gas consumed. Data are from Forms EIA-176, FERC Form 423, EIA-759, and predecessor forms. • 1984: Estimated to be the same as 1983.

Natural Gas, Dry Production. • 1949 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, Exports. • 1949-1972: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See "Natural Gas, Consumption." • 1973-1983: 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. • 1984: Estimated to be the same as 1983.

Natural Gas, Imports. • 1949-1972: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See "Natural Gas, Consumption." • 1973-1983: 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. • 1984: Estimated to be the same as 1983.

Natural Gas, Wet Production. • 1949-1983: Calculated annually by EIA by adding the heat content of natural gas, dry 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. • 1984: Estimated to be the same as 1983.

COAL AND COAL COKE

All Coal, Consumption by All Users. • 1949 forward: Calculated 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.

All Coal, Consumption by Electric Utilities Only. • 1949 forward: Calculated 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.

All Coal, Consumption by Nonelectric Utility Users. • 1949 forward: Calculated by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite consumed by nonelectric utility users by the sum of their respective tonnages.

All Coal, Exports. • 1949 forward: Calculated 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.

All Coal, Imports. • 1949 forward: Calculated 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.

All Coal, Production. • 1949 forward: Calculated 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.

Anthracite, Consumption by All Users. • 1949 forward: Calculated annually by EIA by dividing the sum of the heat content of anthracite production and imports less the heat content of anthracite exports, including shipments to U.S. Armed Forces overseas, by total anthracite consumed, adjusted for the quantity of anthracite stock changes and unaccounted for.

Anthracite, Consumption by Electric Utilities. • 1949-1972: EIA adopted the Bureau of Mines assumption that the average thermal conversion factor is equal to that for anthracite consumption (see "Anthracite, Consumption by All Users"). • 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 content and receipts are from FERC Form 423.

Anthracite, Consumption by Nonelectric Utility Users. • 1949-1972: EIA adopted the Bureau of Mines assumption that the heat content was equal to that of total anthracite consumption (see "Anthracite, Consumption by All Users"). • 1973 forward: Calculated annually by EIA by subtracting the total heat content of anthracite consumed at electric utilities from the total heat content of all anthracite consumed and dividing the resulting amount by the quantity of anthracite consumed by nonelectric utility users.

Anthracite, Imports and Exports. • 1949 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. • 1949 forward: Calculated annually by EIA by dividing the sum of the heat content of freshly mined anthracite (estimated to have an average thermal content of 25.40 million Btu per short ton) and the heat content of anthracite recovered from culm banks (estimated to have a thermal content of 19.00 million Btu per short ton) by the total quantity of anthracite production.

Bituminous Coal and Lignite, Consumption by All Users. • 1949 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, and by the residential and commercial sector and the transportation sector by the sum of their respective tonnages.

Bituminous Coal and Lignite, Consumption by Coke Plants: • 1949 forward: Estimated by EIA to be 26.80 million Btu per short ton based on input-output analysis of coal carbonization.

Bituminous Coal and Lignite, Consumption by Electric Utilities. • 1949-1972: EIA adopted the average thermal conversion factor of the Bureau of Mines which used the National Coal Association average thermal conversion factor for electric utilities calculated from Form FPC-1 and published in *Steam Electric Plant Factors,* a National Coal Association annual report. • 1973-1983: 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 Users. • 1949-1973: 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 1974-1983 period. • 1974 forward: Calculated by EIA by 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. • 1949-1973: 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 1974-1983 period. • 1974 forward: Calculated 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 sum total of the heat value was divided by the total volume of deliveries.

Bituminous Coal and Lignite, Consumption by Transportation Users: • 1949 forward: Assumed by EIA to be equal to the Btu conversion factor for "Bituminous Coal and Lignite, Consumption by Other Industrial Users."

Bituminous Coal and Lignite, Exports. • 1949-1972: Assumed by EIA to be all metallurgical coal and to have an average thermal content of 27.00 million Btu per short ton. • 1973 forward: Calculated annually by EIA by dividing the sum of the heat content of exported metallurgical coal (estimated to average 27.00 million Btu per short ton) and the heat content of exported steam coal (estimated to have an average thermal content of 25.00 million Btu per short ton) by the total quantity of bituminous coal and lignite exported.

Bituminous Coal and Lignite, Imports. • 1949 forward: EIA estimated the average thermal conversion factor to be 25.00 million Btu per short ton.

Bituminous Coal and Lignite, Production. • 1949 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 Coke, Imports and Exports. • 1949 forward: EIA adopted the Bureau of Mines estimate of 24.80 million Btu per short ton.

OTHER ENERGY SOURCES

Geothermal Energy (Consumed by Electric Utilities). • 1960-1981: Calculated 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 by EIA.

Hydroelectric Power. There is no generally accepted practice for measuring hydroelectric power thermal conversion rates. EIA has selected a rate that is equal to the prevailing heat rate factor at fossil fuel steam electric power plants. By using the heat rate factor, it is possible to evaluate fossil fuel requirements for replacing hydroelectric power production during periods of drought. Furthermore, it allows for better comparisons with certain other countries such as Norway where hydroelectric power is the principal means for producing electricity. The heat content of a kilowatthour of electricity produced, regardless of the generation process, is 3,412 Btu per kilowatthour. • 1949-1955: Assumed by EIA to be the weighted average annual heat rate for all fossil fueled steam-electric plants in the United States as published by EIA in *Thermal-Electric Plant Construction Cost and Annual Production*

Expenses—1981 and *Steam-Electric Plant Construction Cost and Annual Production Expenses—1978.* • 1956 through 1983: Assumed by EIA to be the weighted average annual heat rate for all fossil fueled steam-electric plants in the United States as published by EIA in *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.* • 1984: Estimated to be the same as 1983.

Nuclear Power. • 1957-1983: 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. • 1984: Estimated to be the same as 1983.

Photovoltaic and Solar Thermal Energy (Consumed by Electric Utilities). • 1984: Estimated by be the same as 1983 for "Wind Energy (Consumed by Electric Utilities)."

Wind Energy (Consumed by Electric Utilities). • 1983: Assumed by EIA to be the weighted average heat rate for all fossil fueled steam-electric plants in the United States as published by EIA in *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.* • 1984: Estimated to be the same as 1983.

Wood and Waste (Consumed by Electric Utilities Only). • 1949-1955: Assumed by EIA to be the weighted average annual heat rate for all fossil fueled steam-electric plants in the United States as published by EIA in *Thermal-Electric Plant Construction Cost and Annual Production Expenses—1981* and *Steam-Electric Plant Construction Cost and Annual Production Expenses—1978.* • 1956 through 1983: Assumed by EIA to be the weighted average annual heat rate for all fossil fueled steam-electric plants in the United States as published by EIA in *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.* • 1984: Estimated to be the same as 1983.

Appendix. Census Region Map

*U.S. GOVERNMENT PRINTING OFFICE: 1985-461-195:10177

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